

JRC 2019 - 2020 DETAILED WORK PLAN

Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
1. A new boost for jobs, growth and investment															
1.1. Agriculture and rural development															
1.1.a CAP implementation - develop efficient and innovative tools to implement agricultural legislation, considering the opportunities of big data, remote sensing and the free and open access to Copernicus satellite data; support the development of a technical framework for the monitoring approach introduced in 2018 and for the implementation in the pilot regions; support Member States in the design of their CAP Strategic Plans and provide support in assessing the relevance of the proposed measures to meet the nine specific objectives of the future CAP.															
9492 - MARS-FF JRC.D.5	496 - GTCAP Guidance and Tools for CAP implementation	GTCAP undertakes research activities to acquire knowledge and develop feasible methodologies relevant to the various inter-related schemes of the Common Agricultural Policy (CAP) regarding farmers' direct payments. This particularly concerns all aspects of the Integrated Administration and Control System of the CAP's Pillar I including the new 'greening' measures for biodiversity and climate benefits, and making appropriate links to harmonise with Pillar II, for example with regard to cross compliance.	JRC.D.5	1.1.a	AGRI	AGRI,AG RI,JRC	CLIMA ENV GROW NEAR REGIO	CAP-PRO - CAP subsidy paying agencies EU CC Agriculture - EU Candidate countries Competent Authorities for Agriculture EU MS Agriculture - EU Member States Competent Authorities for	01/01/2017 31/01/2021	CON-AA,CON-AA,INS-RS	20191	Towards a simplified and performant CAP	Compilation of the technical and scientific developments and their readiness for the uptake for the CAP 2020 reform Technical support to the negotiations upon request.	31/12/2019	JRC contributions to policy documents
												20201	Technical preparations for the 2020 CAP	Compilation of the technical and scientific developments and their readiness for the uptake for the CAP 2020 reform Technical support to the negotiations upon request.	31/12/2020
9492 - MARS-FF JRC.D.5	7442 - RURAL-DIGIT Rural digitalization	This is an underpinning and forward looking WPK focusing on the process or rural digitalization in the broadest sense. It focusses on supporting the uptake of new technologies and use of novel data sources and investigates what they can bring to farmers, rural communities, and landscape monitoring. On the farm, digitalization is impacting practices and decisions (e.g. use of drones, sensors & precision agriculture), farm management systems, as well as CAP compliance (e.g. digital dossier). In this WPK, methodological developments will focus on integrating information from smart surveying and sensor methods, while re-using existing data infrastructures such as the LPIS. Automated image recognition methods using deep learning will be tested and validated. These can be applied to control the certification of farm practices with geotagged imagery (e.g. verification of crop type, maintenance of hedgerow, etc.) and the use of data in farm management systems. COUPTAGE bundles the Copernicus data use expertise for the unit's application domain in agricultural monitoring and controls. It supports other WPs in the MARS-FF project with the integration of Copernicus Sentinel data streams and the application of big data analytics and novel methods in machine learning and geospatial statistics. In close interaction with DG GROW, the WP monitors and reports the effectiveness of the Copernicus data access, Copernicus services outputs and the Copernicus DIAS (and EuroHPC) data processing infrastructure for operational use in agriculture. The WP advises other relevant actors (e.g. DG AGRI, ESA, EEA, ESTAT) on Copernicus uptake in agriculture, requirements for new Copernicus space capacities and service elements, interfaces to other initiatives (e.g. LUCAS) and liaisons with international actors (e.g. GEOGLAM, CEOS, FAO). Methodological developments will also support the food security project of D5. Coordination with D6 "Earth Observation" project is secured under the Copernicus II AA. E1's JEODPP data and computing infrastructure is expected to facilitate internal experimentation.	JRC.D.5	1.1.a	AGRI	JRC,RTD	RTD		01/01/2019 31/12/2020	CON-IA,CON-IA,INS-UR	2019D1	Scientific peer review paper on integration of data sources to track phenology	This deliverable will report on the research activities within the LandSense project related to integrating data sources (social media, crowd-sourcing, RS) to track phenology.	31/12/2019	Journal contributions (Scopus)
											2020D1	Rural digitalization	Annual report on progress in the research in support of rural digitalization, supporting the uptake of new technologies and use of novel data sources and investigates what they can bring to farmers, rural communities, and landscape monitoring.	31/12/2020	Technical Reports
9492 - MARS-FF JRC.D.5	7443 - COUPTAGE Copernicus Uptake in Agriculture	COUPTAGE bundles the Copernicus data use expertise for the unit's application domain in agricultural monitoring and controls. It supports other WPs in the MARS-FF project with the integration of Copernicus Sentinel data streams and the application of big data analytics and novel methods in machine learning and geospatial statistics. In close interaction with DG GROW, the WP monitors and reports the effectiveness of the Copernicus data access, Copernicus services outputs and the Copernicus DIAS (and EuroHPC) data processing infrastructure for operational use in agriculture. The WP advises other relevant actors (e.g. DG AGRI, ESA, EEA, ESTAT) on Copernicus uptake in agriculture, requirements for new Copernicus space capacities and service elements, interfaces to other initiatives (e.g. LUCAS) and liaisons with international actors (e.g. GEOGLAM, CEOS, FAO). Methodological developments will also support the food security project of D5. Coordination with D6 "Earth Observation" project is secured under the Copernicus II AA. E1's JEODPP data and computing infrastructure is expected to facilitate internal experimentation.	JRC.D.5	1.1.a	AGRI	GROW,J RC	GROW	FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) EU MS Agriculture - EU Member States Competent Authorities for Agriculture WFP - World Food Program of the United Nations	01/01/2019 31/12/2020	CON-AA,INS-RS	1	Copernicus Uptake in Agriculture	Annual report on Copernicus data uptake and use issues in agricultural domain applications. Summarizes performance metrics derived from Copernicus data infrastructure measurements and analysis of events and trends, and their impact on operational use. Illustrates major progress on methodological developments in the domain and how these are evaluated by key end users of the project (both external stakeholders and internal JRC users). Outlines plans for the next phase and identifies risks and opportunities.	31/12/2019	Technical Reports
											2	Scientific peer review paper(s) on methodological developments and data uptake	Scientific peer review paper(s) on methodological developments and data uptake	31/12/2019	Journal contributions (Scopus)
											3	Copernicus Uptake in Agriculture	Annual report on Copernicus data uptake and use issues in agricultural domain applications. Summarizes performance metrics derived from Copernicus data infrastructure measurements and analysis of events and trends, and their impact on operational use. Illustrates major progress on methodological developments in the domain and how these are evaluated by key end users of the project (both external stakeholders and internal JRC users). Outlines plans for the next phase and identifies risks and opportunities.	31/12/2020	Technical Reports
											4	Scientific peer review paper(s) on methodological developments and data uptake	Scientific peer review paper(s) on methodological developments and data uptake	31/12/2020	Journal contributions (Scopus)
of the agricultural sector including assessment of the application of common bio-physical criteria for delimiting Areas with Natural Constraints (ANC); measure the effectiveness of the agricultural sector's contribution to reaching the environmental and climate targets set by EU and UN policies. This includes the work of the knowledge hub on water and agriculture, behavioural economics analysis and is closely linked to the work on climate change mitigation and adaptation under key orientation 3.1.2.b and key orientation 9.2.3.a.															
9488 - NatCap JRC.D.3	2204 - LANDMARK Soil function assessment for agricultural soils	This deliverable combines to related activities that are funded by the same H2020 call. The LANDMARK project provides the scientific evidence base to support the development of land based policies. Specifically, the project outcomes will include: 1) an on-farm Decision Support Tool (DST) for cost-effective soil management practices; 2) a schema for monitoring of soil quality and soil functions (i.e. primary productivity, nutrient management, carbon sequestration, water quality and quantity regulation, biodiversity) and 3) the ex- post and ex-ante assessments of existing and potential policy instruments, respectively. This work package also incorporates the activities of the ISQAPER project: Interactive Soil Quality Assessment in Europe and China for Agriculture and Environment. The ISQAPER project specifically targets soil quality information for agricultural land in Europe and 55% in China taking into consideration agricultural management effects. Both projects aim to derive and identify innovative soil quality indicators and develop a multilingual, farm-level Soil Quality Applications.	JRC.D.3	1.1.b	AGRI	RTD,RTD	ENV RTD	- Szent István University - UNIVERSITY OF ULSTER - WAGENINGEN UNIVERSITY - University of Copenhagen - University of Antwerp ETH Board - The Board of the Swiss Federal Institutes of Technology INRA France - Institut National de la Recherche Agronomique (INRA), France Teagasc - Irish Agriculture and Food Development Authority	01/05/2015 31/10/2019	CON-IA,CON-IA	3	Data warehouse	Long-term data-warehouse that will be housed and managed by the JRC under the ESDAC for storage of new data generated by the Landmark project (with associated metadata) (D2.3)	31/12/2019	Scientific information systems and
											5	Policy tools for functional soil management	This task will assess potential EU policy instruments aimed at incentivising the optimisation of soil functions and, where applicable, propose new policy options where current legislation or regulation is lacking. This will include both an ex-post and an ex-ante evaluation of various and potential EU policy tools or measures relating to soil functions and soil management. (D5.3)	31/12/2019	Science-for-policy reports
											6	Intercontinental shared learning on soil policies	This task will conduct an assessment of high-level policies relating to soil and land management in three contrasting continents, farming contexts and agroclimatic zones, and critically review which policy interventions have worked in each of the three jurisdictions and which have been less successful, as supported by empirical evidence. We will then assess the transferability / applicability of measures between continents. (D5.4)	31/07/2019	Article contribution to periodicals or to conference proceedings listed in SCOPUS
9492 - MARS-FF JRC.D.5	2210 - ENV4AGRI Environmental evaluation, tools and Indicators for Agriculture	ENV4AGRI contributes to the assessment of the agri-environmental conditions in Europe. This covers the development of methods and tools for the evaluation of environmental agricultural impacts of the food and farming sector including the provision of sustainability indicators at different levels (from farm to regional and national levels). It covers the assessment of the nitrogen cycle and the environmental impacts of nitrogen losses, the development of nitrogen budget tools, the assessment of ecosystem services delivered by agriculture, the assessment of the environmental sustainability of the farming system, and the coupling of bio-physical to agro-economic models to derive agri-environmental indicators for policy scenario assessments. Linkages to other agriculture related policies such as nature resources, climate and food systems are also considered. The work package will prepare tools necessary for relevant policies, in particular collecting and synthesizing knowledge on the effectiveness of interventions and assisting policy DGs with analysis in support to the CAP2020+. It will also strongly contribute to the Task Force on Reactive Nitrogen (UN-ECE CLRTAP) and the International Nitrogen Initiative (INI). Collecting pan-European benchmark data (for the parts dedicated to the Nitrogen cycle and Biodiversity environment) will be worked-out, together with relevant policy DGs	JRC.D.5	1.1.b	AGRI	JRC	CLIMA ENV ESTAT	EEA - European Environment Agency EU MS Agriculture - EU Member States Competent Authorities for Agriculture INRA France - Institut National de la Recherche Agronomique (INRA), France	01/01/2015 31/12/2020	INS-RS	201804	Contribution to the evaluation of the EU Biodiversity Strategy	The work-package will support the Commission effort to evaluate the EU Biodiversity Strategy for the decade 2010-2020. ENV4AGRI is chairing the pilot on agro-ecosystems which is coordinating EC services and Member States input, and will provide the related chapter for MAES (Mapping and Assessment of Ecosystems and their Services). This includes the assessment of conditions and trends of agro-ecosystems, as well as restoration of ecosystem services and will contribute to the baseline for the new 2030 biodiversity policy. In parallel, the work-package contributes to the KIP-INCA process through the provision of data and methodologies to account for ecosystem services related to agriculture (e.g. provision of Food, Feed and Fiber).	01/12/2019	JRC contributions to policy documents
											201901	Indicators and tools for agri-environmental assessment	Design, development and validation of indicators, support to baseline data elaboration (e.g. CAP Context and Impact indicators) related to the Nitrogen cycle and to Biodiversity / Landscape. Provision of data, model outputs and indicators at befitting spatial levels (through disaggregation tools) in order to improve measures targeting and evaluation of the food and farm sectors as well as nature policies. Improving the linkages between agro-economic and biophysical models: (a) further developing modules to quantify flows and processes relevant for environmental assessment; and (b) Inserting new farm practices into the modelling chain to quantify their environmental / climate impacts. Providing assistance for the implementation of the legal proposal of the CAP 2020+	01/12/2019	Technical Reports
											201902	Supporting the Task Force on Reactive Nitrogen	Research and assessment of the environmental impact of nitrogen flows in agri-food systems in support of the Task Force on Reactive Nitrogen (UN-ECE CLRTAP) and the International Nitrogen Initiative (INI). In particular chairing the Expert Panel on Nitrogen and Food and contribution to the Towards Integrated Nitrogen Management Systems project	01/12/2019	Journal contributions (Clarivate)
											201903	Collecting and synthesizing knowledge on the effectiveness of agri-environmental measures	Building the internal capacity and necessary collaboration with main practitioners in Europe using Knowledge Synthesis Methods (KSM) (meta-review, systematic review ...) and to support agri-environmental policy assessment. Developing the structure and protocol for rapid response to policy questions regarding the impact of farming practices on the environment. In addition, results of the KSM on farm practices will be used to enhance agro-economic models environmental analysis capacity.	01/12/2019	Technical Reports
											202001	Indicators and tools for agri-environmental assessment	Design, development and validation of indicators, support to baseline data elaboration (e.g. CAP Context, Impact indicators) related to the Nitrogen cycle and to Biodiversity / Landscape. Provision of data, model outputs and indicators at befitting spatial levels (through disaggregation tools) in order to improve measures targeting and evaluation of the food and farm sectors as well as nature policies. Improving the linkages between agro-economic and biophysical models: (a) further developing modules to quantify flows and processes relevant for environmental assessment; and (b) Inserting new farm practices into the modelling chain to quantify their environmental / climate impacts. Providing assistance for the implementation of the legal proposal of the CAP 2020+	01/12/2020	Technical Reports
											202002	Supporting the Task Force on Reactive Nitrogen	Research and assessment of the environmental impact of nitrogen flows in agri-food systems in support of the Task Force on Reactive Nitrogen (UN-ECE CLRTAP) and the International Nitrogen Initiative (INI). In particular chairing the Expert Panel on Nitrogen and Food and contribution to the Towards Integrated Nitrogen Management Systems project	01/12/2020	Science for Policy Briefs
											202003	Contribution to the evaluation of the EU Biodiversity Strategy	The work-package will support the Commission effort to evaluate the EU Biodiversity Strategy for the decade 2010-2020. ENV4AGRI is chairing the pilot on agro-ecosystems which is coordinating EC services and Member States input, and will provide the chapter related to trends in agroecosystem condition in the final synthesis assessment of the EU Biodiversity Strategy.	31/07/2020	Whole parts of policy documents

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											202004	Collecting and synthesizing knowledge on the effectiveness of agri-environmental measures	Building the internal capacity and necessary collaboration with main practitioners in Europe using Knowledge Synthesis Methods (KSM) (meta-review, systematic review ...) and to support agri-environmental policy assessment. Developing the structure and protocol for rapid response to policy questions regarding the impact of farming practices on the environment. In addition, results of the KSM on farm practices will be used to enhance agro-economic models environmental analysis capacity.	01/12/2020	Technical Reports

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156 - AgFuture JRC.D.4	5020 - AgriRegio Territorial aspects of agriculture in the EU	The analysis of agricultural policies requires taking into consideration all other policies that impact the resources used by agriculture including land, water and soil. For this integrated analysis the level of detail in modelling becomes a key driver for the quality and relevance of the results. Therefore a regional agricultural model with the capacity to provide spatial disaggregation of modelling results is key. Within the model platform of IMAP CAPRI plays that role. In the context of the continuous improvements of CAPRI this WPK will provide specific applications of the CAPRI model to policy areas such as biomass, water and soil. Moreover, together with its farm type module can evaluate the distributional impacts of policies to see insofar these contribute to a fairer distribution of impacts and resources across regions and farm types.	JRC.D.4	1.1.b	AGRI	JRC			01/01/2017 31/12/2020	INS-UR	4	Model ad-hoc versions	The CAPRI core model be modified in order to link the agricultural modelling platform to other policy domains such as water, erosion and biomass. In addition the necessary fixes and alterations for the synchronous development of the model chain with other models within the IMAP Modelling Platform will be developed an implemented. In particular the latter will apply during 2017 to the support to DG AGRI for the anticipation of the post 2020 CAP.	31/12/2019	Scientific information systems and databases
		5									Model ad-hoc versions	The CAPRI core model be modified in order to link the agricultural modelling platform to other policy domains such as water, erosion and biomass. In addition the necessary fixes and alterations for the synchronous development of the model chain with other models within the IMAP Modelling Platform will be developed an implemented. In particular the latter will apply during 2017 to the support to DG AGRI for the anticipation of the post 2020 CAP.	31/12/2020	Scientific information systems and databases	
9492 - MARS-FF JRC.D.5	5044 - AGSOL Soil: the foundation of agriculture	While soil is the essential natural resource for domesticated animal- and plant-based food production systems, it faces strong pressures partly owing to inappropriate agricultural practices and overuse. In many cases, farming practices associated with the production of biomass cause soil degradation and a loss of associated functions such as carbon sequestration, water retention, nutrient cycling and habitat. As functional soils are central to agriculture and bioeconomies, this WPK is well placed to contribute to policy debate on how farming can contribute to land degradation neutrality targets and SGD goals. The WPK will contribute to the design and analysis of the post 2020 CAP environmental impact through the development of modelling scenarios (soil erosion, carbon stocks and belowground biodiversity) and policy relevant indicators (CAP-context indicators, Agro-Environmental Indicators, etc). These assessments are underpinned by the analysis of pan-European primary data on the condition of soil in agricultural land (e.g. data collected through the LUCAS SOIL programme). The WPK will contribute to the discussions on the design of the post-2020 CAP by providing policy options on the climate change mitigation potential of agriculture and on the visible changes in soil condition as detected by LUCAS. The WPK will also explore how Sustainable Soil Management concepts could be integrated with policy development so that farming systems that can be maintained with minimal degradation of ecosystems and natural resources. The outcomes of the WPK are of interest to DG Environment (in the context of both the EU Thematic Strategies on Soil and Biodiversity) and to DG CLIMA, in relation the role of soil in climate change mitigation and adaptation. In addition, the causes of land degradation are often linked to a lack of awareness, education and technical support. In this context, the awareness raising activities of the SOIL-NACA WPK can contribute to developing soil-friendly farming. This activities of this WPK is closely linked to the RECARE and SOILCARE Indirect Actions. DG AGRI is proposing a European Joint Programme on agricultural soil management to overcome current fragmentation and unleash the potential of agricultural soils to contribute to climate change mitigation/adaptation, while preserving	JRC.D.3	1.1.b	AGRI	AGRI, JRC	CLIMA ENV ESTAT	- ALTERRA - Catholic University of Leuven - WAGENINGEN UNIVERSITY - UNIVERSITY OF BASEL - Colorado State University - UNIVERSITY COURT OF THE UNIVERSITY OF ABERDEEN FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) EEA - European Environment Agency INRA France - Institut National de la Recherche Agronomique (INRA), France KUL - Katholieke Universiteit Leuven OECD - Organisation for Economic Co-operation and Development (OECD)	01/01/2017 30/12/2020	CON-IA, INS-RS	4	Evaluation of the CAP from a soil perspective	Through analysis of LUCAS Soil data from 2009, 2012 and 2015, this deliverable will contribute to the review of the 2014-2020 CAP by assessing the changes in soil condition under agricultural management. The deliverable will deliver a state assessment on the basis of 2015 data and change between the survey dates in relation to LUCAS land use data and in-house datasets on threats to soil. Changes in soil condition with respect to organic carbon stocks and nutrient status will be presented. Data from LUCAS 2015 will underpin agri-environment and SDG indicators.	31/05/2019	Science-for-policy reports
		5									European Joint Programme on agricultural soil management	DG AGRI is proposing a European Joint Programme on agricultural soil management to overcome current fragmentation and unleash the potential of agricultural soils to contribute to climate change mitigation/adaptation, while preserving or increasing agricultural functions. The JPI will look at how good agriculture soil management can contribute to food security, climate change mitigation/adaptation and ecosystem services through the preservation of soil organic content and water retaining capacity. This deliverable will support AGRI through the provision of technical advice and scientific guidance on the implementation of the Programme on state-of-art technologies for mapping and soil sampling (physical, chemical and biological parameters -as in LUCAS) . The deliverable will also include the datasets available at European scale for the JPI. The activity makes visible reference to ESDAC, the European Soil Partnership node and other relevant soil activities of the JRC.	30/12/2020	Technical Reports	
		6									Future soil erosion and carbon stocks estimates based on land use change, policy and climate change scenarios	Incorporate the future land use scenarios (2050 projections), climate change scenarios (rainfall, temperature) and policy scenarios (Post 2020 CAP) in updating the future projections for soil erosion and soil organic carbon stocks. This includes a development of a dynamic modelling approach and production of datasets at European scale. The output of this research can potentially included in policy reports such as the DG AGRI Medium Term outlook	30/11/2020	Journal contributions (Clarivate)	
9492 - MARS-FF JRC.D.5	5807 - LIFT Low Input Farming and Territories: Integrating knowledge for improving ecosystem-based farming	The LIFT WPK aims at assessing the link among ecological approaches in farm management, economic performance and the provision of public goods. Increases in productivity and job creation are included in the analysis. More specifically, the strategic goal of the project is a better identification of low-input farming systems' characteristics, farmers' behaviour and systems' flexibility to improve the provision of private and public goods. To reach its aims, the project will pursue the following scientific and technological objectives: • Evaluate and compare the performance of various systems along a scale of input use intensity. • Understand the factors that contribute to the economic, environmental and social performance of these systems. • Suggest new private arrangements and/or new policy instruments to improve the performance.	JRC.D.5	1.1.b	AGRI	RTD	ENV		01/03/2018 28/02/2022	CON-IA	201901	First version of the LIFT farm typology	Typologies are groupings of farms having similar characteristics. Clustering farms in such a way is necessary in order to analyse results and draw conclusions on common mechanisms that can increase the development of ecological farming. A specific framework for farm typologies will be developed in LIFT, which will take into account existing typologies (e.g. the consolidated EUROSTAT typology) and existing nomenclature (low-input, organic, extensive, high value farming, agro-ecological etc.) and will particularly address the degree to which farms adopt ecological practices. A first version of the typology will be available at Month 16.	31/08/2019	JRC technical reports

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568 - WEFE Nexus JRC.D.2	6319 - WEFE - Agriculture WEFE - Water and Agriculture	<p>The Task Force on Water and Agriculture launched by the two Commissioners for Agriculture and Water intends to develop a long-term transition to sustainability for EU agriculture with regard to water issues. The action plan prepared by DG AGRI and DG ENV identifies short-term actions to be implemented in 2017-2019 including promotion of investments, review of cross-compliance and rural development measures, and the set-up of a knowledge transfer and innovation hub. The latter is proposed as a task for the JRC to disseminate existing knowledge on water trends and best agricultural practices and steer future knowledge developments. Forthcoming policy evaluation and implementation, e.g. the second the Water Framework Directive River Basin Management Plans or the formulation and implementation of the new Common Agricultural Policy beyond 2020 would benefit from pooling of knowledge.</p> <p>The Work Package on Water and Agriculture responds to these policy needs. The truly cross-unit work will gather activities such as an improved description of irrigation efficiency in biophysical and agro-economic models, assessments of crop water productivity and impacts of water stress on crop growth, impacts of fertilization scenarios on water quality and ecosystems, identification of alternative practices for agricultural water management. It will analyse region-specific targets for the reduction of multiple pressures on water bodies, seeking trade-offs between costs of measures, losses from limitations to agricultural production, and benefits in terms of environmental objectives and ecosystem services. The analysis will focus particularly on point and diffuse pollution from agriculture and urban areas. It will evaluate the potential of certain types of investments in Europe to deliver multiple benefits along the agriculture dimensions while contributing to the reduction of pressures on waters. Applications would use case studies across Europe and beyond, including the Mediterranean region and African countries. Disciplinary models will be enhanced to better account for impacts of varying water availability, such as an improved and updated water module in the agro-economic model CAPRI, the assessment of the impacts on agricultural production through crop growth models, as well as linking CGE economic models with water balance models, e.g. for one or more African countries.</p>	JRC.D.5	1.1.b	AGRI ENV	ENV,JRC	CLIMA DEVCO ENV NEAR RTD SANTE	<p>FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO)</p> <p>ICPDR - International Commission for the Protection of the Danube River</p> <p>OECD - Organisation for Economic Co-operation and Development (OECD)</p> <p>UNEP MAP - Barcelona Convention for the Protection of the Mediterranean Sea Against Pollution (United Nations Environment Programme for the Barcelona Convention)</p>	01/01/2018 31/12/2020	CON-AA,CON-IA,INS-RS	D201901	Implementation and evaluation of the Water Agriculture Knowledge Hub	The Knowledge Hub on Water & Agriculture will be operated for the first year during 2019. In this period, focus will be on data and information acquisition, partnership development, and knowledge analysis and delivery. It will involve the acquisition of information on trends and variability in agricultural water demand and availability, and on the use, stocks, flows, balances and pollution hot spots of nitrogen and phosphorous fertilizers and pesticides in agricultural regions. It will provide syntheses of evidence including thematic or geographical story maps (including short texts, pictures, maps and graphs) on specific key issues/topics presented in dedicated web pages. A first review of the acceptance and added-value of the Knowledge Hub will be performed, resulting in recommendations for the future development and operation, taking into account also the policy needs of the coming years for further operation. The deliverable contributes directly to project deliverable 2019_01.	16/12/2019	Science-for-policy reports
											D201902	Evaluation of policy scenarios of Water-Agriculture policies with integrated tailored sectoral models	The review, adaptation, and enhancement of sectoral models in agriculture and water management, such as biophysical crop growth models (e.g. WOFOST), agro-economic models (e.g. CAPRI), and water balance models (e.g. LISFLOOD) that took place in 2018 allows now in 2019 to run tailored scenarios exploring impacts and adaptation options of a varying water availability on agriculture, with focus on yield & production as well as economic and environmental impacts. If necessary, further refinements will be implemented, and the robustness and policy relevance of the results will be evaluated. Results will be published as scientific publications and, in dialogue with relevant policy DGs (e.g. AGRI, ENV), in policy reports. The deliverable contributes directly to the overarching project-level deliverable 2019_02.	30/11/2019	Journal contributions (Clarivate)
											D201903	Evaluation of the EU water acquis from a WEFE Nexus perspective	This deliverable will produce evidence on how consideration of food-energy security and sustainability as well as the services provided by aquatic ecosystems may contribute to a more effective implementation of the EU Water Acquis. The work is expected to contribute to the evaluation of the Water Framework Directive that the Commission must undertake according to Art. 19 of Dir. 2000/60/EC. It will analyze in a Nexus context the relationships between water status, anthropogenic pressures and their socioeconomic drivers, and will identify trends in food and energy production, land and water use, and objectives in sectoral legislation (e.g. Common Agricultural Policy), potentially conflicting with the preservation and restoration of aquatic ecosystems.	02/12/2019	Journal contributions (Clarivate)
											D201904	Scientific support to the implementation of the Nitrates Directive "concerning the protection of waters against pollution caused by nitrates from agricultural sources"	Report on the assessment of the the quality and the adequacy of monitoring programmes and networks in place in Member States, including eventual gaps in Nitrate Vulnerable Zones designation, an analysis of agricultural pressures to identify areas of the Member States territories that may contribute to nitrate pollution and eutrophication, the assessment of water quality as concerns nitrates concentrations in surface water and groundwater.	31/12/2019	Technical Reports
											D202001	Coordination of the Water - Agriculture Knowledge Hub	Focus of the Knowledge Hub will be on data and information acquisition, partnership development, and knowledge analysis and delivery. It will involve the acquisition of information on trends and variability in agricultural water demand and availability, and on the use, stocks, flows, balances and pollution hot spots of nitrogen and phosphorous fertilizers and pesticides in agricultural regions. It will provide syntheses of evidence including thematic or geographical story maps (including short texts, pictures, maps and graphs) on specific key issues/topics presented in dedicated web pages.	31/12/2020	Science for Policy reports
											D202002	Policy analysis for a case study in Africa	Based on the model development which integrates economic and hydrological models for specific basin, the deliverable will provide a policy analysis report for a case study in Africa (e.g. Senegal River basin), including an analysis of regional agricultural, water stress and food security issues. The deliverable contributes directly to the project-level deliverable 2012_02.	31/05/2020	Science for Policy reports
											D202003	Best practices for water management under a WEFE Nexus perspective	This deliverable will produce evidence on best practices in the field of water and agriculture provided by e.g. low-input agriculture and agroecology, energy and nutrient recovery from wastewater treatment, water reuse, nature-based solutions for water harvesting and flood mitigation. Evidence will include European maps of implementation favorability for different measures, estimation of costs, effective and benefits, and constraints to implementation related to capacity, governance and community fit. The material will be organized in appropriate form in the Water-Agriculture Knowledge Hub.	31/12/2020	Technical Reports
											D202004	Scientific support to the implementation of the Nitrates Directive "concerning the protection of waters against pollution caused by nitrates from agricultural sources"	Report on the assessment of the the quality and the adequacy of monitoring programmes and networks in place in Member States, including eventual gaps in Nitrate Vulnerable Zones designation, an analysis of agricultural pressures to identify areas of the Member States territories that may contribute to nitrate pollution and eutrophication, the assessment of water quality as concerns nitrates concentrations in surface water and groundwater.	31/12/2020	Technical Reports
9492 - MARS-FF JRC.D.5	6408 - FALSA Farm level tools for sustainable agriculture	<p>The CAP priority to promote and measure environmental sustainability and climate action will be implemented by decisions made at regional and MS level. However, the farmer must respect common operational management decisions that influence farm environmental and climate performance; therefore. The FALSA project is aiming at identifying best practices for performance-oriented assessment of environmental impacts at farm level, harmonious with the requirements for compliance checks, in reference to the CAP basic conditionality. The project activities are to:</p> <p>develop calculation methods for environmental indicators according to EU monitoring and</p>	JRC.D.5	1.1.b	AGRI	JRC	CLIMA ENV		01/01/2018 31/12/2020	INS-UR	20191	Scaling up to farm level	Scaling environmental indicators data from NUTS2 to farm level: analysis on contents, collection and re-use of these data within the IACS, with the support of case studies after a meta-review of farming practices impacts on the environment based on scientific literature and technical agronomical information, in view to establish robust and possibly quantitative evidence of these effects	31/12/2019	JRC technical reports
											20201	the basic conditionality and performance	Technical analysis on how compliance checks and performance measurements to support implementation of the conditionality	31/12/2020	Science for Policy reports
9492 - MARS-FF JRC.D.5	7402 - LANDSUPPORT Development of Integrated Web-Based Land Decision Support System Aiming Towards the Implementation of Policies for Agriculture and Environment	The objective of LANDSUPPORT is the construction of a web-based smart geoSpatial Decision Support System (S-DSS), which shall provide a powerful set of tools devoted to (i) support sustainable agriculture/forestry, (ii) evaluate trade-off between land uses (including spatial planning) and (iii) contribute to implementation, impact and delivery of about 20 European land policies and also selected 2030 UN Sustainable Development Goals including climate change mitigation	JRC.D.3	1.1.b	AGRI	RTD	ENV ESTAT REGIO		01/05/2018 31/10/2021	CON-IA	202005	Report on the DSS performance on EU, country, regional and local scales	Test the LANDSUPPORT tool in terms of (i) its ability to achieve EU policies when applied at EU scale (including 7th Environmental Action Plan; COM 2006/231, Dir 2000/60/EC; Dir 2007/2/EC) and (ii) 2030 SDG's land policies of both EU and UN agenda (SDG 2,3,13,15), with special emphasis to the key SDG15.3, "achieving a land degradation-neutral world" (LDN) and climate change (CC) mitigation goals.	30/06/2021	Technical Reports
9500 - INTEGRATE JRC.D.4	7536 - INTEGRATE-FOOD SYST. Modelling the Food Systems	<p>INTEGRATE-FS will integrate relevant elements of the agro-food system into the agro-economic model CAPRI to perform sustainability assessment EU policies from a food system perspective. INTEGRATE-FoodSyst will tackle areas currently not integrated in the agro-economic modelling tools at JRC: nutrition and health, food loss and wastes, crop production and farm-level management. Food production, processing, distribution and consumption is regulated by several independent policy areas, targeting objectives for agriculture, rural development, environment, food safety and security, and the food industry. The capability for integrated analysis of them is a prerequisite for ensuring balanced policy assessment. The WPK builds on existing knowledge and tools available at JRC adding value to so-far dispersed work, in-line with the objective of the INTEGRATE project. Work will be carried out in four distinctive tasks: (i) Nutrition and health: Integrates the analysis of nutrition-based health outcomes to allow for the assessment of policies aimed at achieving health targets, e.g. national reduction targets for the risk of diet-related non-communicable diseases. A suitable health effect model will be selected, possibly improved by expanding the diseases covered. A nutrition component will be developed in CAPRI, and relevant policy scenarios will be designed and economically evaluated. (ii) Food loss and waste: Expands the market module of CAPRI to incorporate demand effects of food waste reduction policies and</p>	JRC.D.5	1.1.b	AGRI	JRC	CLIMA ENV GROW JRC SANTE		01/01/2019 31/12/2020	CON-IA,INS-UR	2019D1	Food System Sustainability Assessment: integrating agricultural production, food waste with nutrition and health outcomes – Interim report	This report describes approaches for linking nutrition/health aspects, food losses and wastes and crop production and agro-management into the agro-economic model CAPRI. It will give an overview of models used and the interfaces developed as well a first indication of possible policy options that will be tested during the second year with the integrated model tool.	31/12/2019	Technical Reports
											2020D1	Food System Sustainability Assessment: integrating agricultural production, food waste with nutrition and health outcomes – Final report	This report describes the agro-economic model CAPRI including modules for integrating nutrition/health aspects, food losses and wastes, demand for sustainable agricultural production methods and crop production and agro-management into the agro-economic model CAPRI. The report will evaluate the sustainability of policy options for the EU food system along different sustainability dimensions.	31/12/2020	Science for Policy reports

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<p>1.1.c Agricultural production, markets and trade - analyse the competitiveness, performance and trade relations of the European agri-food sector including the food supply chain; provide model-based analysis of policy options for the CAP beyond 2020 throughout the legislative process, considering also the impact of increased subsidiarity, including model maintenance and improvement, increased model integration to allow coherent multi-dimensional analysis at different scales; forecast crop yields, production and demand and analyse the resilience of the market with respect to shocks caused by extreme events; increase market transparency and food security in Europe (related work on global food security is covered under key orientation 9.2.2).</p>															
156 - AgFuture JRC.D.4	795 - AgriTrade Agriculture, trade and the global economy	AgriTrade assesses the impacts of agricultural, climate and trade policies on the EU and global agricultural market. The assessments are based on comprehensive databases, advanced economic modelling tools (mainly Computable General Equilibrium models - CGE) and statistical methods, supporting in particular the main customer DG AGRI (also financed via administrative arrangement, see WPK3349).	JRC.D.4	1.1.c	AGRI	JRC	CLIMA DEVCO RTD SANTE TRADE	- LandbouwEconomisch Instituut B.V.	01/01/2014 31/12/2020	INS-RS	7	Models and database maintenance and development	To anticipate the needs related to the AA iMAP9 and iMAP 10 this deliverable will keep the CGE models currently used within the AA under constant maintenance, keeping the database up to date, updating and improving the parameters used in the models. In addition, base don the most advanced literature and in cooperation with relevant external experts, this deliverable will focus on the gaps existing in currently used CGE models and try to fill them adopting the most advanced modelling techniques.	31/12/2020	JRC technical reports
156 - AgFuture JRC.D.4	922 - AgriFarm Agricultural economics and policy analyses at micro and regional scale	<p>The main objectives of this WPK are to provide policy support in areas of farm level economic and environmental impacts of agricultural policies in EU and selected non-EU countries. This WPK is part of the yearly policy support provided to DG AGRI based on the iMAP4AGRI administrative arrangements which will last until the end of 2020. This WPK includes two main areas of policy support:</p> <ul style="list-style-type: none"> - Farm level policy analyses - Ag-hoc policy support <p>1) Farm level policy analyses are performed primarily using IFM-CAP farm level model that allows studying policy effects for the EU farming population and across different farming systems in EU regions. This modelling approach allows a flexible assessment of a wide range of farm-specific policies, reflect the full heterogeneity of EU farms in terms of policy representation and farm structural impacts and permit a detailed analysis of different farming systems in EU and their responses to policies.</p> <p>2) Various ad-hoc policy support related to case studies of CAP analyses and agricultural policies implemented in EU and non-EU countries are undertaken within AgriFarm to allow responding to the emergent policy research needs. The main activities cover the analyses of the CAP reform effects in the EU as well as policy impacts in selected non-EU regions, such as the Western Balkans, EU neighbour countries, and other areas.</p> <p>In addition to covering part of the yearly policy support provided to DG AGRI based on the iMAP4AGRI administrative arrangements until end of 2020, the WPK encompasses a planned</p>	JRC.D.4	1.1.c	AGRI	JRC	DEVCO		29/06/2013 31/12/2022	CON-IA,INS-RS	10	Methodological application of innovative individual decision making to IFM-CAP	The application of the available agricultural and biophysical data for innovative individual decision making applications in IFM-CAP in order to enhance the decisions to support for the European agricultural policies done in the context of MIND STEP project	31/12/2022	Science for Policy reports
											5	Agricultural policies in Western Balkans	Agricultural policies and EU accession process in Western Balkans. This deliverable is part of the yearly policy support provided to DG AGRI based on the iMAP4AGRI administrative arrangement which will last until the end 2020.	31/12/2019	Science-for-policy reports
											7	Farm level impact of CAP reform	Policy impact simulations of ex-ante selected agricultural measures at farm-household level, through the IFM-CAP and/or CAPRI-FARM models. Special focus: Impact of CAP reform on farms/farm-types in the EU. This deliverable is part of the regular policy support provided to DG AGRI based on the iMAP4AGRI administrative arrangement which will last until the end 2020. The detailed content of deliverable will be decided based on DG AGRI needs and based on the CAP negotiations and developments.	31/12/2019	Science-for-policy reports
											8	Agricultural policies in Western Balkans	Agricultural policies and EU accession process in Western Balkans This deliverable is part of the yearly policy support provided to DG AGRI based on the iMAP4AGRI administrative arrangement which will last until the end 2020.	31/12/2020	Science-for-policy reports
											9	Farm level impact of CAP reform	Policy impact simulations of ex-ante selected agricultural measures at farm-household level, through the IFM-CAP model. Special focus: Impact of CAP reform on farms/farm-types in the EU. This deliverable is part of the regular policy support provided to DG AGRI based on the iMAP4AGRI administrative arrangement which will last until the end 2020. The detailed content of deliverable will be decided based on DG AGRI needs and based on the CAP negotiations and developments.	31/12/2020	Science-for-policy reports
9492 - MARS-FF JRC.D.5	1016 - AGRI4CAST Crop Production Monitoring and Forecasting	<p>AGRI4CAST provides DG AGRI with timely, independent, and high-quality information and forecasts of crop development, agricultural yields and production in Europe and neighbouring regions, based on specialist analyses using near-real time weather observations, remote sensing and biophysical modelling. The information provided is used for decision making in agricultural markets and other aspects of the CAP, implementing Article 22 of REG(2013) 1306 on Monitoring Agricultural Resources (MARS). The MARS Crop Yield Forecasting System (MCYFS) delivers tailored data and modelling capacities throughout the growing season. Operational aspects are outsourced through a co-delegation from DG AGRI. The JRC provides matching staff for agricultural analysts and experts.</p> <p>The most visible AGRI4CAST deliverables are the monthly JRC MARS Bulletins, for Commission-internal use (e.g. by DG AGRI), and which are also published and well received by private sector stakeholders, agricultural researchers and the general public. In addition, ad-hoc reports are prepared following specific requests from DG AGRI, typically to provide detailed information on specific regions or member states with agricultural concerns (e.g. due to extreme weather conditions) which require a very rapid (a few days), in-depth specialist analysis.</p> <p>AGRI4CAST progressively refines and updates the MARS Crop Yield Forecasting System. The INNOVCROP work package underpins the policy support of the AGRI4CAST WPK through by forecasting crop yields for EU and neighbourhood.</p> <p>Exploring, developing, and analysing novel methodologies, models, and datasets, and assessing their relevance, effectiveness, and robustness, will enhance the forecasting capacity of the MARS Crop Yield Forecasting System (MCYFS). Maintaining the System at the scientific state of art is indispensable to ensure credibility and quality policy support. Rapid scientific developments include novel seasonal meteorological forecasting products of the ECMWF, recent improvements in crop growth modelling as achieved by the AgMIP community (Agricultural Model Intercomparison & Improvement Project), or new satellite-based datasets of Copernicus. These are opportunities for improving the MCYFS that require dedicated research and adaptation to demonstrate true added value for use within the MCYFS. INNOVCROP thus facilitates the transfer of cutting-edge research into application and operation for direct policy support.</p>	JRC.D.5	1.1.c	AGRI	AGRI, JRC	ENER ENV ESTAT REGIO	FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) EEA - European Environment Agency EFSA - European Food Safety Authority EU MS Agriculture - EU Member States Competent Authorities for Agriculture GEO - The Group on Earth Observations	01/01/2016 31/12/2020	CON-AA,INS-RS	2019D1	Monthly MARS Bulletins 2019	Monthly MARS Bulletins on "Crop Monitoring in Europe" covering the EU and some neighbouring countries, plus MARS Bulletins "Crop Monitoring in the EU neighbourhood" (frequency to be determined in consultation with AGRI) covering Russia, Turkey, Ukraine, Kazakhstan and Northern Africa, with timely information on the state of crop development and yield forecasts for major crops, in two versions (COM-internal version for DG AGRI; public version and supplementary information on the internet).	31/12/2019	Science-for-policy reports
											2019D2	Ad-hoc reports 2019	Ad-hoc reports on analyses conducted following requests from DG AGRI. These are typically requests to provide detailed information on specific regions or member states with agricultural concerns, e.g. due to extreme weather conditions, which require a very rapid (a few days), yet in-depth specialist analysis.	31/12/2019	Science for Policy reports
											2020D1	Monthly MARS Bulletin 2020	Monthly MARS Bulletins on "Crop Monitoring in Europe" covering the EU and some neighbouring countries, plus MARS Bulletins "Crop Monitoring in the EU neighbourhood" (frequency to be determined in consultation with AGRI) covering Russia, Turkey, Ukraine, Kazakhstan and Northern Africa, with timely information on the state of crop development and yield forecasts for major crops, in two versions (COM-internal version for DG AGRI; public version and supplementary information on the internet).	31/12/2020	Science for Policy reports
											2020D2	Ad hoc reports 2020	Ad-hoc reports on analyses conducted following requests from DG AGRI. These are typically requests to provide detailed information on specific regions or member states with agricultural concerns, e.g. due to extreme weather conditions, which require a very rapid (a few days) but in-depth specialist analysis.	31/12/2020	Science for Policy reports
											9492 - MARS-FF JRC.D.5	4911 - INNOVCROP Innovation in Crop Monitoring and Modelling		JRC.D.5	1.1.c
D202001	Towards a new generation Crop Yield Forecasting System	Scientific publications and technical reports demonstrating added-value of improvements to the MARS Crop Yield Forecasting System, including: evaluation of benefits of an increased spatial resolution of the forecasting system; improved crop-specific yield forecasting with high-resolution remote sensing data; evaluation of ensemble crop modelling for seasonal yield forecasting.	15/12/2020	Journal contributions (Clarivate)											
156 - AgFuture JRC.D.4	4916 - AgriMarkets Perspectives and resource challenges for global agricultural markets	<p>This work package focuses on the prospective analysis of EU and global agricultural commodity markets. It includes the work necessary to develop and expand the Aglink-Cosimo model used for the Medium-term prospects for EU agricultural markets and income 2015-2025, namely. It also includes research work with the CAPRI model for the assessment of economic challenges related to climate change from an agriculture sector perspective.</p> <p>Aglink-Cosimo is a global recursive-dynamic model developed by the OECD and the FAO in joint collaboration. The EU Commission is an official model user, and provides the OECD on a yearly basis a hard view on the most-likely developments of EU agricultural markets. Within this WP relevant model developments are provided, such as the provision of a module for the stochastic</p>	JRC.D.4	1.1.c	AGRI	JRC	CLIMA ENV	FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) OECD - Organisation for Economic Co-operation and Development (OECD)	01/01/2017 31/12/2020	INS-RS	ID4	EU Market Outlook and scenario analysis	The Aglink-Cosimo model is further developed in order to assess the EU-Outlook work (institutional contribution to WPK5000 "iMAP-10") by performing scenario analysis, both from a deterministic and stochastic view point. This includes going into new areas of work such as (non-exhaustive list): environmental indicators, medium to long term analysis of agricultural markets, dietary patterns and weather anomalies.	31/12/2019	Scientific information systems and databases
											ID5	EU Market Outlook and scenario analysis	The Aglink-Cosimo model is further developed in order to assess the EU-Outlook work (institutional contribution to WPK5000 "iMAP-10") by performing scenario analysis, both from a deterministic and stochastic view point. This includes going into new areas of work such as (non-exhaustive list): environmental indicators, medium to long term analysis of agricultural markets, dietary patterns and weather anomalies.	31/12/2020	Scientific information systems and databases

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156 - AgFuture JRC.D.4	5000 - iMAP4agri integrated Modelling platform for Agro-economic and resource Policy analysis	<p>The JRC Agro-Economic Modelling Platform iMAP has developed into a cornerstone of the JRC economic and environmental modelling capacity. Since nine years it receives key funding from DG Agriculture and Rural Development.</p> <p>The iMAP administrative arrangements take account of DG AGRI being an important user of quantitative economic analysis based on modelling tools, both for its market analysis and for its domestic and trade policy analysis. The use of models has now become an indispensable tool in the preparation and negotiation of policy decisions (e.g. Common Agricultural Policy (CAP) reform, bilateral/multilateral negotiations, environmental and rural development analysis, climate change discussions etc.). Validated economic models are crucial for providing a scientific basis for the evaluation and further design of EU policies. Databases provide the necessary input to ensure the reliability and consistency of modelling tools employed for agricultural policy analysis.</p> <p>The 10th edition of the AA with DG AGRI (now called iMAP4agri) will cover three and a half years, allowing for a better planning and execution of the agreed work programme. With a total budget of 7.8 Mio Euros, it provides 12 FTEs and about 1 Mio Euros specific credits per year.</p> <p>The main objective of iMAP4agri is to further contribute to the Agro-Economic Modelling Platform to support the conception, management, evaluation and analysis of the CAP.</p> <p>The research and policy support activities to be carried out by JRC concern in particular (i) the in-house capacity and expertise with regards to modelling tools, (ii) the development of a fully operational database management system, (iii) the update and validation of models, (iv) the development of the models, (v) the development of agri-environmental indicators and the linkage of economic and bio-physical models, and (vi) the implementation and use of quantitative tools for commodity market and agricultural policy analysis (including rural development and agri-environment); training on modelling and the organisation of workshops. iMAP4agri covers also the monitoring of the weather impact on the main producing grain areas in the European Neighbourhood and issue consequent short term forecasts of crop productions availability in form of Crop Monitoring Bulletins along the growing season making use of the MARS Crop Yield Forecasting System. Crops of primary interest are wheat, maize, barley, rapeseed and sugar beet.</p>	JRC.D.4	1.1.c	AGRI	AGRI	CLIMA ENV		12/07/2017 31/12/2020	CON-AA	06	Interim Report No 3	The work carried out consists in the maintenance, development and use of three economic models AGLINK-COSIMO and CAPRI as well as AGMEMOD, the general equilibrium model (MAGNET) as well as the farm model IFM-CAP. The operational back-up to DG AGRI for economic and policy analysis in its multiple dimensions (e.g. country, commodity coverage, geographical resolution, policy instruments) includes the impact of agriculture on jobs and growth; on environment and climate change; on commodity markets.	31/03/2019	JRC technical reports
											07	Interim Report No 4	The work carried out consists in the maintenance, development and use of three economic models AGLINK-COSIMO and CAPRI as well as AGMEMOD, the general equilibrium model (MAGNET) as well as the farm model IFM-CAP. The operational back-up to DG AGRI for economic and policy analysis in its multiple dimensions (e.g. country, commodity coverage, geographical resolution, policy instruments) includes the impact of agriculture on jobs and growth; on environment and climate change; on commodity markets.	30/09/2019	JRC technical reports
											08	MARS EU neighbourhood Bulletins 2019	The WP will produce MARS Bulletins "Crop Monitoring in the EU neighbourhood" covering Russia, Belarus, Ukraine, Kazakhstan and Northern Africa with timely information on the state of crop development and yield forecasts for the major crops.	31/12/2019	Science-for-policy reports
											09	Interim Report No 5	The work carried out consists in the maintenance, development and use of three economic models AGLINK-COSIMO and CAPRI as well as AGMEMOD, the general equilibrium model (MAGNET) as well as the farm model IFM-CAP. The operational back-up to DG AGRI for economic and policy analysis in its multiple dimensions (e.g. country, commodity coverage, geographical resolution, policy instruments) includes the impact of agriculture on jobs and growth; on environment and climate change; on commodity markets.	31/03/2020	JRC technical reports
											10	Interim report No 6	The work carried out consists in the maintenance, development and use of three economic models AGLINK-COSIMO and CAPRI as well as AGMEMOD, the general equilibrium model (MAGNET) as well as the farm model IFM-CAP. The operational back-up to DG AGRI for economic and policy analysis in its multiple dimensions (e.g. country, commodity coverage, geographical resolution, policy instruments) includes the impact of agriculture on jobs and growth; on environment and climate change; on commodity markets.	30/09/2020	JRC technical reports
											11	MARS EU neighbourhood Bulletins 2020	The WP will produce MARS Bulletins "Crop Monitoring in the EU neighbourhood" covering Russia, Belarus, Ukraine, Kazakhstan and Northern Africa with timely information on the state of crop development and yield forecasts for the major crops.	31/12/2020	Science-for-policy reports
											12	Final report	The work carried out consists in the maintenance, development and use of three economic models AGLINK-COSIMO and CAPRI as well as AGMEMOD, the general equilibrium model (MAGNET) as well as the farm model IFM-CAP. The operational back-up to DG AGRI for economic and policy analysis in its multiple dimensions (e.g. country, commodity coverage, geographical resolution, policy instruments) includes the impact of agriculture on jobs and growth; on environment and climate change; on commodity markets.	31/12/2020	JRC technical reports
156 - AgFuture JRC.D.4	6087 - SUPREMA Proposal for call H2020-SFS-2016-2017	Impact assessments in the areas of agriculture are (partly) based on projections delivered by models. Sectoral policies are becoming more and more interrelated. Hence, there is a need to improve the capacity of current models, connect them or redesign them to deliver on an increasing variety of policy objectives, and to explore future	JRC.D.4	1.1.c	AGRI	AGRI	RTD	- EUROOCARE GmbH - Swedish University of Agricultural Sciences - Universidad Politécnica de Madrid - Agricultural Economics Research	01/01/2018 31/12/2020	CON-IA	D1	Baseline scenario description and divergence analysis	this task will use the updated databases and correspondence tables to construct a baseline projection for a common time-frame (probably 2030). For this task all models represented in SUPREMA will be used. This task includes an assessment of selected model linkages (e.g. iterative simulation or simultaneity, one directional causality, scaling to alternative model-results or parameters) with respect to measuring model linkage impacts and alignment	30/04/2020	JRC technical reports
9500 - INTEGRATE JRC.D.4	7534 - INTEGRATE-DATA MODEL Data Model Strategy (Common baselines & data)	Rationalizing and harmonizing the use of data in all modelling work performed in Directorate D. For this, the integration and central availability of different data sources (including model outputs) and their harmonization is necessary. This WPK consists of three tasks: (1) Identifying model integration and harmonization needs across the different units and model approaches and propose a roadmap for the near future; (2) Provision of a model data platform; (3) Conceptualization of	JRC.D.4	1.1.c	AGRI	JRC	CLIMA ENV JRC MARE		01/01/2019 31/12/2020	INS-UR	20191	Intermediate Report	Intermediate Report on identifying model integration and harmonization needs across different model approaches and data	31/12/2019	Technical Reports
9500 - INTEGRATE JRC.D.4	7535 - INTEGRATE-AFOLU Linking the Agriculture, Forestry and Land Use sectors	Includes model linkages to allow for an integrated analysis of climate change mitigation policies affecting both the agriculture and forestry sectors. It consists of two tasks: (1) market linkages and (2) land allocation. It involves work with the following models run at the JRC: CAPRI, CBM, GFTM, POTENCIA (energy model) and FUSION/LUISA (land use model systems).	JRC.D.4	1.1.c	AGRI	JRC	CLIMA		01/01/2019 31/12/2020	INS-UR	n/a	n/a	n/a	n/a	n/a
9500 - INTEGRATE JRC.D.4	7537 - INTEGRATE-AGRIFISH Linking the Market outlooks for Fisheries and Agriculture (INTEGRATE-AGRIFISH OUTLOOK)	includes economic analysis for the Global Agriculture and Fisheries sectors, focusing on interactions between the aquaculture and capture sub-sectors. Fisheries market projections would be incorporated to the yearly medium-term EU Outlook exercise led by DG-AGRI and different strategies regarding the management of EU fisheries (i.e. Total Allowable Catch Quotas) quantitatively assessed. It involves work with the following models run at the JRC: Aglink-Cosimo, MAGNET, Input-Output models on fisheries and Fish Stock Assessment models.	JRC.D.4	1.1.c	MARE	JRC	AGRI		01/01/2020 31/12/2021	INS-UR	n/a	n/a	n/a	n/a	n/a
156 - AgFuture JRC.D.4	7538 - FoodValueChain Economic analyses of food value chains	<p>The objective of this WPK is to conduct economic analyses with the aim to deliver scientific policy support for the Commission needs in the area of food value chains. The food chain approach of the agro-food markets is motivated by the increasing trends towards vertical integration, concentration and globalization in agro-food markets taking place both in EU and at the global scale. Policies or market developments usually affect not only a single segment of the chain but the effects might be transmitted to other segments as well as they may impact forms of coordination and interactions between different actors. This was evident with the recent crises in agro-food markets (e.g. food price volatility; dairy crisis 2015-2016, dual food quality) which showed the importance of understanding interlinkages between actors and the organizational and governance structure of the food chain for providing relevant policy support.</p> <p>There is observed a shift in focus of EU policies towards addressing the functioning of supply chain, among others, in order to address possible market inefficiencies related to vulnerable actors. In 2013 the European Commission adopted the European Retail Action Plan and a Green Paper on unfair trading practices in the business-to-business food and non-food supply chains. The weak position of farmers in the food chain was highlighted in the State of the Union addresses of 2015 and 2016. In June 2016 the European Parliament adopted the resolution on unfair trading practices and requested the European Commission to assess the possibilities for policy action to address them. The Commission Work Programme 2017 foresees to "consider further action as necessary to improve the position of farmers in the food supply chain". The European Commission is considering proposing a legislative action on the functioning of the food supply chain.</p> <p>The main areas of scientific policy support: 1. Scientific policy analyses for to support of the Commission legislative actions on "Initiative to improve the Food Supply Chain": (i) unfair trading practices: economic, (ii) market transparency and (iii) analyses of producers organizations 2. The role of market structure and governance of food supply chains for growth and employment 3. Global food chains: implication of the inter-linkages between players in global food chains for</p>	JRC.D.4	1.1.c	AGRI	JRC	GROW		01/01/2019 31/12/2020	CON-AA,INS-RS	1	Economic analyses of unfair trading practices market transparency and farmer cooperation	Economic analyses of unfair trading practices, market transparency of food value chains and farmer cooperation. This deliverable is part of the yearly policy support provided to DG AGRI based on the iMAP4Agri administrative arrangement which will last until the end 2020.	31/12/2019	Technical Reports
											2	Economic analyses of market structure and governance of global food value chains	-The role of market structure and governance of food supply chains for growth and employment -Global food chains: implication of the inter-linkages between players in global food chains for understanding the development of food markets, and the impact of its functioning on economic growth, rural employment, food security and food quality in different socioeconomic context (i.e. developed and developing countries) -Prospective research activities and new technologies for policy support (analysis of food waste along the different stages of food supply chains; potentials of Blockchain technology to address transparency and traceability in food supply chains; analysis of fishery food chain)	31/12/2019	Science for Policy reports
											3	Economic analyses of unfair trading practices, market transparency and farmer cooperation	Economic analyses of unfair trading practices, market transparency of food value chains and farmer cooperation. This deliverable is part of the yearly policy support provided to DG AGRI based on the iMAP4Agri administrative arrangement which will last until the end 2020.	31/12/2020	Technical Reports
											4	Economic analyses of market structure and governance of global food value chains	-The role of market structure and governance of food supply chains for growth and employment -Global food chains: implication of the inter-linkages between players in global food chains for understanding the development of food markets, and the impact of its functioning on economic growth, rural employment, food security and food quality in different socioeconomic context (i.e. developed and developing countries) -Prospective research activities and new technologies for policy support (analysis of food waste along the different stages of food supply chains; potentials of Blockchain technology to address transparency and traceability in food supply chains; analysis of fishery food chain)	31/12/2020	Science for Policy reports

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category	
1.2. Education, culture, youth and sport																
1.2.a Education and training systems - monitor trends under EU policy strategies (e.g. Europe 2020, ET2020 and the Knowledge Hub on Higher Education, the renewed EU agenda for higher education and the European Education Area) and provide evidence of the successful implementation and development of such policy frameworks.																
150 - Education & Skills JRC.B.4	3284 - Edu&Skills INST Education and Skills for growth and inclusion - INST	<p>JRC B4 supports DG EAC on monitoring, modernising and innovating Education and Training policies as well as DG EMPL on skills, training and employment policies. WPK 3284 covers all institutional work which is required to maintain and expand research capacity, foster coherence and collaboration in the area of Education and Skills, both within Unit B4, Directorate B and across the JRC. This is especially needed due to the increasing cross-unit importance of Human Capital issues and policies.</p> <p>This WPK will focus on 4 interrelated research strands:</p> <p>(1) conceptual and methodological work to develop a more comprehensive and integrated approach to the various competence frameworks JRC has been developing on behalf of DG EAC and DG EMPL (DigComp, EntreComp, DigCompEdu, OpenEdu, SELFIE, Personal-Social-Learning to Learning PSL2L Competence);</p> <p>(2) development of a longer-term strategy for an Educational Data Monitoring and Analysis Repository based, amongst others, on the E&T indicators and benchmarks JRC is already providing to DG EAC;</p> <p>(3) a JRC Community of Practice on Education and Skills (EduSkillsCoP) in collaboration with JRC</p>	JRC.B.4	1.2.a	EAC	JRC	CNECT EMPL		01/01/2016 31/12/2020	INS-RS		01	Policy Insights on Education and Skills Community of Practice (EduSkillsCop); the edited outcome of jointly organised conferences.	01/11/2019	Technical Reports	
												2	Literature review on Innovative Assessment	01/03/2019	Technical Reports	
												3	Final report on innovative forms of CPD and case studies on training in Higher Education	15/02/2019	Science for Policy reports	
												7	Insights from JRC research on Education and Skills challenges	16/12/2019	Science for Policy Briefs	
150 - Education & Skills JRC.B.4	7843 - Policy4HEIs Policy for Higher Education Institutions	<p>This Work Package aims to bring together most JRC work on Higher Education covering Universities' three missions: teaching, research and innovation, and their contributions to society and economy. It will involve analytical work stemming from the AA on the Knowledge Hub for Higher Education (KHHE), amongst others, to cover the following 7 key research strands:</p> <p>1) the regional innovation impact of Higher Education Institutions (HEIs) building on work from B7 on the impact of entrepreneurial universities on their innovation ecosystem E.UNIV</p> <p>2) from B4 on HEIs and local development and attractiveness and from B3's HESS3 (WPK 6307);</p> <p>3) the employability of graduates building on 2018 work on the Future of Work and Education as well as B4 analysis on a research design and assessment of national graduate tracking tools;</p> <p>4) dimensions of inclusiveness and equality related to higher education participation (WPK LLDA) looking at, amongst others, social mobility and labour market outcomes as a contribution to the renewed EU agenda for Higher Education</p> <p>5) Analytical work on international collaboration and mobility in Higher Education in support of the work on European Universities started by B7 in 2018.</p> <p>6) B7 further analytical work towards the implementation of the KHHE AA, including an assessment of the interoperability and the exploration of synergies between the underlying KHHE tools and improvements to U-Multitrack</p> <p>7) B4 continues analysis and support tools for innovating Higher Education through the use of digital technologies and open education</p> <p>8) B7 will explore with H1 the potential for doing a knowledge mapping around university ranking to support its work on UMR.</p>	JRC.B.7	1.2.a	EAC	JRC	CNECT EMPL GROW REGIO RTD		01/01/2019 31/12/2020	CON-AA,INS RS		1	Analytical report on HEIs in Europe	The analytical work on agreed upon research question will yield 2 brief reports on priority topics (regional development, employability, inclusivity and UMR) to be agreed upon between DG EAC and DG JRC - one of these will be published as a Science for Policy report. The other as a technical report (see deliverable 2).	10/12/2019	Science for Policy reports
												2	Analytical report on HEIs in Europe	The analytical work on agreed upon research question will yield 2 brief reports on priority topics (regional development, employability, inclusivity and UMR) to be agreed upon between DG EAC and DG JRC - one of these will be published as a technical report. The other as a science for policy report (see deliverable 1).	02/12/2019	Technical Reports
												21	The differential impact of MSCA funding on researchers from different country groups	Following presentation at several scientific conferences an article will be produced on the basis of the extended analysis carried out with outside experts in a journal like research policy, scientometrics or research evaluation.	30/04/2019	Journal contributions (Clarivate)
												22	2-3 articles on entrepreneurial universities and their contribution to innovation	Following presentations at scientific conferences, 2-3 articles will be based on the analytical work on entrepreneurial universities which will draw lessons from the comparative case study analysis, country level characteristics and the quantitative analysis exploring the factors which influence the propensity of universities to engage with private sector actors, focusing on the relative role of university characteristics, autonomy, funding and evaluation systems. The aim is to publish these articles in journals like research policy, research evaluation, science and public policy and scientometrics.	31/12/2019	Journal contributions (Clarivate)
												3	Policy briefs on HEIs in Europe	1-2 policy briefs on topics dependent on priority topics to be agreed upon between DG EAC and DG JRC.	15/12/2019	Science for Policy Briefs
												4	report on inclusiveness and quality related to higher education participation	Report on dimensions of inclusiveness and equality related to higher education participation (WPK LLDA) looking at, amongst others, social mobility and labour market outcomes as a contribution to the renewed EU agenda for Higher Education	12/12/2019	Science for Policy reports
												5	2020 Analytical reports on HEIs in Europe	The analytical work on agreed upon research questions will yield 2 brief reports on priority topics (regional development, employability, inclusivity and UMR) to be agreed upon between DG EAC and DG JRC in 2020 - one of these will be published as a Science for Policy report. The other as a technical report (see deliverable 8).	01/12/2020	Science for Policy reports
												6	2020 Policy briefs on HEIs in Europe	1-2 policy briefs on topics dependent on priority topics to be agreed upon between DG EAC and DG JRC in 2020	10/12/2020	Science for Policy Briefs
7	articles on HEI in	On the basis of the analytical work carried out in 2019 we will submit two articles.	01/12/2020	Journal												
8	Analytical report on HEIs in Europe 2020 - technical report	The analytical work on agreed upon research question will yield 2 brief reports on priority topics (regional development, employability, inclusivity and UMR) to be agreed upon between DG EAC and DG JRC in 2020 - one of these will be published as a technical report. The other as a science for policy report (see deliverable 5).	01/12/2020	Technical Reports												
1.2.b Innovative education - carry out research on policy-relevant themes such as efficiency and equity in education investment, the role of (higher) education for regional development and smart specialisation, education and societal wellbeing, the integration of vulnerable groups such as migrants, including refugees, and other minorities into the education system, and early childhood learning; study digitisation's impact on education and training practices and systems (AI, blockchains, platforms, etc.); foster innovation in digital learning in schools.																
150 - Education & Skills JRC.B.4	5780 - learn4LDA Learning for life in the digital age	<p>This work package, which is an AA with DG EAC, addresses DG EAC policy priorities on monitoring, modernising and innovating Education and Training (E&T). The new AA will be in detail negotiated with DG EAC and signed before the end of the year 2017. Research work will concentrate around 6 tasks:</p> <p>Task 1: Further development of SELFIE, an instrument offered to educational institutions in Europe to assess their capacity to use digital technologies for more effective learning and to develop an action plan for improvement. This is of high interest to MS and received full support from DG EAC, the Cabinet and Commissioner Navracsics during the JRC jour fix of 6 April 2017.</p>	JRC.B.4	1.2.b	EAC	EAC	EMPL	OECD - Organisation for Economic Co-operation and Development (OECD)	01/01/2018 31/12/2019	CON-AA		1	Effective Digital Age Learning: Evidence from a large scale self-assessment pilot on schools' digital capacity	This report will present an analysis of evidence from piloting the SELFIE instrument in more than 3000 schools across 4-5 countries in Europe. This analysis will lay the foundation for the further mainstreaming of SELFIE in schools in Europe.	29/03/2019	Science-for-policy reports
												4	Inequalities in education: Reducing the gap in student performance	The report will provide an analysis of PISA data to better understand the drivers of inequality of PISA scores, across countries and across time, distinguishing between factors that are related to the students' households, to students' characteristics and to school characteristics.	29/03/2019	Science for Policy reports
148 - STRIVE JRC.B.3	6307 - HESS III HESS III	<p>HESS III will follow two previous work packages and analyse how higher education is contributing to the implementation of Smart Specialisation Strategies (S3). There are three main activities:</p> <p>- Action research in selected European regions to help build partnerships between regional authorities and local Higher Education Institutions (HEIs) and understand how Higher Education</p>	JRC.B.3	1.2.b	EAC	EAC			01/07/2018 30/06/2020	CON-AA	703308	Policy brief	Policy lessons from project mid term	31/03/2019	JRC contributions to policy documents	
150 - Education & Skills JRC.B.4	6403 - Learn4LDA-II Learning for life in the digital age	<p>This WPK is the follow-up AA with DG EAC of LLDA (WPK7580) of which the details will be agreed with DG EAC in the autumn of 2018 and to be signed before the end of 2018. It represents the continuity of the partnership with DG EAC and its support on JRC financing each year. It consists of research and policy support on modernising and innovating Education and Training (E&T) and on addressing the 21st century skills challenges faced in Europe, so as to achieve more effective and relevant learning outcomes, tackle skills mismatches and provide wider and more inclusive access to education. Specific research targets will be identified so as to better address ET2020 policy priorities in agreement with DG EAC. This work-package also includes research in support of lifelong learning including the analysis and monitoring of Europe's education and training systems so as to reinforce EAC's competence for evidence-based policy coordination. B.4 has set itself firmly as an important actor in EAC's broader network of knowledge management, showing clear competitive advantage when compared to other actors.</p>	JRC.B.4	1.2.b	EAC	EAC	EMPL		01/01/2019 31/12/2020	CON-AA	n/a	n/a	n/a	n/a	n/a	
150 - Education & Skills JRC.B.4	8042 - Learn4LDA-III Learning for life in the digital age 3	<p>This WPK is the follow-up AA with DG EAC of LLDA-2 (WPK6403) of which the details will be agreed with DG EAC in the autumn of 2019 and to be signed before the end of 2019.</p> <p>It represents the continuity of the partnership with DG EAC and its support on JRC financing each year. It consists of research and policy support on modernising and innovating Education and Training (E&T) and on addressing the 21st century skills challenges faced in Europe, so as to achieve more effective and relevant learning outcomes, tackle skills mismatches and provide wider and more inclusive access to education. Specific research targets will be identified so as to better address ET2020 policy priorities in agreement with DG EAC. This work-package also includes research in support of lifelong learning including the analysis and monitoring of Europe's education and training systems so as to reinforce EAC's competence for evidence-based policy coordination. B.4 has set itself firmly as an important actor in EAC's broader network of knowledge management, showing clear competitive advantage when compared to other actors.</p>	JRC.B.4	1.2.b	EAC	EAC	EMPL		01/01/2020 31/12/2021	CON-AA	n/a	n/a	n/a	n/a	n/a	

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568 - WEFE Nexus JRC.D.2	3922 - WIRE Water reuse for Irrigation and aquifer REcharge	The Part I of the work to be conducted shall result into a final (technical) report proposing: • the technical requirements for minimum quality requirements for water reuse in agricultural irrigation and aquifer recharge, in a format that will allow an easy transcription into Commission	JRC.D.2	1.3.1.a	ENV	ENV	AGRI REGIO RTD		04/05/2016 30/09/2019	CON-AA	20202	Comprehensive analysis of the Marine Modelling Framework simulations for selected European Regional Seas.	Produce a comprehensive analysis/evaluation of the simulations obtained by the Marine Modelling Framework (MMF) for the Mediterranean and the Black Seas falling under MSFD legislation. This deliverable will specifically analyze and assess the consequences of different policy/climate scenarios (e.g., CFP and IPCC scenarios) on the ecosystem status, comprising hydrodynamics, biogeochemistry and food web. The analysis further contributes to the major components of the Blue Growth strategy (by providing knowledge for sustainable management, for example in the sectors fisheries and tourism). The analysis will evaluate potential policy scenarios, and focus on how political decisions and program of measures could affect the Good Environmental Status (GES) of the marine ecosystems downstream.	31/12/2020	Journal contributions (Scopus)
											201901	Final WIRE reports on water reuse and nutrient criteria	Deliverable comprising the Guidance Documents on Risk Management Framework for water reuse, and the report on WFD nutrient criteria comparing nutrient boundaries and comparability	30/09/2019	Whole parts of policy documents
568 - WEFE Nexus JRC.D.2	4900 - WEFE-2030 Water-Energy-Food interactions under current and future climate and socio-economic conditions	WEFE-2030 will provide modelling-based estimates of the interactions of water quantity, water quality, energy production and food production. It will also assess the impacts of alternative solutions of water management, energy and food production strategies that result in overall benefits to the economy and society at broad, with a more balanced water demand and availability, especially in water-stressed areas. It is important to analyze these strategies using linked modelling systems - to become reference models -, such that various feedback mechanisms are taken into account properly. The focus will be on Europe, the full Mediterranean area and Africa. The added value of this Work Package is that state-of-the-art model estimations (CAPRI, LUISA, Dispa-SET, EPIC, LISFLOOD and BIOMA) of water, food and energy production will build on cross-disciplinary contributions at the JRC. Interactions between water-energy, water-food and food-energy will be elaborated, with the various feedback mechanisms for the first time embedded in the various models. This enables a more thorough analysis of the constraints and a sound evaluation through modelling of the impacts of proposed measures on water quantity and quality, food and energy production. Several time windows will be examined: - Time-horizon 2020: Immediate effects of measures on water, food and energy availability under present conditions, which are relevant for the Water Framework Directive and the Floods Directive - Time-horizon 2030: Intermediate effects of measures on water, food and energy availability, taking into account socio-economic changes, land use and climate projections until 2030, with an embedding of the agricultural policies - Time-horizon 2050: Mid-term effects, including socio-economic changes, land use and climate projections until 2050, embedding climate mitigation measures implemented following the Paris agreement, and of relevance for the "The World In 2050 (TWI2050)" initiative and the fulfillment of several of the Sustainable Development Goals - Time-horizon 2100: Long-term effects in the context of the PESETA IV project. WEFE-2030 will lead to an integrated Water-Energy-Food toolbox ready for support across several sectoral policies, contributing to DG ENV efforts to establish an integrated policy assessment capacity for freshwaters in Europe. Main deliverables include the outlook reports on WEFE resources use in Europe, the Mediterranean region, and contributions to the Africa report	JRC.D.2	1.3.1.a	ENV	JRC,RTD	AGRI CLIMA DEVCO ENER ESTAT REGIO RTD	- United States Department of Energy ICPDR - International Commission for the Protection for the Danube River EEA - European Environment Agency UN ECE - UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE	01/01/2018 31/12/2023	CON-IA,INS-RS	201902	Water resources baseline and future projections in the Mediterranean region and the impact of adaptation measures	Water resources assessment for the Mediterranean region by combining scenario modelling with the illustration of Nexus best practices. Activities will include the coordination of the JRC work on the Mediterranean WEFE Nexus Atlas (project level deliverable 2020_01) in cooperation with the Union for the Mediterranean	31/12/2019	Datasets
											201903	Reference Land Use Scenario Africa until 2050	Development of an African Land Use Projection until 2050 for the evaluation of territorial dynamics in the context of the adopted African socio-economic scenarios – in compliance and extension of the European LUISA simulations	31/05/2019	Datasets
											201904	Open Source LISFLOOD model for the establishment of a hydro-meteorological reference toolbox	Open Source LISFLOOD model including documentation. Prepared as open source model and linked with existing hydrological monitoring and early warning systems for floods and droughts at European and global scale, this will enable users from national and regional authorities and research institutions to use the tool in the fields of disaster risk reduction (floods and drought early warning), structural adaptation measures for food and water security, and climate predictions of water availability	30/06/2019	Technical systems
											201905	Analyses of impacts of climate and policy measures on water availability for the energy, agriculture and ecosystem sectors in Europe	This deliverable will be based on scenario analyses informed by EURO-CORDEX climate change projections and water narratives corresponding to cross-sectoral policy expectations. It will include the delivery of an integrated policy assessment tool based on models in the context of the BLUE2 initiative of DG ENV. Trade-offs between different sectoral problems will be analyzed making use of life cycle assessment and footprint analyses for selected river basins in Europe. It includes the coordination of JRC activities contributing to the WEFE-Nexus report for Europe (project level deliverable 2019_02).	30/09/2019	Datasets
											201906	Scenarios of future water resources of the African continent	Projections of future water resources for various Nexus scenarios for the African continent, using Cordex-Africa, LUISA-Africa, using the integrated LISFLOOD-EPIC model, GSWD derived data, and conditioned by sustainable groundwater usage. Estimations of energy production and irrigation water availability supported by the Google Engine Global Surface Water Dataset developed by JRC. This deliverable also provides input to the project level deliverable on WEFE Nexus Africa 2020_02 coordinated by WEFE4Dev.	15/12/2019	Journal contributions (Scopus)
											202001	Scenarios of Future Water and Crop Yield in the Danube basin	Projections of future water resources and (irrigated) crop yield for the Danube, conditioned by sustainable groundwater usage; effects on yield, market prices, investments, drawbacks etc	30/06/2020	Technical Reports
											202201	Climate Services for Africa	Real-time and up to 6-12 months forecast indicator on weather, water, agriculture and energy, for African end-users at governmental, regional, local and NGO levels. Indicators for LISFLOOD-EPIC and LISFLOOD-LISENGY on water-food-energy issues, while using ECMWF medium range and seasonal forecasts and satellite (COPERNICUS) weather data as a basis. Scale will be the continental Africa at 0.1 degree.	31/12/2022	Technical Reports
											568 - WEFE Nexus JRC.D.2	5111 - Blue2 Model development and operation in the context of the BLUE2 project	The purpose of this AA is to support the development of a Commission capacity for an integrated policy assessment, to be used in connection with the Commission's task to oversee the evaluation, implementation, and possible review of the EU water and marine legislation (WFD, MSFD, Blue Growth). The first part covers the continuing development of a Marine Modelling	JRC.D.2	1.3.1.a
201901	Postprocessing of outputs and reporting	Modelling the impacts of EU water policy implementation scenarios on freshwater and marine resources, postprocessing the output, making the results available & report writing	31/12/2019	JRC technical reports											
9482 - BlueEcoFish JRC.D.2	5460 - SeaDataCloud SeaDataCloud - Further developing the pan-European infrastructure for marine and ocean data manageme	The SeaDataCloud project focuses on the management and availability of marine and maritime knowledge, in Europe and beyond. It aims at building upon and expanding the achievements of the existing SeaDataNet infrastructure, with the following main objectives: (1) to enhance and innovate the SeaDataNet-developed standards, products and services, offered to an expanded multi-disciplinary community; (2) to promote the adoption of the protocols and standards developed for interoperability to other key downstream initiatives in the marine/maritime field, with a perspective to expand the communities of data providers and of data users, and to exploit synergies with relevant ESFRIs infrastructures; (3) to present a long-term sustainable arrangement for the integrated SeaDataNet infrastructure, and for networking the key data centres in Europe dealing with in situ and remote sensing data for marine research (including coastal research) and their resources.	JRC.D.2	1.3.1.a	ENV MARE	RTD	ENV RTD		01/01/2017 31/12/2020	CON-IA	012019	Scientific Committee Report	Report with objective to: (1)improve understanding and meeting requirements of lead user communities, such as science community, EMODnet, Copernicus Marine Environmental Monitoring Service (CMEMS), and international scientific programmes; (2) tune the specifications and developments of SeaDataCloud services from a user perspective.	13/12/2019	Science-for-policy reports
											012020	Scientific Committee report	Report with objective to: (1)improve understanding and meeting requirements of lead user communities, such as science community, EMODnet, Copernicus Marine Environmental Monitoring Service (CMEMS), and international scientific programmes; (2) tune the specifications and developments of SeaDataCloud services from a user perspective.	18/12/2020	Science-for-policy reports
9488 - NatCap JRC.D.3	6741 - Antibiotic4you Antibiotics in aquatic environment: mechanism and key factors to understand the	The Antibiotic4you project contributes to the Exploratory Research (ER) Programme. The development of antibiotics has been one of the most important achievements of the 20th century, saving millions of human lives since then. Antibiotics have been produced and employed for many purposes, not only to treat infectious diseases, but also for other applications such as antitumor, antiviral and anticancer agents. However, we live now in an era where the antibiotics that we have	JRC.D.2	1.3.1.a	ENV JRC	JRC	ENV RTD		01/03/2018 29/02/2020	ER-17	01	Final report	The Final technical report will summarise the scientific results of the project and provide a summary of the scientific papers originating from the project. A mid-term technical report will be produced at the end of the first year.	28/02/2020	JRC technical reports
568 - WEFE Nexus JRC.D.2	7242 - NB-SOLUTIONS Nature-based solutions for climate change adaptation and water pollution in agricultural regions	The project will identify 9 pilot cases where nature-based solutions are implemented with different primary purposes. The pilots will focus on three categories of problems: 1)Treatment of manure-derived wastewater and sludge before application as fertilizer. This category will cover aspects of constructed wetlands or other solutions exploiting natural processes under human control, with well-identified input flows and required effluent standards; 2)Landscape elements in relatively wet and cold regions, addressing diffuse sources of pollution due to fertilizers and/or pesticides; unlike the previous category, in this case the landscape elements are "passive" (i.e. the natural processes they support are not man-managed) and treat	JRC.D.2	1.3.1.a	ENV	JRC	AGRI CLIMA ENER REGIO RTD	EGS - Eurogeosurveys ICPDR - International Commission for the Protection for the Danube River EIB - European Investment Bank ENV EU - Environmental authorities of the Member States and Candidate Countries EP - European Parliament	12/11/2018 11/02/2021	CON-AA	201801	Consultant studies on the pilots and EU scale synthesis	Consultant reports on the 9 pilot cases and EU-wide synthesis.	31/12/2019	External study reports
											201901	Nature based solutions in agricultural water management : policy messages	Report summarizing the outcomes of the work and outreaching to the European Parliament and decision makers in the field of water and agriculture.	31/12/2020	Science-for-policy reports
568 - WEFE Nexus JRC.D.2	7902 - PL:ADDWISE Water Reuse for a Circular Economy – Building Risk Management Competences	AddWise demonstrates a suite of circular water system solutions, and integrate "the lessons learnt" into a guided workflow for successful replication. This workflow enables utilities and water/municipal authorities to plan and implement smart water systems while addressing technical, governance, economic, social and scientific challenges. Regional demonstrations range from water reuse (treatment, performance validation, demand management, risk assessment and public acceptance) and the use of alternative water sources (polluted groundwater/surface water, storm water and wastewater) to material and energy recovery (recovery technology, economies of scale, value chain options and marketing). It exemplifies how the newly proposed European framework for water reuse implementation (e.g., minimum water quality requirements, risk management approaches) can be used in practice involving all relevant stakeholders, and how a common	JRC.D.2	1.3.1.a	ENV	RTD	AGRI REGIO RTD	NetWERCH2O - Network for Water in European Regions and Cities (NetWERCH2O) WSSTP - Water supply and sanitation Technology Platform	01/01/2020 31/12/2023	CON-IA	201901	Water Reuse Technology Mapping	Report documenting the employed water reuse technology (treatment, surveillance, monitoring, and sensors) of the project in view of the creation of digital case study in mixed reality. The inventory will serve a guidance for the development of the AR/VR tool in the subsequent project phase.	30/09/2021	Technical Reports
											202301	Virtual case study on Water Reuse Technology	The main deliverable of ReuseEurope is a virtual case study using Virtual and Augmented Reality tools and applications to a.) facilitate a mixed-reality interaction between engineers and experts in the field, b.) the target-driven interaction with possible customers and municipalities and c.) citizen engagement. The tool will allow to virtually move the technologies studied and deployed in the real world case studies in Italy, Germany, France, Romania and Bulgaria. This is a cutting-edge quantum leap in using mixed reality for sustainable and innovative technologies and their societal uptake.	31/12/2023	Technical systems

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<p>1.3.1.b Biodiversity, ecosystem services, forests and soils - support the implementation and final evaluation of the EU biodiversity strategy (also contributing to its global dimension, linked to key orientation 9.2.3.b), notably by assessing ecosystem conditions, ecosystem services and supporting natural capital accounting (INCA) in the context of the environmental knowledge community; support the implementation of the EU Green Infrastructure Strategy, the EU Pollinators Initiative, the invasive alien species regulation and its information system; contribute to global biodiversity monitoring and the sustainable supply and demand of biomass for all uses; analyse and model forest resources and develop information systems on forests and forest fires in support of the EU forest strategy; support the EU soil thematic strategy and further soil policy developments by improving knowledge, modelling and developing indicators of soil functions and soil and land degradation processes (also as SDG indicators), including desertification; maintain JRC soil expertise and European Soil Data Centre as well as monitor land and soil conditions through land use/cover area frame statistical survey and other data sources, in close coordination with the European Environment Agency and ESTAT; perform activities to assess soil 'point' contamination and to close data and knowledge gaps in particular on soil biodiversity and soil diffuse pollution; support growing ecosystem services, soil and land related activities at international level in particular on SDGs, Food and Agriculture Organization (FAO) and the Global and European Soil Partnerships, UN Convention to Combat Desertification (UNCCD) Land Degradation Neutrality, UN System of Environmental-Economic Accounting (UN-SEEA), the Intergovernmental Panel on Climate Change (IPCC) and the Intergovernmental science-policy Platform on Biodiversity and Ecosystem Services (IPBES) as well as similar networks and the European Soil Bureau Network</p>																
9488 - NatCap JRC.D.3	899 - SOIL-NACA Securing SOIL as NATural Capital	<p>SOIL_NACA provides the soil-centric framework required to support the EU's Soil Thematic Strategy while contributing to related policy areas (e.g. CAP, Climate and Energy Strategy, SDGs, EU Biodiversity Strategy, UNCCD, UNCCD) that depend on the cross-sectorial aspects of soil and the land-based services it sustains. The WPK assesses soil functions (e.g. food production, water regulation, carbon sequestration) in relation to pressures (e.g. erosion, pollution, sealing) due to competition for land and climate change. The WPK contributes to policy development through its support to the EU Soil Expert Group Global, the European Soil Partnership (Secretariat, and involvement in technical working groups), the Global Soil Partnership and Intergovernmental Technical Panel on Soils (ITPS), the Common Forum on Contaminated Land, the Global Soil Biodiversity Initiative and through high interaction with Member State institutions (both scientific and policy making) through networking at European and global levels (ESBN, EIONET-SOIL, ENSA, ELSA, EU Danube Strategy). The WPK generates value-added knowledge for assessments of the security of soil as a resource, by generating novel data that underpin policy-relevant indicators (e.g. EU SDG Core, Contaminated Sites) while supporting scenario and trend analyses. Data are derived through the harmonisation of national sources (both EU and internationally), from in-house modelling and the analysis of primary data (e.g. LUCAS). In response to formal requests from DG ENV, this WPK will deliver policy-relevant reports on soil condition based on LUCAS data and contribute to the MAES Soil Pilot regarding ecosystem services provided by soil. The WPK provides active support to soil awareness-raising initiatives, by developing strategies to better communicate soil-related issues to policymakers and the wider community through mechanisms such as targeted policy briefings, the continued collaboration in Asia (SINAPEC, SEPLS, CRAES, Asia Soil Atlas) and EC public engagement events where soil is a major theme. There is high demand for collaboration from several EC agencies (EEA – e.g. State of European Environment Report, EFSA – e.g. pesticide residue assessment) and UN bodies (FAO – Global Soil Partnership, CBD/IPBES – Regional Assessments, UNCCD – land degradation). The WPK will contribute to the soil organic carbon indicator to the EU SDG Core Indicator Set.</p>	JRC.D.3	1.3.1.b	ENV	ENV_JRC	<p>AGRI CLIMA DEVCO ECHO ESTAT GROW OP REGIO RTD SANTE</p>	<p>- WAGENINGEN UNIVERSITY - Soil Science Department (Agronomic Veterinary Institute Hassan II) - CRANFIELD UNIVERSITY - V.V. Dokuchaev Soil Science Institute - Soil Science and Conservation Research Institute EGS - Eurogeosurveys FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) EEA - European Environment Agency EFSA - European Food Safety Authority IAEA - International Atomic Energy Agency (IAEA) ICL - International Consortium on Landslides (ICL) INRA France - Institut National de la Recherche Agronomique (INRA), France ISRIC - World Data Centre for Soils OECD - Organisation for Economic Co-operation and Development (OECD) UN CBD - UN Convention on Biological Diversity UNCCD - United Nations Convention to Combat Desertification (UNCCD)</p>	01/01/2016 30/12/2020	CON-AA,DEL,INS-RS		201802	Sustainable Soil Management	In the context of ESP Pillar-1, and coordinating with the Pillar-1 leader, select and organize various activities that support the sustainable soil management in Europe (Action-1 and Action-2 of the ESP Implementation Plan).	31/03/2019	Technical Reports
												201803	Support to Pillar 2 Implementation	Pillar 2 of the European Soil Partnership is wide ranging in scope and there is a growing realization that its core issues underpin many of the actions of the other pillars of the Global Soil Partnership initiative. In particular, the need to address the lack of societal awareness of the importance of soil, combined with a lack of education, is partly responsible for unsustainable land management, an overall lack of investment in soil and a political reluctance to meaningfully adopt and ensure soil protection and enhancement measures. This deliverable will focus on the development of a policy brief and accompanying compendium on best practices for soil awareness, education and outreach.	31/03/2019	Science for Policy reports
												201901	SOIL in SOER2020	The European environment state and outlook 2020 (SOER 2020) provides a comprehensive assessment of state, trends and prospects of the European environment and places it in a global context. It informs European environmental policy implementation and analyses the opportunities to modify existing policies (and the knowledge used to inform those policies) in order to achieve the European Union's 2050 vision of living well within the limits of the planet. SOER 2020 will be based on objective, reliable and comparable environmental information, and draws upon the evidence and knowledge base. The SOIL-NACA Workpackage will be a major contributor to the assessment on land and soil through the provision of data and analysis of both inhouse information (e.g. soil erosion and organic carbon modelling, LUCAS, soil pollution) and the integration of knowledge from member states. The outcomes of the IPBES Land Degradation report will be a key driver.	31/12/2019	Science for Policy reports
												201902	Implementation of European Soil Partnership	In the context of ESP AA, the JRC is tasked with a this task will oversee the organisation and delivery of a Sustainable Soil Management (SSM) Summer School (in support of Action-5 of the European Soil Partnership Implementation Plan) which will bring together scientific experts, policy makers and practitioners (farm advisers, farmers) to promote the increased uptake of SSM within the EU. The summer school will provide hands-on field based evidence and learning opportunities. The event will also contribute to the JRC-INRA collaboration agreement.	31/10/2019	Training
												201903	Soil aspects of MAES Final Report	The final MAES report will make a policy relevant synthesis of the EU wide ecosystem assessment and formulate a set of conclusions for the final evaluation of the EU biodiversity strategy to 2020 and for the post 2020 policy framework. This deliverable will coordinate the soil component and contribute to the final deliverable being managed by the MAVES Work Package. Agroecology aspects will be a major feature of this activity	31/10/2019	Science for Policy reports
												201904	European soil data infrastructure	In the context of the ESP Pillar-4, and in cooperation with both the Pillar-4 working group members and the European members of the GSP network of International Network of Soil Information Institutions (INSII) - which are mandated national soil information institution, the WP will undertake several activities in support of a European Soil Data Infrastructure. These include organising a joint technical meeting of European INSII members and other soil information institutions to discuss ESP related Pillar-4 and Pillar-5 tasks (Action-1 of the ESP Implementation Plan) and to define concrete data products that will be delivered in this context, the design and implementation of an infrastructure to host, to view and to download data products that will be provided by INSII members, and a road map towards a Soil Metadata Database for Europe	31/12/2019	Science for Policy reports
												202001	Support to EU Soil Thematic Strategy Impact Assessment	The EU Soil Thematic Strategy aims to improve the appreciation of the value and relevance of soil by all levels of civil society. In anticipation of a new drive to establish a legislative framework in soils, DG ENV plan to prepare an evidence based document in preparation of formal impact assessment and working documents. This deliverable will support this through contributions to the EU Soil Expert Group (SECGEN - E03336) and directly to ENV.D1 through supporting briefings, reports and data from the ESDAC on soil functions (e.g. MAES-SOIL) and soil threats (e.g. erosion, landslides, contaminated sites, diffuse pollution, etc). The deliverable will also continue to developing strategies for communicating soil-related issues to the wider community through mechanisms such as public engagement events and the European/Global Soil Partnership, and continued collaboration with JRC strategic network of partners.	30/12/2020	JRC contributions to policy documents
												202002	LUCAS 2018	The JRC is responsible for the overall coordination of the soil component of the LUCAS survey. DG ENV are a major funder of the soil component for field sample collection and subsequent laboratory analysis. This deliverable will present the results of the survey and specific changes in soil condition between 2009, 2015 and 2018. There are high expectations on some of the novel aspects of this survey, namely in the development of dna based indicator of soil biodiversity and the correlations with specific land management practices and the presence of chemical substances in the environment. Another aspect will be reporting on heavy metal concentrations with a scope to deliver data for an indicator on SDG3 on soil pollution and human health. In addition, the first harmonised collection of bulk density data will permit the reporting of topsoil carbon stocks and validation of data from previous surveys. Finally, actual soil erosion will be analysed on the basis of 30,000 field observation.	30/12/2020	Science for Policy reports
												202003	Agroecology: meeting human needs while preserving ecosystems	Agroecology has emerged as a significant field in both science and practice over the past two decades. The JRC already carries out research on agriculture and ecosystem services, yet agroecology adopts a more integrated, whole-system approach. Agroecology can tackle all aspects of ecosystem functioning and services. It combines and applies in novel ways research on soils, pollinators, water, food, adaptation to climate change. Agroecology work proposed here shall contribute to assessing techniques and approaches that are favourable to soil and biodiversity, mapping existing best practices, and modelling the transition to agroecological systems. Such work will assess soils under different agricultural practices, combining field data (e.g. LUCAS Soil, ad-hoc sampling of major farming systems) with remote sensing and integrated modelling. The outcomes will feed into key policy areas such as the Common Agricultural Policy, biodiversity, climate and related environmental issues.	30/12/2020	Science for Policy reports

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
9488 - NatCap JRC.D.3	3803 - ASPEN Alien Species Monitoring to Protect European Nature	<p>Alien Species (AS) are organisms unintentionally or deliberately introduced through human activities into regions beyond their natural range. Some of these, the Invasive Alien Species (IAS) are the main cause of biodiversity loss worldwide, a condition that severely affects Europe, where the damages cost an estimated 12 billion euro every year. In the context of ASPEN WPK, the JRC develops the European Alien Species Information Network (EASIN), with the following objectives:</p> <p>1) improve the scientific network linked to EASIN, enabling the acquisition, generation and dissemination of scientific knowledge required for an early warning and rapid response to the introduction of AS presenting significant risk to Europe's natural capital; 2) maintenance, update and further development of webservices and tools provided to EASIN's users; 3) promote the uptake of the IAS Europe app as a tool supporting MS IAS surveillance activities, and 4) maintaining and improving EASIN as the EC official information system on IAS. A centralised and updated research network, managing and generating information on AS (e.g. assessment of species introduction pathways, impact, distribution), based on multiple tools (e.g. internet scanning, citizen science, dedicated expert networking) assists the implementation of European policies on biodiversity, considering also the current trend in climate change, which exposes citizens to emerging risks (e.g. economic loss due to production damage, loss of high value habitats, worsening of living conditions; spread of disease vectors such as mosquitoes and ticks). ASPEN aims to contribute to the prevention and management of IAS, supporting the implementation of the EU Regulation 1143/2014 by: gathering and reviewing scientific information on AS and developing the EASIN information platform to handle official MS notifications, Editorial Board discussions and horizon scanning exercises; contributing to the development of scientific knowledge in collaboration with MS and research projects; improving the geographic information on AS in Europe by enlarging the network of spatial data partners; establishment of a baseline distribution of species of Union Concern and trends in relation to policy implementation; promoting citizens engagement in science to support EU policy on IAS (in collaboration with B.6, COST CA17122). EASIN will continue to complement and build upon the research and the experiences carried out in Europe and at the Global scale.</p>	JRC.D.2	1.3.1.b	ENV	JRC,JRC	AGRI DEVCO REGIO SANTE TRADE	EEA - European Environment Agency	01/01/2019 31/03/2021	CON-AA,INS PC,INS-RS	201901	Baseline distribution of species added to the first update of the list of invasive alien species of Union concern	The deliverable entails the screening and analysis of EASIN data concerning the distribution and biological traits of species added to the 1st update of the list of Invasive Alien species (IAS) of Union Concern. The consolidation of the baseline is done in close collaboration with the competent authorities of the EU Member States. The document will serve the purpose of informing the national activities of IAS surveillance, monitoring and early detection of new occurrences in the context of the implementation of the EU Regulation 1143/2014 on IAS.	31/03/2019	Science-for-policy reports
											201902	EASIN 5 - Report of year 1	Report of the work accomplished during the first year of the EASIN 5 Administrative Arrangement, including a description of the progress made with the following tasks: 1) updates of the EASIN catalogue and geodatabase; 2) new data partnerships; 3) Editorial Board activity; 4) NOTSYS upgrades; 5) EASIN website upgrades and 6) account of the status of the web service enabling data harvesting from NOTSYS.	31/03/2019	Sci information systems and databases
											201903	An assessment of marine plankton in European seas	A critical review of the marine planktonic taxa reported in Europe's seas based on EASIN data, and their nomenclature and biogeography. The assessment entails collaboration with several marine plankton scientists to ensure results of high quality. The review will fill an important knowledge gap on marine alien plankton, which includes species extremely harmful such as the warty com jelly (Mnemiopsis leidyi) present in the Black sea and the Adriatic, and the algae forming toxic blooms (Chattonella verruculosa) in the North and Baltic Seas.	31/07/2019	Journal contributions (Scopus)
											201904	IAS Europe app: engaging citizens in alien species surveillance	An overview of the work accomplished during the project IAS-EU, including an evaluation of the degree to which the objectives were attained and envisaged following up work. In specific it will describe the progress made with the establishment of a community of users of the IAS Europe app; steps made to link the IAS Europe app with relevant policy, and a description of the proposed governance framework.	31/10/2019	Technical Reports
											202001	Trends in the distribution of the Invasive Alien Species of Union concern	An analysis of the spatial distributions of IAS of Union concern reported by the MS by June 2019, in fulfillment of Article 24 of the EU Regulation on IAS, in relation to the species baseline distributions previously established based on EASIN data and their consolidation by the MS competent authorities.	30/06/2020	Science for Policy reports
											202002	EASIN5 - Report of year 2	Report of the work accomplished during the second year of the EASIN 5 Administrative Arrangement, including a description of the progress made with the following tasks: 1) additions to the EASIN catalogue and geodatabase; 2) new data partnerships; 3) Editorial Board activity; 4) NOTSYS updates; 5) EASIN website updates, and 7) description of the citizen science validation procedure.	31/03/2020	Sci information systems and databases
											202003	Baseline distribution of species added to the second update of invasive alien species of Union concern	The deliverable entails the screening and analysis of EASIN data concerning the present distribution and biological traits of species added to the 2nd update of the list of Invasive Alien species (IAS) of Union Concern. The consolidation of the baseline is done in close collaboration with the competent authorities of the EU Member States. The document will serve the purpose of informing the national activities of IAS surveillance, monitoring and early detection of new occurrences in the context of the implementation of the EU Regulation 1143/2014 on IAS.	31/12/2020	Science for Policy reports
											202101	EASIN5 - Report of year 3	Report of the work accomplished during the second year of the EASIN 5 Administrative Arrangement, including a description of the progress made with the following tasks: 1) additions to the EASIN catalogue and geodatabase; 2) new data partnerships; 3) Editorial Board activity; 4) NOTSYS updates; 5) EASIN website updates, and 7) description of the citizen science validation procedure.	31/03/2021	Sci information systems and databases
											202102	EASIN system documentation	Updated of the system documentation as to keep the description of EASIN and its early warning and rapid response notification system (NOTSYS) updated. A technical description of the system components and structure intended audience of IT professionals.	31/03/2021	Technical Reports
9488 - NatCap JRC.D.3	4160 - INCA INCA: Integrated system for Natural Capital Accounting	<p>The work package INCA is the JRC contribution to KIP-INCA. KIP-INCA is a Knowledge Innovation Project on Integrated Natural Capital and Ecosystem Services Accounts. KIP-INCA is a collaboration between DG ENV, DG RTD, ESTAT, EEA and JRC under the framework of Environmental Knowledge Communities established under the 7th Environmental Action Plan. KIP-INCA operates under the umbrella of the MAES initiative (Action 5 on Mapping and Assessment of Ecosystems and their Services).</p> <p>After a design phase (2015-2016) KIP-INCA started an implementation phase which includes the development of experimental ecosystem accounts. The role of JRC is the development of EU wide physical and monetary ecosystem services accounts. This work package will therefore produce experimental and pilot flow accounts for a selection of ecosystem services, while experimenting with valuation approaches. JRC data or JRC models are available to produce annually aggregated values of physical flows at EU and MS level. It is agreed with the KIP partners that the minimum set</p>	JRC.D.3	1.3.1.b	ENV	JRC	ECFIN ESTAT MARE RTD	EEA - European Environment Agency	01/01/2016 31/12/2020	INS-RS	4160201902	Scientific publications	Contributions to the scientific literature on challenges of developing natural capital and ecosystem services accounts, lessons learned and scientific publications of specific accounts (e.g., pollination accounts)	31/12/2020	Article contribution to a monograph or other periodicals
											4160201911	Pilot ecosystem service accounts: part 3	This deliverable is the third in a series of technical reports which updates the previous experimental ecosystem accounts and publishes pilot accounts quantifying the physical and monetary flow accounts of the following ecosystem services: habitat maintenance, air purification, erosion control and microclimate regulation)	30/11/2019	JRC technical reports
											4160202010	Pilot ecosystem service accounts: part 4	This deliverable is the fourth in a series of technical reports which updates the previous experimental ecosystem accounts and publishes pilot accounts quantifying the physical and monetary flow accounts of the following ecosystem services: outdoor livestock. It will also publish updated accounts for other ecosystem services based on refinements of the data and the models and include a trade-off analysis.	30/11/2020	Scientific information systems and databases
9488 - NatCap JRC.D.3	5099 - MAVES Mapping, Assessment and Valuation of Ecosystems and their Services	<p>The work package MAVES contributes to the knowledge base for the EU Biodiversity Strategy to 2020 as well as to the Pollinators Initiative. The main objective of MAVES is to coordinate and carry out an EU wide ecosystem assessment.</p> <p>This assessment will be delivered in different chapters: ecosystem-specific chapters will describe the condition and ecosystem services of urban ecosystems, agroecosystems, forests, freshwater and marine ecosystems. Furthermore two special chapters will include a cross-ecosystem assessment of key ecosystem services and a set of integrated policy narratives, respectively.</p> <p>MAVES will include the assessment of urban ecosystems and agroecosystems (via participation from AGRI4ENV) whereas inputs for forests (FISEAPPS), freshwater and marine ecosystems (Blue Economy) to the EU wide ecosystem assessment will be delivered by other work packages.</p> <p>The ecosystem assessments require an improved baseline 2010 (based on the mapping and assessment of ecosystem condition) and a trend analysis for the period 2010 - 2020. The assessment of ecosystem services will be based on the outputs of INCA. In a second step and based on the different chapters of the EU wide ecosystem assessment, MAVES will coordinate a final MAES report which will contain a policy relevant synthesis with key conclusions for the final evaluation of the biodiversity strategy and for the post 2020 biodiversity policy.</p> <p>The knowledge developed in MAVES will also be relevant to support the Action Plan on Nature.</p>	JRC.D.3	1.3.1.b	ENV	JRC	MARE	EEA - European Environment Agency	01/01/2017 31/12/2020	INS-RS	1	Integrated policy narratives: pollination and soil	This report will unravel and illustrate the links between ecosystem condition and ecosystem services. In agreement with the main client, two cases are selected: pollination and soil. For pollination, the report aims at showing how pressures on ecosystems and on pollinating insects impact the condition of ecosystems to support pollinator populations and in turn, to provide pollination services. A policy relevant scenario (based on land use change and climate change) will be reported. A second narrative will be built around the pressures on and the condition of soil and their capacity to deliver ecosystem services. This deliverable will be a chapter of the EU wide ecosystem assessment	31/12/2019	Technical Reports
											2	Final MAES report	The final MAES report will make a policy relevant synthesis of the EU wide ecosystem assessment and formulate a set of conclusions for the final evaluation of the EU biodiversity strategy to 2020 and for the post 2020 policy framework. It will be based on the 2019 deliverables of MAVES as well as on deliverables foreseen under other work packages. This deliverable will be a collaboration under the framework of MAES with the units D1, D2 and D5	31/12/2020	Technical Reports
											5099201904	MAES Ecosystem assessment chapters: updated baseline and trends	This deliverable will provide an assessment of different MAES type ecosystems (urban pilot; agroecosystem pilot). It will assess the condition of ecosystems based on the indicators of the 5th MAES report and assess selected urban ecosystem services based on the 2nd and 4th MAES reports.	31/12/2019	JRC technical reports
											5099201912	Trends in ecosystem services	This deliverable assists in the final review of the EU Biodiversity Strategy by assessing the trends in ecosystem services in Europe. It will built on the report JRC94889 (Mapping and Assessment of Ecosystems and their Services: Trends in ecosystems and ecosystem services) and it will be based on outputs of the KIP INCA.	31/12/2019	JRC technical reports
											9488 - NatCap JRC.D.3	6082 - LUCAS-Soil Statistical indicators of soil condition for ESTAT from LUCAS Soil and Erosion Modelling	<p>The statistical office of the European Union (Eurostat) undertakes a regular survey to monitor the situation of land use, land cover and changes over time across the EU. This survey is known as Land Use and Coverage Area frame Survey (LUCAS). The scope of the survey was extended in 2009 to include a topsoil component (i.e. the uppermost 20 cm of soil) to create a harmonised and comparable dataset of physical, chemical and biological properties of topsoil across the EU to monitor the impact of land related policies on soil condition and to support new policy development. The soil component is carried out on approximately 30 000 locations. In 2018, a new soil sampling campaign is evaluating bulk density, the thickness of peat, erosion and soil DNA. These analyses require specific methods of soil sampling, preparation and storage of samples. Furthermore, there is considerable interest in the use of LUCAS soil data to assess human and environmental health issues such as pesticide residue, potential cancer drivers, radioactivity and ecosystem disruptors.</p>	JRC.D.3	1.3.1.b
201803	LUCAS Analysis	Reporting of 2018 survey results and preparation of Member State assessment Change analysis between 2018 and 2015/2009 data Input to LUCAS Working Group, liaison with Member States and other Commission Services	30/12/2020	JRC contributions to policy documents											
201901	Soil indicators for ESTAT	On the basis of the data from LUCAS 2015 and 2009, this deliverable will supply the SDG Core EU indicator 'changes in topsoil organic carbon content'. In addition, agri-environment indicators will be supplied on soil erosion. This deliverable is linked to the SDG Work Package in JRC.D.1	31/12/2019	Datasets											

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
569 - BIOECONOMY JRC.D.1	6801 - BIO4A-Soil Soil considerations associated with the production of advanced sustainable BIOfuels for aviation	The work package aims to assess the soil-related feed backs associated with the large-scale production of certified aviation biofuel produced from sustainable waste feed stock in the European Union. As inputs to the overall assessment of the viability of producing commercial-scale volumes of ASTM-certified biojet (HEFA) at competitive prices, the work package will carry out a focused assessment of the environmental sustainability of potential feedstock production on marginal land in the Mediterranean region of the EU through the development of a set of environmental sustainability indicators that also consider scenarios for land use change (driven by climate change) and through the cultivation of drought resistant no-food oil crop for biofuel production. The JRC will assess changes in key soil-nutrient cycles to ensure that cultivation strategies are compliant with low-Indirect Land Use Change specifications within the current EU REDII proposal, SGD targets and strategies for land-degradation neutrality. The activity will assess the potential increase in the resilience of marginal soils to pressures of drought, climate change and desertification through the preservation and increased sequestration of soil organic carbon.	JRC.D.3	1.3.1.b	ENER ENV	RTD	AGRI CLIMA ENER RTD		01/03/2018 01/03/2022	CON-IA	BIO4A1	Sustainable potential for advanced biofuel production on marginal lands in the Mediterranean Region	Identification of marginal and underutilized land suitable for growing dedicated energy crops to be defined as the result of a review of scientific literature together with previous EC-funded and international projects on the subject (i.e. harmonization of definitions); *Planting zonation/crop suitability maps of main varieties of oil crops on marginal lands based on their biological characteristics, environmental requirements, developmental status, type of farming system and natural geographic conditions. *Estimation of the amount of the potential feedstock production on the identified areas according to the availability of land, the level of exploitation and utilization of the selected areas, and the characteristics of the selected dedicated energy crop(s).	31/05/2020	Science-for-policy reports
											BIO4A2	Assessment of the environmental sustainability indicators for advanced biojet fuel value chains on marginal lands in the Mediterranean.	This deliverable aims to build an environmental sustainability assessment of the integrated and optimized Bio4A process. The cultivation of advanced biofuels feedstock on marginal and underutilized land requires the development of a robust and reliable methodology to describe the effective environmental sustainability indicators the context of the case study sites of the overall project. Particularly, this assessment will take into account the fossil energy consumption and potential contributions to renewable energy and GHG emission reduction targets. Where environmental data necessary for the measurement of the tailored set of sustainability indicators for bioenergy are not available, suitable proxies will be developed. This task will provide the goal and scope of the assessment, identification of environmental impacts to be considered and definition of indicators, methodologies to evaluate environmental sustainability criteria selected, and their application at case study sites.	30/09/2021	Science-for-policy reports
											BIO4A3	Assessment of socio-economic sustainability indicators for advanced biojet fuel value chains on marginal lands in the Mediterranean	The objective of this deliverable is to study the potential socio-economic impacts of the Bio4A methodology by conducting a sustainability assessment of the overall value chain based on inputs from all Bio4A project partners. A tailored methodology will be developed to describe the effective parameters of interest to develop a set of social and techno-economic sustainability indicators, that will be measured for each of the selected representative pathways. Particularly, the social impacts will assess the potential effects of advanced biofuel production on issues such as rural and social development, local food security, land rights, allocation and tenure of land used for bioenergy production, change in income, jobs in the bioenergy sector, bioenergy used to expand access to modern energy services.	30/09/2021	Science-for-policy reports
											BIO4A4	Contribution to project reporting	JRC contribution to Mid-Term Report 1, Mid-Term Report 2 and the project Final Report	01/03/2022	Science-for-policy reports
9488 - NatCap JRC.D.3	7709 - FORTRESS Forest Threats, Resilience, and Ecosystem Services	Managing forests and other wooded land sustainably, within safe ecological limits, is critical to developing a thriving bio-economy. Yet, forest ecosystems face a range of threats that are currently poorly understood, including from climate change and invasive species, that may jeopardize the services they provide. Understanding the mechanisms that govern forest	JRC.D.1	1.3.1.b	ENV	ENV,JRC	SANTE		01/01/2019 31/12/2020	CON-AA,INS-RS					
9488 - NatCap JRC.D.3	8303 - STING Science and Technology for pollinating insects	STING offers scientific and technical support to the EU Pollinators Initiative. Pollination is one of the key processes in nature which enables the reproduction of plants and therefore contributes to the maintenance of species biodiversity. Despite several measures in place to conserve and protect pollinators, their numbers continue to decline, and the services they provide may already be decreasing significantly. Action is necessary to safeguard biodiversity, agriculture and food security. In June 2018 the Commission adopted a strategy on pollinators which sets strategic objectives and actions to be taken by the EU and its Member States to address the decline of pollinators in the EU and contribute to global conservation efforts. In particular the initiative calls for measures to improve knowledge regarding pollinator decline (including the state of their most important habitats and a project to monitor the presence of pesticides in the environment), tackle the causes of this decline (through conservation and management approaches), and raise awareness, engage citizens and promote collaboration (with guidance and incentives, educational material and community projects). The initiative also pays particular attention to integrating the protection of pollinators within the CAP. Agriculture is obviously the sector that benefits the most from pollinators. Therefore the Commission will develop guidance for managing authorities and farmers to increase the effectiveness of measures to enhance pollinators in the post 2020 CAP. Importantly the Commission will include a pollinator indicator in the performance and monitoring framework of the CAP once finalized and operational. The pollinator initiative is ambitious in its objectives and requires substantial technical and scientific support to implement the various actions. The technical support can be summarized by the following objectives: (1) Set up a technical expert group to devise and test an EU-wide pollinator monitoring scheme to ensure the provision of good quality data for assessing the status and trends of pollinator species in the EU and developing a pollinator indicator; (2) Develop a digital exhibition on pollinators which explains to a wide public the importance of pollinators for human well-being and how efforts for their protection can be stepped up; (3) Assess the feasibility of the development of an online platform on pollinators to serve as a central data and information hub.	JRC.D.3	1.3.1.b	ENV	ENV	AGRI SANTE		01/01/2019 31/12/2020	CON-AA	1	a proposal for an EU wide monitoring network for pollinator species	A report with a proposal outlining different options for a core scheme with a selection of key species per country and an additional package to bring countries to the required level for monitoring pollinators. The possible options are based on experiences in member states and sets requirements for an EU wide monitoring, specific attention is expected for stratification, spatial and temporal resolution to detect statistically significant trends, aggregation at biogeographical and administrative level (regional, national, EU), links to existing monitoring schemes such as LUCAS; compliance with INSPIRE. The report will assess cost-effectiveness of different monitoring options (estimation of financial resources as well as of statistical robustness)	30/04/2020	External study reports
											2	A proposal for an indicator on pollinators	A report with a proposal for a statistically robust pollinator indicator, which can detect trends in the composition and relative abundance of the pollinator species community. The report should include a review of existing indicators for pollinators, a set of requirements for the indicator (purpose, conceptual frame, data availability, different taxa of pollinators, specification of key pollinator habitats, red list information, aggregation and components) and a test of the indicator, based on existing data. This work will also devise a version of the indicator specifically tailored to agricultural areas, suitable to be included into the monitoring and evaluation framework of the Common Agricultural Policy, and possibly of other relevant sectoral policies	30/09/2020	External study reports
											3	A digital exhibition on pollinators (initial release)	A digital exhibition on pollinator with key messages on pollinators in an immersive and interactive environment. This exhibition will come in two formats: 1.Desktop Edition, freely available over the internet, targeting teenagers, students and young adults, in possession of a mid-range 3D-capable PC no older than 3-5 years. 2.Virtual Reality Edition, mainly targeting corporate events, visitor centres, schools and the like.	31/05/2019	Sci information systems and databases
											4	A digital exhibition on pollinators (updated release)	This is an updated release of Deliverable 3	31/12/2020	Sci information systems and databases
											5	An assessment of requirements, user needs and costs to develop and maintain an online platform for information and data on pollinators	An assessment of current information hubs or platforms that could serve as an example for pollinators. The analysis includes an estimate of technical requirements and costs to maintain a platform on the medium term. A screening of datasets and information which are relevant for inclusion in the platform. A user requirements assessment for the online platform (by ENV, stakeholders, the public, and final users).	31/12/2020	Technical Reports
4854 - AIR JRC.C.5	8443 - ACTRIS-IMP Aerosol Cloud and Trace gas Research InfraStructure - Implementation Project	ACTRIS is the European Research Infrastructure for the observation of Aerosol, Clouds, and Trace gases. ACTRIS is composed of tens of observational and exploratory platforms, 8 topical centres, and 1 data centre. ACTRIS serves a vast community working on models and forecast systems by offering high quality data for atmospheric gases, clouds, and trace gases. As a follow up of the FP7 and H2020 ACTRIS projects, the H2020 ACTRIS-IMPLEMENTATION project will start in 2020 in view of preparing the ACTRIS research infrastructure as a future European Strategy Forum on Research Infrastructures (ESFRI) project. JRC's participation in the project proposal is critical due to the essential service the JRC has been providing in ACTRIS for the calibration of carbonaceous measurements, and to the key role the atmospheric observatory in Ispra for benchmarking the impact of European policies related to air	JRC.C.5	1.3.1.b	ENV	RTD	CLIMA		01/01/2020 01/01/2024	CON-IA	1	Updated ACTRIS strategy	Strategic guidance and steering to enhance ACTRIS relevance for policy making and the society, including a strategic innovation plan for the renewal of ACTRIS science and technologies.	31/12/2020	Technical Reports
											2	Workflows from the National Facilities to the Data Centre via the Topical Central Facilities	Establishment of workflows to guarantee the association of the data submitted by National Facilities to the Data Centre with the data quality measures produced at the Topical Central Facilities.	30/06/2020	Technical Reports
											3	Report on training of NF operators	Contribute to the series of workshops dealing with in-situ measurements of trace gases, aerosols, and clouds.	31/12/2023	Technical Reports

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
1.3.2. A circular, green and competitive low-carbon economy															
1.3.2.a Sustainable consumption and production and the circular economy - elaborate criteria and measures for implementing sustainable product policies (EU Ecolabel Regulation, Green Public Procurement Communication, Ecodesign requirements for Energy-related Products Directive, Energy Label Regulation) and for facilitating the exchange of information on best practices; determine the best available techniques and develop indicators for waste management; determine and assess the efficiency of sorting and recycling operations for key waste streams, as well as how to treat waste oils and other hazardous waste; evaluate how to optimise energy recovery from waste in line with the EU waste hierarchy; assess the product-waste interface (i.e. reparability, durability, and recyclability); develop lifecycle methodologies, data and analyses for sustainable consumption and production (linked to key orientation 4.1.f); develop other actions related to circular economy policy, such as EU raw materials knowledge base (linked to key orientation 4.1.d) and plastics strategy, which includes: addressing the challenge of recycling plastic waste in higher value applications (e.g. food contact materials), developing methods and tools for lifecycle assessments of plastics, assessing the environmental footprint of products and organisations, assessing the environmental benefits of higher recycling levels, developing methods and reference materials to detect, characterize and quantify microplastics and nanoplastics in food, water and the environment; develop and deploy a set of indicators for the sustainability assessment of buildings; gather knowledge and data on the technical and economic viability and the environmental impacts of innovative recycling technologies and processes, assessing environmental and industrial policies (linked to key orientation 4.1.a).															
160 - Product Policies JRC.B.5	267 - SUSTIM Development of implementation measures for SCP	The AA "Development of implementation measures for SCP instruments SUSTIM (AA No. 07.0307/2012/642653/C1)" supports the Circular Economy Action Plan through providing techno-economic and scientific analysis for the development and implementation of environmental product policies. The European IPPC Bureau (EIPPCB) discharges the obligation put on the Commission in Article 13(1) of the Industrial Emissions Directive (IED, 2010/75/EU) to 'organise an exchange of information between Member States, the industries concerned, non-governmental organisations promoting environmental protection and the Commission' in order to draw up, review and, where necessary, update BAT reference documents, the so-called BREFs. A series of 32 BREFs covering the main EU industrial activities has been drawn up and the IED sets the demanding objective to review each of these BREFs every 8 years. Each of the 32 BREF documents are drawn up/reviewed through a complex exchange of information process steered by the EIPPCB and involving a Technical Working Group (TWG) made of between 100 to 300 experts representing all stakeholders. The formal process to draw up/review a BREF typically spans over three to four years. The information exchange process has been enshrined into EU law (Commission Implementing Decision 2012/119/EU). The information in each BREF is organised using a standard format: Chapters 1 and 2 provide general information on the (agro-)industrial sector in question and on the common processes and techniques used within the whole sector. Chapters 3 provides information and data on the environmental performance of installations in terms of current emissions, consumption of raw materials, water and energy, as well as on the generation of waste. Chapter 4 includes information on the techniques that can be used in the sector to prevent and/or reduce emissions, the so-called BAT-candidate techniques. Chapter 5 is the key part of a BREF; it presents the BAT conclusions for the sector, as defined in Article 3(12) of the IED. In Chapter 6, the emerging techniques are presented. Chapter 7 is dedicated to concluding remarks and recommendations for future work. The work on each BREF entails the analysis of a very large number of technical documents and of A shift towards a more circular economy is crucial in order to achieve more sustainable and inclusive growth. The core objective of REPAIR is to provide local and regional authorities with an	JRC.B.5	1.3.2.a	ENV	ENV	ENER GROW		18/12/2012 17/12/2019	CON-AA	30	Ecodesign Preparatory Study High Pressure Cleaners	Preparatory Study according to the task and processes set out in article 15 and Annex VII of the ErP Directive and the most updated version of the MEErP methodology for High Pressure Cleaners	17/12/2019	Science-for-policy reports
161 - EIPPCB JRC.B.5	557 - EIPPCB European Integrated Pollution Prevention and Control Bureau (EIPPCB)		JRC.B.5	1.3.2.a	ENV	JRC	AGRI CLIMA ENER GROW SANTE	ADB - African Development Bank MIN Env EU MS - Environment Ministries EU Member States MS EU - Member states EU WB - World Bank	01/01/2013 31/12/2020	INS-RS	141	Draft 1 revised Ferrous Metals Processing BREF	Produce the First Draft (D1) of the revised Ferrous Metals Processing (FMP) BREF for comments of the Technical Working Group (TWG)	30/04/2019	Whole parts of policy documents
											17	Draft 1 Common Waste Gas Treatment in the Chemical sector (WGC) BREF	Produce the First Draft (D1) of the Common Waste Gas Treatment in the Chemical Sector (WGC) BREF for comments of the Technical Working Group (TWG)	31/12/2019	JRC contributions to policy documents
											18	Final Draft revised Waste Incineration (WI) BREF	Produce the Final Draft (FD) of the revised Waste incineration (FDM) BREF in order to receive a formal opinion of the IED Article 13 forum	31/01/2019	JRC contributions to
											19	Final Draft revised Food, Drink and Milk (FDM) BREF	Produce the Final Draft (FD) of the revised Food, Drink and Milk (FDM) BREF in order to receive a formal opinion of the IED Article 13 forum	31/01/2019	Science-for-policy reports
											20	Final Draft revised Surface Treatment using Organic Solvents (STS) BREF	Produce the Final Draft (FD) of the revised Surface Treatment using Organic Solvents (STS) BREF in order to receive a formal opinion of the IED Article 13 forum	30/09/2019	JRC contributions to policy
											21	Published revised Waste Incineration (WI) BREF	Produce and publish the revised Waste Incineration (WI) BREF taking into account the IED Article 13 forum opinion and the IED Article 75 Committee vote	31/12/2019	Science for Policy reports
											22	Published revised Food, Drink and Milk (FDM) BREF	Produce and publish the revised Food, Drink and Milk (FDM) BREF taking into account the IED Article 13 forum opinion and the IED Article 75 Committee vote	31/12/2019	Science for Policy reports
											23	Published revised Surface Treatment using Organic Solvents (STS) BREF	Produce and publish the revised Surface Treatment using Organic Solvents (STS) taking into account the IED Article 13 forum opinion and the IED Article 75 Committee vote	30/06/2020	Science for Policy reports
159 - Waste Management	3630 - REPAIR Resource management		JRC.B.5	1.3.2.a	ENV	RTD	CLIMA ENV	- Delft University of Technology	01/09/2016 31/08/2020	CON-IA	3	Eco-innovative solutions and change	Developing eco-innovative solutions and change models	31/12/2019	JRC technical reports
160 - Product Policies JRC.B.5	3870 - EcoDesign4Circularity	As further development of the AA 070307/2012/ENV.C1/635340 and 07.0307/ENV/2013/SI2.668694/A1, the overall objective of this AA "Ecodesign4Circularity" (AA No. 070201/2015/SI2.719458/ENV.A.1) is to further develop and improve the REAPro method for the setting of potential requirements on material / resource efficiency within EU product policies (in Ecodesign but also in EU Ecolabel and Energy Labelling), and apply it to relevant product groups. The assessment method and associated product criteria will concentrate on waste prevention (e.g. lifetime, durability, re-usability), material recycling (e.g. recycled content, recyclability rates) and/or development of non-toxic material cycles (e.g. substitution, restriction, extraction). It also aims at contributing to related standardization activities when developing standardized product criteria on circularity that can be easily measured and hence verified. The AA also links to the Life Cycle Indicators activities through the development of basket of products for appliances.	JRC.B.5	1.3.2.a	ENV	ENV	ENER GROW	- European Consumers' Organisation - EUROPEAN COPPER INSTITUTE CEN - European Committee for Standardization CENELEC - European Committee for Electrotechnical Standardization (CENELEC) EAA - European Aluminium Association EUROFER - European Confederation of Iron and Steel Industries (EUROFER) ORGALIME - European Engineering Industries Association PlasticsEurope - Association of Plastics Manufacturers (PlasticsEurope)	01/01/2016 31/12/2019	CON-AA	201801	Report on resources efficiency analyses & criteria	This report will summarise the analysis of resource efficiency of two product groups from various perspective (e.g. recyclability/recoverability, content of relevant materials and substances of concern, durability, reparability), using the REAPro. JRC B5 will also calculate benefits and impacts of identified options for potential material efficiency requirements for these product groups in new Ecodesign and Energy labelling measures/revisions. The product groups to be analysed will be agreed.	30/06/2019	JRC technical reports
											201803	Reparability of products	The report will develop further the knowledge and know-how needed to enhance the future adoption of reparability criteria in the context of the Ecodesign Directive. Based on previous work (e.g. on dishwashers and washing machines), the task will develop further assessment method to calculate benefits and impacts concerning reparability scenarios, including ways to identify relevant components in products. It will also develop and test metrics that could be used to assess reparability of products	30/06/2019	JRC technical reports
											201804	CEN/CENELEC activities on material efficiency	Since 2014, JRC has been representing DG ENV and DG GROW This task aims at ensuring continuous support of JRC B5 within the 'Resource efficiency' Task Force (TF4) of the CEN/CENELEC 'Eco-design Coordination Group', in strict cooperation with DG ENV and DG GROW. This task could also involve the preparation of some technical input to Technical Committees that will be formed when the standardization mandate on material efficiency is accepted.	31/12/2019	Oral presentation
											201806	Final technical report	This report will describe major achievements and potential follow up actions to be taken.	31/12/2019	JRC technical reports
159 - Waste Management JRC.B.5	4840 - CEBEST Circular economy best practices and innovation	This work package supports the development and implementation of circular economy policies by research on environmentally sustainable economic activities, best practices, as well as the most innovative technologies and business models in key sectors for the circular economy: • Techno-economic and life cycle assessments related to waste management and secondary materials and substances in order to inform the development and implementation of EU waste policies (such as waste framework directive, waste-stream specific regulation, batteries directive, end-of-life vehicles directive, landfill directive, etc.) and other related policies (such as on chemicals). This includes also research into quality standards for recovered materials and end-of-waste criteria.	JRC.B.5	1.3.2.a	ENV	FISMA, JRC	FISMA GROW REGIO	Tech Serv - Member States and their Technical Services/type approval authorities	01/01/2017 31/12/2022	CON-AA, INS-RS	2	Final report on support to sustainable finance	Final report, summarising the activities carried out during the duration of the administrative agreement on support to sustainable finance	31/12/2019	Technical Reports
											3	New technologies and standards for secondary materials	Assessment of the potential of new technologies and standards for improved recyclability and material circularity and the production of safe and environmentally friendly raw-materials	31/12/2021	Science-for-policy reports
											4	Policy options for creating and maintaining EU value from the circular economy	Proposals and assessment of alternative policy options to manage waste, protect the environment and strengthen the benefits of the circular economy for Europe in areas such as end-of-life vehicles or traction batteries.	31/12/2020	Science for Policy reports
159 - Waste Management JRC.B.5	6085 - SafeManure Criteria for Safe Use of Processed Manure in Nitrate Vulnerable Zones	The Administrative Agreement will help define which harmonised criteria that could apply to allow nitrogen fertilisers, partially or entirely derived from manure, to be used in areas with water pollution by nitrogen nutrients following the same provisions applied to nitrogen containing mineral/chemical fertilisers, while ensuring to provide adequate agronomic benefits.	JRC.B.5	1.3.2.a	ENV	ENV	AGRI GROW		01/02/2018 31/05/2020	CON-AA	1	Criteria for Safe Use of Processed Manure in Nitrate Vulnerable Zones	Document with proposals for criteria for safe use of processed manure in Nitrate Vulnerable Zones	31/05/2020	Science-for-policy reports
159 - Waste Management JRC.B.5	6088 - BEMPS Monitoring and updating the EMAS best environmental management practices &	Monitoring and updating of the EMAS best environmental management practices & management of the stakeholder network. The JRC will develop and implement a new approach to exchanging information on best practices among relevant stakeholders and keeping reference information up-to-date. This approach will also address the current barriers to the implementation of best practices with a specific focus on SMEs and small public administrations. The work will focus on selected	JRC.B.5	1.3.2.a	ENV	ENV	GROW		01/11/2017 31/12/2019	CON-AA	1	New approach to information exchange for state-of-the-art best environmental management practice	Report on a new approach to exchange information and update best environmental management practice. It will set out how to harness and maintain the relevance of the EMAS sectoral reference documents and their established working process, for the diffusion and uptake of best practices in environmental management in a circular economy.	31/12/2019	Science-for-policy reports
160 - Product Policies JRC.B.5	6352 - SupELGPP 2018 Scientific support to the EU Ecolabel and Green	SupELGPP 2018 supports the Circular Economy Action Plan through providing environmental, techno-economic and scientific analysis for the development and implementation of environmental product policies. In continuation of work packages #169, #267 and #2052 JRC B5 will develop new	JRC.B.5	1.3.2.a	ENV	ENV, JRC	CLIMA ENER GROW		01/06/2018 31/05/2023	CON-AA, INS-RS	1	Ecolabel criteria Hard Coverings	For the product group Hard Coverings: Draft legal proposal for Ecolabel criteria for interservice consultation and regulatory committee voting, together with the accompanying scientific background report.	30/11/2020	Science-for-policy reports
160 - Product Policies JRC.B.5	6355 - Photovoltaic Panels Photovoltaic Panels, Inverters and Systems -	'Photovoltaic Panels' supports DG GROW in developing product policy instruments for photovoltaic panels, inverters and systems for the first time. This work includes environmental, techno-economic and scientific analysis similar to work carried out in work packages #169 and #267 for different product groups. JRC B.5 will support DG GROW in preparing the draft legal	JRC.B.5	1.3.2.a	GROW	GROW	ENER ENV		01/10/2017 31/07/2019	CON-AA	1	Ecodesign Preparatory Study for Photovoltaic Panels	The output of WKP 6355 will be the Ecodesign Preparatory Study for Photovoltaic Panels, which summarises all evidence necessary for the development of an implementing measure for photovoltaic panels under the Energy related Products (ErP) Directive 2009/125/EC and the Energy Labelling Directive 2010/30/EU.	31/07/2019	Science-for-policy reports
160 - Product Policies JRC.B.5	6356 - Efficient Build 2 Resource Efficiency Assessment in the Building Sector 2	Efficient Build 2 is the continuation of Wkp #2051 'Resource Efficiency Assessment in the Building Sector' and supports the Circular Economy Action Plan with a focus on the priority area 'Construction and Demolition'. The project is framed by the Communication (2014) 445 on Resource Efficiency Opportunities in the Building Sector and aims at monitoring and refining the set of indicators and benchmarks of resource efficient buildings that has been developed in #2051.	JRC.B.5	1.3.2.a	ENV	ENV	ENER GROW		02/03/2018 01/09/2020	CON-AA	1	Findings and recommended improvements resulting from the testing phase of the common EU framework for buildings	This deliverable supports the Circular Economy Action Plan with a focus on the priority area 'Construction and Demolition'. The project is framed by the Communication (2014) 445 on Resource Efficiency Opportunities in the Building Sector. It delivers the findings of an evaluation of the EU common framework of sustainability indicators for buildings, which has been developed in WKP 2051 'Resource Efficiency Assessment in the Building Sector'. These results may be used to modify and adapt the indicator framework.	31/12/2019	Science-for-policy reports
160 - Product Policies JRC.B.5	6820 - EcodesignScoreCE Support in developing	The AA 'Support in developing and implementing Ecodesign and Energy Label implementing measures and a scoring system for use in Ecodesign to support the transition towards a Circular Economy' (AA No. 070201/2017/768638/SER/ENV.B1) aims at analysing and developing a	JRC.B.5	1.3.2.a	ENV	ENV	ENER GROW		01/01/2018 31/12/2020	CON-AA	1	Preparatory Study for a Product Group to be agreed on	For a product group to be agreed on with DG ENV: Draft preparatory study laying out the basis for Ecodesign minimum requirements and Energy Labelling energy classes.	30/11/2020	Science for Policy reports
159 - Waste Management JRC.B.5	7363 - Waste Disposal Assessment of the Disposal Operations	Assessment of the disposal operations listed in Annex I to Directive 2008/98/EC on waste (Waste Framework Directive -WFD) in the light of the duty of care obligation set out in Article 13 of WFD (protection of human health and the environment). The information will allow the Commission	JRC.B.5	1.3.2.a	ENV	ENV			01/11/2018 31/10/2020	CON-AA	1	Report on the assessment of waste disposal operations	Report on the assessment of the disposal operations listed in Annex I to Directive 2008/98/EC on waste (Waste Framework Directive -WFD) in the light of the duty of care obligation set out in Article 13 of WFD	31/10/2020	Science for Policy reports

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
9984 - PLASTICS JRC.F.2	7706 - MICROPLASTICS Micro and nano-plastics: Towards a more reliable assessment of exposure and biological effects	Microplastics are plastic particles below 5mm in size originating as manufactured primary particles used in e.g. inks, paints, cosmetics and abrasives or as secondary particles from breakdown of macroscopic plastic waste as well as tyre debris and textile fibres. They are widely diffused throughout the environment and concerns are growing that they may present a potential risk to human health via contamination of food, water and air. Currently there is much scientific and political debate on what actions should be taken to reduce or avoid negative consequences of this growing pollutant but the current knowledge base about many key issues, e.g. realistic exposure and uptake levels, potential to transfer chemical pollutants and eventual effects on single species and through trophic levels is inconclusive. For microplastics there has been limited coordination of different studies with unharmonized sampling strategies/analytical methods producing data of variable quality and uncertain inter-comparability. Furthermore, most studies consider microplastics in the size range above a few microns with little attention being given to the presence of sub-micron or nano-sized particles. For possible action or restrictions to be taken there is an urgent need for scientific support.	JRC.F.2	1.3.2.a	ENV	JRC,JRC	MARE RTD SANTE	ECHA - European Chemicals Agency (ECHA) EFSA - European Food Safety Authority	01/01/2019 31/12/2022	INS-PC,INS-UR	2	The current status of micro-plastic detection, characterization and quantification methods- a review of existing capabilities and future needs for informed policy development.	The deliverable will provide an up-to-date summary of the capabilities and limitations of existing analytical methods for the detection of micro and nano plastic particulates. In particular it will consider progress towards methods harmonization by national and international bodies while evaluating the extent of current knowledge gaps in this area derived in large part by the technical or throughput limitations of existing methods for detecting, identifying and enumerating interactions between micro-particles and biological systems.	30/06/2020	Journal contributions (Scopus)
											3	Scientific publication(s) relating to nano and/or microplastics.	Scientific publications relating to detection and characterization methods for micro and nanoplastics, their occurrence in food/water and their interactions with biological systems.	31/12/2020	Journal contributions (Scopus)
9496 - PathToSDGs JRC.D.1	7727 - EnvFootPrint Development of methodologies for Environmental FootPrint analysis	This WPK consists of one AA with DG ENV and an institutional part, which enables the creation of significant synergies. The AA "Technical support for Environmental Footprinting and the Life Cycle Data Network" has - in line with Recommendation 2013/179/EU - the overall objective to further improve the Product Environmental Footprint (PEF) and the Organisation Environmental Footprint (OEF) methods by updating environmental modelling and environmental data related to Life Cycle Impact Assessment (LCIA) methods and to further develop the European Platform on Life Cycle Assessment (EPLCA). This WPK ensures continued support to DG ENV for the Environmental Footprint including method development for environmental assessments, e.g. related to the use of natural resources, and related data activities with a focus on the Life Cycle Data Network (LCDN) and the Global LCA Data Access Network (GLAD). The institutional part provides also the basis for the AA and creates significant synergies. It is mainly dealing with environmental Life Cycle Impact Assessment (LCIA) related method development and environmental life cycle data activities in the context of the European Platform on Life Cycle Assessment (EPLCA). The EPLCA provides the EU Commission platform for distributing and promoting best practice related to methods and data for LCA as committed in COM(2003) 302 final. It includes Life Cycle Inventory (LCI) and Life Cycle Impact Assessment (LCIA) related methods and data, the LCA Resource Directory (RD), the Life Cycle Data Network (LCDN). It also serves as hub for the coordination with the Global LCA Data Access Network (GLAD), in the context of the International Forum on LCA cooperation, supported by DG ENV and UN Environment.	JRC.D.1	1.3.2.a	ENV	JRC	ENER GROW RTD SG	UNEP - United Nations Environment Programme (UNEP)	01/01/2019 31/12/2020	CON-AA,INS-RS	2019EFME3	Dissipative use of resources method development	The JRC will further develop methods for assessing biotic and abiotic resources in the Environmental Footprint context. The concept of dissipative use for biotic and abiotic resources will be explored. The task will lead to the identification of necessary updates of recommended methods and indicators but also take into account limitations stemming from the currently available Life Cycle Inventory (LCI) data.	30/03/2020	Technical Reports
											2019EFME3Transition	Transition phase support	Continued support for the Environmental Footprint and standardisation related activities on developing environmental methods and data including CEN TC350 aligning EN15804 more with relevant EF environmental modelling and data related requirements. Includes also the participation in and preparation of EF Steering Committee and Technical Advisory Board related meetings in the transition phase (after the EF pilots have ended but before any - potential - policy applying the EF is introduced).	30/03/2020	Contributions to standards
											2019INS1	EPLCA Information System	The European Platform on Life Cycle Assessment (EPLCA) provides the EU Commission platform for distributing and promoting best practice related to methods and data for LCA as committed in COM(2003) 302 final. It includes Life Cycle Inventory (LCI) and Life Cycle Impact Assessment (LCIA) related methods and data, the LCA Resource Directory (RD), the Life Cycle Data Network (LCDN). It also serves as hub for the coordination with the Global LCA Data Access Network (GLAD), in the context of the International Forum on LCA cooperation, supported by DG ENV and UN Environment. The JRC will support this primarily by making tools available to facilitate the upload and to increase the accessibility of LCA related data to support the use of LCA and Environmental Footprint in policies and business.	20/12/2019	Sci information systems and databases
											2020INS1	EPLCA Information System	The European Platform on Life Cycle Assessment (EPLCA) provides the EU Commission platform for distributing and promoting best practice related to methods and data for LCA as committed in COM(2003) 302 final. It includes Life Cycle Inventory (LCI) and Life Cycle Impact Assessment (LCIA) related methods and data, the LCA Resource Directory (RD), the Life Cycle Data Network (LCDN). It also serves as hub for the coordination with the Global LCA Data Access Network (GLAD), in the context of the International Forum on LCA cooperation, supported by DG ENV and UN Environment. The JRC will support this primarily by making tools available to facilitate the upload and to increase the accessibility of LCA related data to support the use of LCA and Environmental Footprint in policies and business.	18/12/2020	Sci information systems and databases
160 - Product Policies JRC.B.5	7768 - EDEL 2018 Scientific support to Ecodesign and Energy Labelling	The overall objective of this work package is to provide environmental, techno-economic analysis and scientific support for the policy-making process towards the development of implementing measures under Directive 2009/125/EC and Regulation EU 2017/1369. More specifically, JRC B5 will carry out the necessary tasks as described in the following chapter for 2 projects in the area of Ecodesign and Energy Labelling. The respective product groups will be chosen from the 3rd	JRC.B.5	1.3.2.a	ENER	ENER	ENV GROW		03/09/2018 02/09/2021	CON-AA	1	Ecodesign Preparatory Study for a product group to be agreed	The output of this work package will be the Ecodesign Preparatory Study for a product group to be agreed on with DG ENER which summarises all evidence necessary for the development of an implementing measure under the Energy related Products (ErP) Directive 2009/125/EC and the Energy Labelling Regulation EU 2017/1369.	31/08/2021	Science for Policy reports
160 - Product Policies JRC.B.5	7770 - FINEL 2018 Financial Instruments Ecolabel	FINEL 2018 supports DG ENV in developing an Ecolabel for financial instruments for the first time. This work includes environmental, economic and scientific analysis for different financial products. Such a label development has been announced by the Commission in the Action Plan: Financing	JRC.B.5	1.3.2.a	ENV	ENV	FISMA		01/09/2018 31/08/2022	CON-AA	1	Preliminary Study for an Ecolabel for financial instruments	Preliminary Study according to the task and processes set out in annex 1 of the Ecolabel Regulation 66/2010 enabling the Commission to formulate and implement Ecolabel criteria for financial instruments.	31/12/2020	Science for Policy reports
9984 - PLASTICS JRC.F.2	7803 - MIMO Exploratory Research Project MIMO	The MIMO project contributes to the Exploratory Research (ER) Programme. The aim of this project is to develop and test at proof-of-concept level an advanced analytical technique to quantify the uptake of micro and nanoplastics by prokaryotic and eukaryotic organisms such as bacteria, microalgae and human cells. The method is based on a specialised operational mode of the Inductive Coupled Plasma-Mass Spectrometry trace elemental analysis	JRC.F.2	1.3.2.a	JRC	JRC,JRC	ENV		01/01/2019 31/12/2020	ER-18,INS-UR	5	Final technical report of the Microplastics in Micro-Organisms exploratory Project (MIMO)	The Final technical report will summarize the scientific results of the project and provide a summary of the scientific papers originating from the project. A mid-term technical report will be produced at the end of year 1	31/12/2020	Technical Reports
9984 - PLASTICS JRC.F.2	8162 - PlasticsImpactsEnv Environmental Impacts of Plastics	The Plastic Strategy (COM(2018) 28 Final) outlines some of the main benefits plastics bring to society, but also list challenges to tackle about how plastics are produced, consumed and discarded. It addresses: alternatives to fossil feedstock, more sustainable production ways, more sustainable design of plastic products, and also more sustainable consumption and use patterns of plastics. A key concern is to keep plastics within a circular economy as long as possible and to avoid their littering at their end of life. This WPK includes an AA with DG GROW on the Life Cycle Assessment of plastics, an AA with DG ENV on marine litter and related institutional activities. In the LCA part of this WPK, we aim to (a) develop a strategy to assess potential impacts of littering and microplastics in LCA, addressing physical and chemical impacts, (b) identify a model to calculate the share of produced plastic products which is littered, allowing for product specific quantifications as a basis for product related environmental impact assessments, (c) conduct a feasibility study to determine if a new impact category should be introduced into LCA, named "impacts due to littering", to enable a more comprehensive and level playing comparison, e.g. between products showing a different tendency to be littered or not. The LCA work will be realised in cooperation with Project 9496 PathToSDGs, esp. the LCA method and data related activities in its WPKs 7727 EnvFootprint and 3813 LCA4Policy. The Marine Strategy Framework Directive (2008/56/EC) provides means for protection of the seas against marine litter. In collaboration with external institutions - incl. international - JRC will co-chair the MSFD Technical Group on Marine Litter. It will support monitoring guidance development for the quantification of marine litter in different environmental media and size fractions, including (a)	JRC.D.1	1.3.2.a	GROW	ENV,ENV,GROW	ENV MARE NEAR RTD		01/09/2017 31/12/2021	CON-AA,CON-AA,CON-AA,INS-RS	D12019	LCA methodology report	Methodology Report on Life Cycle Assessment for plastic from different feedstock and case studies covering updated results from a draft methodology report (taking into account stakeholder feedback), LCAs of 10 plastic articles (selected by DG GROW and JRC, taking into account stakeholder feedback).	31/08/2019	Technical Reports
											D32019	Report on Marine Litter monitoring	Report on Marine Litter monitoring and assessment support to MSFD implementation (D10) and international collaboration.	21/12/2020	Technical Reports
											D42020	Thresholds for litter criteria	MSFD AA 2016-2018 (Marine litter D10) Support to the establishment of thresholds for different litter criteria, analyse D10 assessment implementation through MS reporting and within TG Marine Litter in order to derive gaps and needs for further work prioritization, provide support to guidance update and development for litter monitoring (including micro-litter), with external (MS and stakeholder); provide support to the establishment of litter baselines for different litter criteria in close collaboration with MS, through the TG Marine Litter.	20/12/2019	Technical Reports
											D52020	Feasibility study	Feasibility study to determine if a new impact category in LCA should be introduced, namely "impacts due to littering", to enable a more comprehensive and level playing comparison, e.g. between products that show a different tendency to be littered at their end of life. This includes an evaluation of the feasibility to calculate the share of specific produced plastic products which are littered at their end of life, allowing for product specific quantifications as a basis for product specific environmental impact assessments. This also includes an evaluation of the feasibility to assess potential impacts of littering macroplastics and of releasing microplastics into the environmental in a Life Cycle Assessment context, addressing as far as possible physical and chemical impacts.	20/12/2020	Technical Reports
9984 - PLASTICS JRC.F.2	8164 - UPCYCLE More value from plastics recycling	Generation and management of knowledge for policy making on a higher quality of plastics recycling. Currently much of the plastic waste generated is incinerated or recycled into products of	JRC.B.5	1.3.2.a	ENV	JRC	GROW	CHEM Industry - Chemicals Industry	01/01/2019 31/12/2020	INS-RS	1	Follow-up of the seminar on the future of plastics	Policy briefs on the research questions and policy options for shaping the future of plastic recycling for high value applications	31/12/2020	Science for Policy Briefs
160 - Product Policies JRC.B.5	8202 - ECOBAT Ecodesign for Batteries	The work package supports the initiative of the Commission to develop Ecodesign Implementing Measures for Batteries, with a focus on Electric Vehicle batteries.	JRC.B.5	1.3.2.a	GROW	JRC	ENER ENV		01/10/2018 31/12/2020	INS-RS	01	Battery production in Europe - support to the legal framework	This report summarises the contribution of the JRC to develop criteria for the environmental improvement and energy saving of batteries under the Ecodesign Directive and/or another legislation.	31/12/2020	Science for Policy reports

JRC 2019 - 2020 DETAILED WORK PLAN																
Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category	
1.3.2.b Environmental knowledge and indicators - develop environmental indicators and lifecycle-based methods and data for the roadmap to a resource-efficient Europe, for SDGs (linked to key orientation 9.2.1.a) and for incorporating environmental considerations into other policies, e.g. via the better regulation toolbox; contribute to the environmental knowledge community, including through its knowledge innovation projects in order to generate, plan and share environmental knowledge in a more efficient way; develop indicators on natural capital accounting (INCA), circular economy, raw materials, food waste and SDGs indicators; contribute to regular data production of the indicators in the Commission monitoring framework on the circular economy, in particular the indicator on patents; improve spatial data management at the Commission, building on the experience in implementing INSPIRE (the infrastructure for spatial information in Europe); develop innovative tools and products for spatial data harvesting and management as contribution to the follow up on the environmental reporting fitness check.																
484 - INSPIRE JRC.B.6	1052 - INSPIRE-TC+E INSPIRE Technical Coordination and Evolution	<p>This work package (WP) involves the overall technical coordination of the implementation of the INSPIRE Directive in the Member States aiming to develop the European Spatial Data Infrastructure (SDI). The WP reflects the new INSPIRE strategy that addresses various challenges that emerged in the INSPIRE REFIT, the new INSPIRE Maintenance and Implementation Work Programme (MIWP) 2016-2020, new Commission initiatives and priorities (e.g. Digital Single Market, Better Regulation, eGovernment Action Plan) and the emerging challenges and opportunities resulting from the Digital Transformation in the Public Sector.</p> <p>Specifically, the WP will provide institutional resources to complement the AAs with ESTAT and DG ENV supporting the execution of the MIWP 2016-2020, in order to:</p> <ul style="list-style-type: none"> - evaluate the INSPIRE technical and legal framework to make INSPIRE easier to implement and more fit-for-use in broad end-user applications and to support new business opportunities and the development of innovative applications; - follow global Geo-ICT standardization initiatives such as ISO, W3C, Open Geospatial Consortium; - develop a strategy for the long-term sustainability of the INSPIRE infrastructure and its central components; - develop a structured approach for creating synergies with other policy areas and EC initiatives, e.g. on eGovernment, Copernicus and Data, Information and Knowledge Management; and - coordinate the development of reusable solutions supporting INSPIRE implementation and improving the sharing and use of geospatial data between public administrations, businesses and citizens (through activities under the ISA2 Action 2016.10 ELISE). 	JRC.B.6	1.3.2.b	ENV	JRC,JRC ,JRC	AGRI CNECT DIGIT ESTAT GROW	CC EU - Candidate Countries EU EEA - European Environment Agency MS EU - Member states EU	01/01/2015 31/12/2020	DEL,INS- E&IA,INS-RS		201804	The role of INSPIRE in the digital transformation of public administration	This report will evaluate how INSPIRE is supporting and affected by Digital Transformation in the Public Sector. The evaluation will be based on in depth analysis of the MS 3-year INSPIRE implementation reports accompanied by statistical analysis of the evolution of the data content of the EU Geoportal and selected national geoportals. In order to detect different patterns due to national conditions and European drivers, the report will also evaluate existing monitoring indicator schemes on Europe's digital performance (e.g. DISE) and propose how to complement them with relevant INSPIRE aspects. This set of indicators will allow future progress monitoring of various aspects defined by the Digital Single Market and related policies. The evidence on the evolution of INSPIRE implementation provided by the report will be used as input for the INSPIRE 2025-30 vision and also will be carried out in close cooperation with the relevant activities of the Digital transformation project.	30/06/2019	Technical Reports
												201901	Reusable interoperability solutions for sharing and use of geospatial data	Reusable solutions (guidelines, tools and services) developed under the ISA2 Action 2016.10 ELISE that support INSPIRE implementation and improve the sharing and use of geospatial data between public administrations, businesses and citizens. These include e.g. the INSPIRE validator and registry (and the underlying software), the INSPIRE data specification software toolbox and guidelines & tools for sharing geospatial data on the Web. It also includes recommendations and guidelines resulting from the ELISE transport, energy and gazetteer pilot applications.	29/11/2019	Scientific information systems and databases
												202001	INSPIRE vision 2025-2030	This science for policy report will (a) analyse the challenges in terms of technology evolution and requirements from Digital Transformation in the public sector, (b) identify best practices in Member States and (c) make policy recommendations on the evolution of EU policies (including, but potentially going beyond, INSPIRE) to improve the efficiency and effectiveness of public tasks based on geospatial data from the public and private sector as well as citizens.	31/03/2020	Science-for-policy reports
484 - INSPIRE JRC.B.6	3785 - INSPIRE-BR INSPIRE for Better Regulation	<p>The work package covers the following Administrative Arrangements (AAs) with DG ENV:</p> <ul style="list-style-type: none"> - INSPIRE for Better Regulation (07.0203/ENV/2016/734394/D.4), - INSPIRE SEIS and e-Reporting (07.0201/2014/681763/AA/ENV.D.4), and - Implementation and Evolution of INSPIRE (07.0201/2015/705430/ENV.D.4). <p>These AAs support DG ENV in addressing various challenges that emerged in the Fitness Check of environmental monitoring and reporting, the INSPIRE REFIT, and the alignment with other new Commission initiatives and priorities (e.g. Digital Single Market, Better Regulation, etc.). They also provide resources for supporting the execution of the INSPIRE Maintenance and Implementation Work Programme 2016-2020 covering activities in the following main working areas:</p> <ul style="list-style-type: none"> - Fostering "Fitness for purpose": This activity will analyse possibilities for streamlining and simplification of INSPIRE implementation technical and legal framework, proposing and implementing an action plan based on this analysis. The activity aims at making the INSPIRE implementation requirements and guidelines easier and more feasible to implement and better fit for use in broad end-user applications. - Focusing on "End user applications": This activity will cover further development of a list of priority datasets related to eReporting and support MSs with publishing of these datasets on the EU Geoportal. It will also focus on modernizing the monitoring and reporting process in order to make it more fit for purpose, less cumbersome for all partners involved and based on indicators automatically derivable from existing INSPIRE services and metadata. - Alignment with national, EU and international policies/initiatives: This activity includes action 5.4 of the work programme on Data, Information and Knowledge Management at the European Commission and alignment with other policies and programmes (e.g. Copernicus, ISA2) - Continued coordination and support to implementation: The operational support to maintaining and operating the central INSPIRE infrastructure components, tools and community platforms and 	JRC.B.6	1.3.2.b	ENV	ENV,ENV ,ENV	AGRI ESTAT MARE NEAR REGIO	MS EU - Member states EU Reg Aut Env - Candidate Countries / Members States regulatory authorities on Environment	29/06/2016 31/12/2020	CON-AA,CON-AA,CON-AA,INS-RS		201801	Final Management Report	Final Management Report summarizing all activities and deliverables during the implementation of the AA "INSPIRE, SEIS and e-Reporting"	25/05/2019	Project management related documents/reports identified as outputs of the JRC Work Programme
												201901	Final Report	The final report will summarise all activities and outcomes of the tasks performed under the AA "INSPIRE implementation and evolution".	19/04/2020	Project management related documents/reports
												201902	Status report on INSPIRE for Better Regulation 3	This interim report will summarise the activities carried out under the AA up to the date of the report and evaluate how INSPIRE has been contributing to better regulation. The report will cover activities related to the following working areas defined in the INSPIRE maintenance and implementation work programme 2016-2020: (1) Fostering "Fitness for purpose", (2) End user applications and (3) Continued support to implementation	31/10/2019	Technical Reports
												20201	Final Report on INSPIRE for Better Regulation	This report will summarise the activities carried out under the AA "INSPIRE for Better Regulation" and evaluate how INSPIRE has been contributing to better regulation. The report will cover activities related to the following working areas defined in the INSPIRE maintenance and implementation work programme 2016-2020: (1) Fostering "Fitness for purpose", (2) End user applications, (3) Alignment with national, EU and international policies/initiatives and (4) Continued support to implementation	04/12/2020	Project management related documents/reports identified as outputs of the JRC Work Programme
9496 - PathToSDGs JRC.D.1	3813 - LCA4Policy Life Cycle Assessment for Policies and capacity building (LCA4Policy)	<p>The transition towards sustainable economies and achieving the Sustainable Development Goals (SDGs) require integrated assessment methodologies for ensuring reduction of environmental burdens associated to innovation and solutions. Life Cycle Thinking (LCT) and Assessment (LCA) help avoiding the shifting of burdens from one stage to another (e.g. from mining to end of life), from one environmental issue to another (e.g. from climate change to the use of more toxic substances), or from inside the EU to third countries. LCT and LCA support SDGs mainstreaming and identification of win-win solutions for their achievement. The "better regulation" toolbox associated to COM(2015)215 explicitly mentioned life cycle analysis as a tool for supporting impact assessment of policies. Hence, this WPK will support the development of competences, towards the use of life cycle based methods for policy impact assessment by developing methods, indicators and monitoring approaches and will mainstream environmental and sustainability issues into a broader range of policy areas such as a sustainable bio-economy, a circular economy (CE) and the Single Market. LCA4Policy focuses on developing improved methods and indicators for evaluating suggested sustainability solutions at various levels: micro scale (e.g. products and services), meso scale (e.g. industrial sectors like plastics) or macro scale (e.g. EU wide policy options). The AA Consumption Footprint links micro level LCA and life cycle based indicators with macro level EU policy goals related to consumption, further developing indicators and baseline scenarios for impact assessment of policies. This includes a methodology for analyzing environmental and resource efficiency targets as well as distance to planetary boundaries. The development of improved methods for carrying out environmental impact assessment is required to provide a more holistic and evidence-based decision support in the context of the Better Regulation package and tools on the path towards implementing the SDG commitments, e.g. as set out in the 2016 "Communication on Next steps for a sustainable European future". Fostering synergies between different JRC developed models and methods, the WPK LCA4Policy will also link with the JRC projects WEFE on nexus, and the bio-economy and raw materials related ones. Capacity building and training on LCT and LCA will focus on desk officers in SecGen and JRC as a first priority.</p>	JRC.D.1	1.3.2.b	ENV	ENV,JRC	AGRI CLIMA DEVCO ENER ESTAT GROW SANTE SG TRADE	- EUROPEAN FOREST INSTITUTE - World Wide Fund for Nature - European Policy Office - European Consumers' Organisation - European Aluminium Association - EUROPEAN COPPER INSTITUTE DTU - Technical University of Denmark - Danmarks Tekniske Universitet EEB - European Environmental Bureau FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) ACE AISBL - THE ALLIANCE FOR BEVERAGE CARTONS AND ENVIRONMENT AISBL L ALLIANCE CARTON ET L'ENVIRONNEMENT ACE EUROFER - European Confederation of Iron and Steel Industries (EUROFER) Food SCP - European Food Sustainable Consumption and Production Round Table INRA France - Institut National de la Recherche Agronomique (INRA), France	01/01/2016 15/05/2021	CON-AA,INS-RS		20191	Training on Life Cycle Thinking and Life Cycle Assessment for the Impact Assessment of EU policies	Training focusing on the needs to use Life Cycle Thinking and Life Cycle Assessment in the Impact Assessment of EU policies. The training material will be updated taking into account feedback and expressed needs from participants in the last sessions.	20/12/2019	Training
												20192	Guidance on LCA for policy	The Better Regulation with its toolbox n.58 foresees the enhanced application of Life Cycle Analysis for the purpose of supporting policy Impact Assessments. This deliverable will provide a guide on how to apply LCA with a focus on providing guidance on if and how to apply LCA in the Impact Assessment of policies.	20/12/2019	Article contribution to periodicals or to conference proceedings listed in the Scientific information
												20193td	to be deleted	to be delted	20/12/2019	Scientific information
												2019Consumption1	Inception report	Overview of the methodological details for the calculation of consumer and consumption footprints in different areas of consumption. Assessing environmental impact of EU consumption for informing both micro and macro-level policies addressing for SDG 12, biodiversity impacts and planetary boundaries.	12/03/2019	Technical Reports
												2020Consumption1	Guidelines consumer footprint (Del 1)	Final calculation and time-related update of the consumer and consumption footprint. Definition of case studies to illustrate the use of the indicators in the context of e.g. SDG, monitoring of circular economy, resource efficiency policies, biodiversity and planetary boundaries assessment.	12/05/2020	Technical Reports
												2020a	Training on Life Cycle Thinking and Life Cycle Assessment for the Impact Assessment of EU policies	Training focusing on the needs to use Life Cycle Thinking and Life Cycle Assessment in the Impact Assessment of EU policies. The training material will be updated taking into account feedback and expressed needs from participants in the last sessions	18/12/2020	Training
												2020b	guidance on the use of LCA for SDGs	Guidance document focusing on the key aspects for operationalize the use of Life cycle assessment (LCA) towards SDG's.	20/12/2019	Science-for-policy reports
												2021Consumption1	Calculation of consumption footprint indicators (Del 2)	Calculation and time-related update of the consumption footprint indicators at country scale.	12/01/2021	Technical Reports
												2021Consumption2	Calculation and testing of consumer footprint indicators (Del3)	Calculation of consumer footprint indicators, including: development of a PEF-based basket of product, testing of different normalisation references, calculation of planetary boundaries, assessment of environmental impacts of consumption on biodiversity and on marine litter, interpretation of results in light of the new toxicity related impact categories..	12/01/2021	Technical Reports
												2021Consumption3	Governance of the indicators (Del 4)	Technical report on the options and outlook regarding the future governance of the Consumption and Consumer footprint indicators	12/03/2021	Technical Reports
												2021Consumption4	Dissemination of results (Del 5)	Technical report summarising the activities done in the project towards a wider dissemination of the consumer and consumption footprint results.	12/03/2021	Technical Reports
												2021Consumption5	Key results of the consumer and consumption footprint (Del 6)	Final calculation and time-related update of the consumer and consumption footprint. Illustration of the use of the indicators in the context of e.g. SDG, monitoring of circular economy, resource efficiency policies, biodiversity and planetary boundaries assessment. The science for policy report is coupled with a 4-pages final management report.	12/04/2021	Science for Policy reports

JRC 2019 - 2020 DETAILED WORK PLAN

Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
153 - DT&AI JRC.B.6	3826 - CSData Citizen Science Platform	<p>This work package examines the use and practices of Citizen Science for EU policymaking. It identifies and develops methodologies and tools that interconnect Citizen Science with selected policy areas, and demonstrates their use and usefulness in the policymaking. It reflects upon the implications of using Citizen Science in support to established decision-making processes and information flows, especially considering the opportunities and challenges of digital transformations in order to facilitate the spreading of Citizen Science-based approaches across the EU. Identified demonstrators will first contribute to the work of the Environmental Knowledge Community (EKC), and to the implementation of policy frameworks, such as the Action Plan for nature, people and the economy, the Action Plan to streamline environmental reporting, and the Actions for Environmental Compliance Assurance.</p> <p>Depending on policy contexts, demonstrators will be extended to other policy areas, for example related to the SDGs, where the potential impact of CS as new resource for policy making is likely to be high, for instance where approaches based on Citizen participation is very important, like in the area of Digital Government, Smart Cities and health. As part of this work, this WPK intends to provide a data gathering, handling, sharing, re-use and visualisation platform for Citizen Science, as well as showcase its value for European policymaking, at the intersection of the Better Regulation and Open Science agendas and demonstrate the possibility for wider deployment to other policy areas within the context of the CoPs on citizen engagement and AI and Big Data.</p> <p>This platform will be gradually extended, in order to accommodate newly arising priorities related to the ongoing digital transformation affecting our society, and the challenges and opportunities brought about by artificial intelligence. Scenarios for the operational phase of the JRC Citizen Science platform towards a sustainable operational environment, including its inherent legal and ethical issues, will also be developed and assessed. The WPK scope and activities are closely related to the field of digital transformation and Artificial Intelligence.</p>	JRC.B.6	1.3.2.b	ENV	JRC	AGRI CLIMA CNECT ESTAT RTD	EEA - European Environment Agency	02/01/2017 31/12/2020	INS-RS	201901	Evolution of the Citizen Science Platform	Further evolution of the Citizen Science Platform, including a possible contribution as a Knowledge Service to the Knowledge4Policy Portal in order to address rationalization of web presence needs in the JRC. Accommodating additional reusable digital content, tools, technical and methodological standards and guidelines, best practices and contributing to the relevant CoPs. This deliverable embraces contributions to ongoing standard development, e.g. in the context of the European, American and Australian Citizen Science associations, and includes the outputs (tools and methodologies) and outcomes (state of the art, best practices, framework conditions and recommendations) from the Pan-European Survey of CS Strategies and Practices in the COST Countries. It also includes a sustainability plan and a study of the hand-over options for operational components.	31/10/2019	Scientific information systems and databases
											201902	Support to EKC Knowledge Innovation Project (KIP) on Citizen Science	The Inter-DGs Environment Knowledge Community adopted on the 20th April an Action plan for the activities to be conducted in the coming years with regards (among others) to the Knowledge Innovation Project on Citizen Science. The proposed outputs contributing to this deliverable will include: oGuidelines on the use of citizen science to complement environmental reporting; oContributions to the possible roles of citizen science for environmental compliance assurance; oAnalysis of the inventory of citizen science activities relevant for environmental policies in Europe; oUse of Citizen Science to detect and monitor Invasive Alien Species of union concern; oHandover of operational systems for using Citizen Science for Invasive Alien Species policy to interested Member States; oFull running of the mobile app on Natura 2000; oReport on the uptake of relevant citizen science data by EKC partners; oDefinition of new case studies and possible demonstrators.	15/12/2019	Science-for-policy reports
											201903	Impacts of disruptive technologies on citizen science	Report that evaluates the impact of disruptive digital technologies regarding their (i) possible uses, (ii) societal implications, and (iii) citizen involvement and policy making. Issues of scalability and scientific knowledge integration, challenges and benefits, and the impacts of digital transformation will be addressed (including the exploration of tools and methods to rebuild trust in digital technologies, and ways to ensure the protection of personal data). Particular emphasis will be put on the disruptive role and interplay between Citizen Science and (i) Internet of Things, and (ii) Artificial Intelligence. The report also reflects on possible usage outside the strict definition of Citizen Science, e.g. exploring the relationship to Open Government APIs, Smart Cities, and social contract, emphasizing the relations between citizens and digital transformation	15/12/2019	Technical Reports
											202001	Reflections on the Citizen Science Platform	Based on the outcomes of our work in 2019, this deliverable reflects on the overall concept of the Citizen Science Platform and proposes a possible re-positioning according to emerging policy priorities. Depending on the feasibility study for the future operations of the Citizen Science Platform (part of deliverable 201901), this deliverable not only suggests new developments and directions for experimentations, but also entails those operational components of the platform that are ready for handover to an appropriate technical environment together with the required documentation.	15/12/2020	Scientific information systems and databases
											202002	Citizen, Digital Transformation and EU Policy	Reporting on new ways of contributing to the provision of scientific evidence. Offering approaches to address the relationship between citizens (European or foreign) to public authorities, considering methods for transparently integrating traditional data flows and Citizen Science at different stages of the policy cycle, and collecting and consolidating public opinions with showcases in selected policy areas. Outlining possible governance structures, legal and ethical implications for operational approaches at EU level including possible contributions to the Better Regulation Toolbox and GEOSS. The report will contain as well recommendations on the integration of citizen science in the EU policy cycle and will contribute to the EKC Action Plan. Suggestions for further experimentation, e.g. on the scalability of different methodologies, on the combination of human intelligence and machine reasoning, and on new areas (esp. in the framework of the SDGs) will be included too.	15/11/2020	Science-for-policy reports
9488 - NatCap JRC.D.3	8304 - INCA-MONIND Support to Natural Capital Accounting and to Monitoring Indicators for EU Policies	<p>The administrative arrangement sets up JRC science-based work addressing policy aspects which involve statistical activities: In the case of evaluating ecosystem accounts, the task is to build a shared spatial data platform (SSDP) in support to a regular production of EU-level ecosystem accounts and to their publication in the form of accounting tables, maps and geospatial information; those are needed for developing an integrated system of natural capital and ecosystem services accounting (INCA) The Commission monitoring framework for the circular economy consists of 10 indicators, some with sub-indicators. Two of the indicators are solely available for 2016 and for the EU as an aggregate (not for individual Member States), namely: (1) EU self-sufficiency for raw materials, (2) End-of-life recycling input rates. JRC will support a further development of these monitoring indicators in order to extend the time coverage and the geographical disaggregation by member states. A second line of work will be dedicated to responding to EU policy increasing demand for data on primary and initially processed non-fuel non-agricultural raw materials. A third line of support will estimate food waste. A balancing system shall be developed, in which for each stage of the food chain (agriculture, industry, retail, restauration and households). The approach shall start with determining the amount of food being available for one country, and then estimating coefficients / indicators for the amount of food that is not consumed but ends up as waste, e.g. by the use of other statistics on consumption, by mass balances approaches or any other method. The fourth line of work refers to soil and water ecosystems indicators under the SDG framework. JRC shall develop sound and meaningful indicators on soil degradation and water stress and scarcity based on the current SDG indicators, or develop alternative viable indicators proposal. Conceptual and methodological work to capture 'land degradation' in the context of the SDGs in a more complete way, with direct reference to soil erosion by water and topsoil organic carbon.</p>	JRC.D.3	1.3.2.b	ESTAT	ESTAT	ENV GROW SG		01/03/2019 28/02/2021	CON-AA	201902	Proposals for SDG Indicators on Soil and Water	The deliverable will focus on the improvement of several indicators which are managed by the JRC, particularly covering two groups: A) Indicators on land degradation for SDG 15 (SDG 2): 1. Indicator sdg_15_50 on 'Estimated soil erosion by water', produced currently by the JRC, will be updated and will address also the erosion produced by wind; 2. Indicator "Topsoil organic content", produced by the JRC as well, is on hold, will be expanded to cover more than grassland and cropland if data available. B) Indicators on water stress level and water scarcity for SDG 6: 1. The current WEI+ indicator will be further developed (in collaboration with EEA) as it is currently providing data by river basin, but not by EU MS.	28/02/2020	Technical Reports
											202001	Implementation of a fast track version of the INCA shared spatial data platform	The INCA SSDP (shared spatial data platform) will be connected to the INCA landing page and will be based on two metadata catalogues: -a catalogue with INCA datasets (metadata which describe INCA input and output datasets) -a catalogue with INCA models and tools (a model library which describes the models and tools used to produce INCA outputs based on INCA input data) The development of the landing page will continue with accounts of ecosystem extent, ecosystem condition and ecosystem services as soon as they become available. A model library used for calculating the accounts will be created, including the software (QGIS plugins) and manuals of how to use the software.	11/09/2020	Sci information systems and databases
											202002	Food Waste Modelling and Estimation	Food waste shall be estimated in each stage of the food chain (agriculture, industry, retail, catering/restaurants and households). Such a system and the model for estimation will be used for several periods without being dependent on additional surveys or on data that is not published already regularly (could be e.g. like an input-output matrix). The model will be used to validate the data from the food waste monitoring system existing in the Commission (DG SANTE), thus the approach will also work for each Member State. Outcome of such a model would be an estimation of the amount of food waste per Member States in each step of the food supply/value chain. One major problem is to anticipate behavioural changes of consumers, e.g. after actions of policy to decrease food waste amounts.	30/10/2020	Technical Reports

JRC 2019 - 2020 DETAILED WORK PLAN															
Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
1.3.3. Protection from environment-related risks to human health and wellbeing															
1.3.3.a Chemicals and nanomaterials - help to design and implement legislation on chemicals, including nanomaterials, and support policy development in cross-cutting areas; set up a knowledge base and further develop and maintain the Information Platform for Chemical Monitoring (IPChEM), especially to support the European Human Biomonitoring Initiative (HBM4EU); support mutual acceptance of chemicals and nanomaterial data at international level (e.g. OECD); develop and promote alternatives to animal testing; develop methodologies, standards, reference materials and representative test materials for nanomaterials, including the nanomaterials repository (see also key orientations in 4.1).															
10091 - EvidenceBasedHealth JRC.F.7	3944 - IPChEM-SciCoord Information Platform for Chemical Monitoring (IPChEM): Scientific Coordination	Understanding of environmental and human health effects of combined exposure to chemicals and evidence-based decisions of a number of EU policies cross-cutting the areas of environment, health and chemicals rely on timely accessing and using reliable, robust and high quality data. This concerns the implementation and evaluation of the entire chemical legislation acquis and requires serving multiple Commission Services (e.g. ENV, SANTE, GROW, JUST, ENER, HOME, TAXUD, EMPL), EU Agencies (e.g. EEA, EFSA, ECHA, EMA) as well as international work on chemical management under the OECD and the environmental and health policies of UNEP and WHO. This work package aims to: (a) coordinate the work of the other WPs of the IPChEM-NextGen	JRC.F.7	1.3.3.a	ENV	ENV,JRC	CNECT EMPL ESTAT GROW JUST MARE RTD SANTE	ECHA - European Chemicals Agency (ECHA) EEA - European Environment Agency EFSA - European Food Safety Authority OECD - Organisation for Economic Co-operation and Development (OECD) UNEP - United Nations Environment Programme (UNEP)	01/01/2019 31/12/2020	CON-AA,INS-RS	8	IPChEM – Quotations, Recognitions, Impact	Traceability of IPChEM's support to policies and scientific communities at EU and International levels	30/10/2019	Technical Reports
														31/12/2020	Sci information systems and databases
9488 - NatCap JRC.D.3	6700 - ChemPRINT Chemical footprint for non-target compounds	The ChemPRINT project contributes to the Exploratory Research (ER) Programme. It aims at the first development of a methodology for the determination of non-target organic contaminants in environmental matrices such as water, food, soil, air, biota or consumer products using cutting-edge analytical instrumentation. EU legislation is typically enforced based on limit values analysis of samples and the respective guidance makes use of methods for what is commonly called "target analysis, addressing	JRC.D.2	1.3.3.a	JRC	JRC	ENV		01/01/2018 31/12/2019	ER-17	012019	Final technical report	The Final technical report will summarise the scientific results of the project and provide a summary of the scientific papers originating from the project. A mid-term technical report will be produced at the end of year 1.	31/12/2019	JRC technical reports
433 - SciNANO JRC.F.2	7540 - NanoGovernance Facilitating Nanomaterials Governance through development and harmonisation of tools for sound regulatory assessment and management	NanoGovernance supports the development of a transparent, balanced and science-based risk governance framework for nanomaterials (NMs) (in order to foster innovation, growth, EU/global trade, consumer acceptance, and protection of human health and the environment. It underpins EU regulatory processes (e.g. NM regulations under REACH, Cosmetic Products, Food & Food Contact Materials, Biocides, Pharmaceuticals) by harmonising assessment tools such as test methods, guidelines, guidance and safety assessment methodologies (and non-testing approaches such as grouping and read-across) for NMs and other chemicals. It represents EU interests/priorities in international fora, which govern global harmonisation of methods, e.g. OECD (leading roles in the Working Party on Manufactured NMs and the Test Guidelines Programme) and ISO/CEN. Results feed into technical and policy documents of COM Services(e.g. the Test Methods Regulation, CASG Nano, CARACAL, REACH Committee), ECHA (NMEG), EFSA, EMA, etc. The WPK provides technical guidance for adapting, implementing and enforcing chemicals legislation to specifically address NMs in a scientifically sound way, including guidance on a legally binding definition of NM or the updated REACH Annexes. This ensures safety, consumer confidence, and a level playing field, thus supporting the single market while promoting innovation and growth. Convergence, digitalisation and AI related needs are addressed with Project 275 and WPK 6377. The JRC Nanomaterials Repository provides benchmark materials for the scientific development and regulatory implementation of methods. There are several related underpinning research projects, notably on characterisation of NMs (for details see attachments): AA METHODS-NANO: Scientific and technical support for the development and international acceptance of test methods specifically addressing NMs, in particular characterisation. A new AA METHODS-NANO-2 is planned for 2019.	JRC.F.2	1.3.3.a	ENV	ENV,ENV RC,RTD, RTD,SAN TE	CNECT EMPL GROW NEAR RTD SANTE		01/01/2019 31/12/2022	CON-AA,CON-AA,CON-IA,CON-IA,INS-RS	1	Nanodefinition Guidance	By request from the policy DG, in parallel to the adoption process of the revised Commission Recommendation on the definition of nanomaterial (NM), JRC will produce an Initial Guidance Document with questions and answers on the definition, plus basic guidance on how to apply it to specific NMs. This initial guidance will address aspects of the definition that are unlikely to be affected by the on-going review and should be delivered asap. Afterwards, JRC will produce a Comprehensive Guidance Document on its practical implementation in co-ordination with DG ENV, other relevant DGs and EU agencies to assist industry and regulators to practically determine whether a material should be regarded as NM. The guidance will support all EU legislation that refers or relates to the COM NM definition. Due to the uncertainty of the adoption date of the revised Recommendation, an indicative delivery date is set. As soon as the revised Recommendation is adopted the guidance(s) may need updating.	06/12/2019	Technical Reports
											2	Adaptation to Technical Progress of the Test Methods Regulation	JRC will provide the test methods for the 9th and 10th ATP for the Test Method Regulation (number of methods and dates tbc) to ensure coherence of EU test methods with international guidelines. The number of methods depends on a regular priority setting and developments in the scientific area. The exact date of approval by the EU National Coordinators is not predictable and, in addition, the exact date of the official voting and adoption in the comitology process is even less predictable. Moreover as the respective service in DG ENV could not manage to get approved the 8th ATP in 2017 or 2018, a re-prioritisation of methods is on-going taking account recent developments in OECD and a legal issue raised by a NGO.	12/12/2020	Contributions to standards
											3	Methods for Physical, chemical and biological characterisation of nanomaterials	Scientific publications on physical, chemical and biological characterisation of nanomaterials, underpinning the refinement of regulatory practises. Publy cat peer reviewed scientific output	14/12/2019	Journal contributions (Clarivate)
9998 - PASP JRC.F.3	7722 - PASP-WPK1 Knowledge Sharing, Education and Training on alternatives to animal testing	As a follow-up to the European Citizen Initiative "Stop Vivisection", JRC.F.3 executed a study to find out what 3R knowledge sources are available and what 3R knowledge needs stakeholders have. The major outcome was that in order to increase the uptake of 3R methods, the field of alternatives needs stronger knowledge sharing and better and more relevant education and training. Changing the scientific and regulatory research mind-set away from using animal methods "by default" towards a situation in which non-animal methods are considered not a niche area without broad applicability, but as a full range of valid, additional tools (ideally more and more replacing traditional approaches) will be crucial for the uptake of alternatives. It will be necessary to present those next generation methods and approaches as the best scientific way forward for innovation and competitiveness, demonstrating that alternatives are not only a solution to the ethical dilemma of animal tests, but are simply the more reliable way to go from a sound research	JRC.F.3	1.3.3.a	ENV	JRC		- Organisation for Economic Cooperation and Development - United States Environmental Protection Agency - Health Canada Chem Cos Pharm Food Agri EU - Competent Authorities of EU Member States Chemicals, Cosmetics, Pharmaceuticals, Food, and Agrochemicals Industry ENV EU - Environmental authorities	01/01/2019 31/12/2020	CON-AA,INS-RS	1	Establishment of a Knowledge Sharing Environment	Experience has shown that successful protection of animals used for scientific purposes is often hindered by insufficient knowledge about existing options among stakeholders. With non-animal methods still being a relatively new development in both toxicology and biomedical research, conceiving, establishing and running environments that foster sharing of knowledge in the field by providing support, infrastructure, standards, and where applicable, knowledge and databases, will be a crucial success factor in further implementing Dir 2010/63.	30/11/2020	Technical Reports
											2	Support to Educators on 3Rs in the EU	Key to a more widespread adoption of novel approaches is educating and enlightening the next generation in order for them to accept non-animal methods as a natural next step in the development of science. High school students, university undergraduates and early career scientists are the obvious population to target with state-of-the-art training material. On a more general level, policy briefs and guidance for education managers can further support the arrival of 3Rs in the science mainstream.	30/11/2020	Technical Reports
9998 - PASP JRC.F.3	7723 - PASP-WPK2 Fostering innovation and monitoring impact of alternative methods	Ability to innovate and to embrace change as a natural element of any economic and scientific activity will be a crucial success factor for the European Union in the coming years. Biomedical research and chemical risk assessment are no exception, and dealing with scientific and regulatory institutional conservatism that often slows down the uptake of important paradigm shifts and the necessary reactions to upcoming megatrends is the one of the goals of this work package. Key activities will be the establishment of scientific credibility and confidence in alternative methods by transparently balancing reality versus promise/ambition without bias in either direction. Guiding research and development to address major gaps in the alternatives toolbox will be the appropriate way of pointing out key areas of concern that need attention, both from scientists and policy makers. Obviously fostering innovation in the alternative methods area cannot mean the implementation of any kind of big-bang-like strategy: Evolution, not revolution is the paradigm, and patience and a step-by-step approach will be key, each success story in the field inspiring the next logical development. Ultimately, this will support the growth of the EU biotech industry working in the areas of e.g. stem cells, tissue-on-chip, omics, computational biology, 3D bio-printing etc. An	JRC.F.3	1.3.3.a	ENV	JRC	- Health Canada - United States Environmental Protection Agency Chem Cos Pharm Food Agri EU - Competent Authorities of EU Member States Chemicals, Cosmetics, Pharmaceuticals, Food, and Agrochemicals Industry ENV EU - Environmental authorities of the Member States and Candidate Countries EU MS Research - EU Member States competent authorities for research	01/01/2019 31/12/2020	INS-RS	3	Fostering innovation and uptake of non-animal methods	This deliverable will define and implement strategies to support the translation of non-animal methods into useful applications in both the research and the regulatory areas. A major goal is to tackle the failure of current biomedical research approaches to address public health priorities, in particular in the areas of non-communicable, highly prevalent chronic-degenerative diseases in light of their prevalence and societal concerns. In addition, the deliverable will define standardisation strategies and support technology-transfer initiatives to expedite the uptake and use of in-vitro technologies in a variety of sectors and therefore support the growth of the EU biotech industry. Where reasonable and practical, potential benefits of artificial intelligence in the field will be examined for their applicability.	30/11/2020	Technical Reports	
										4	Indicators to monitor the uptake of alternative methods	"Measure what is measurable, and make measurable what is not so" (G. Galilei) is the motto of this deliverable. While current statistics linked to the monitoring of Dir 2010/63 focus on the number of test animals used for scientific purposes, this deliverable will provide a complementary insight on the uptake of alternative methods, and how these influence both scientific advancements and market growth. On this basis, policy makers will be enabled to take informed decisions about conceiving and implementing further measures, where required.	30/11/2020	Technical Reports	
9866 - CSSD JRC.F.3	7724 - CSSD-WPK1 Supporting the implementation of the chemicals acquis	This will promote the development, validation and regulatory acceptance of non-animal methods for the regulatory testing of chemicals, serving the needs of multiple sectors including industrial chemicals, cosmetics, biocides, pesticides, pharmaceuticals, and chemicals in food (additives and contaminants). This will include engagement with EU agencies (ECHA, EEA, EFSA, EMA), MS authorities (PARERE), EU stakeholders (ESTAF) and the European validation laboratory network (EU-NETVAL) as well harmonisation efforts via international bodies (in particular the OECD, WHO, ICH, VICH and EDQM).	JRC.F.3	1.3.3.a	ENV	JRC	CNECT GROW MOVE RTD SANTE	Ani Wel NGOs - EU wide operating animal welfare NGOs CEFIC - European Chemical Industry Council (CEFIC) Chem Cos Pharm Food Agri EU - Competent Authorities of EU Member States Chemicals, Cosmetics, Pharmaceuticals, Food, and Agrochemicals Industry Cosmetics Europe - European Cosmetics Association ECHA - European Chemicals Agency (ECHA) EEA - European Environment Agency EFSA - European Food Safety	01/01/2019 31/12/2020	CON-IA,INS-RS	1	Validation of non-animal methods for the regulatory assessment of chemicals	This will cover the core business of EURL ECVAM, which is mandated by Directive 2010/63 to promote the development, validation and acceptance of non-animal methods for the regulatory assessment of chemicals. Key activities are the design, conduct, evaluation and peer review of validation studies assessing alternative methods. Aspects of this deliverable will depend on engaging the EURL ECVAM Scientific Advisory Committee (ESAC) to provide peer review opinions as requested. Since scientific peer review involves a considerable amount of work, ESAC working group members shall be entitled to the payment of a flat fee (fixed daily rate) of a maximum of EUR 450 for each full day of work at EURL ECVAM during a dedicated ESAC working group meeting (up to a maximum of 3 days), including related preparatory work. A maximum yearly budget of EUR 40000 is foreseen for payment of such fees calculated on the basis of four 3-day ESAC WG meetings (composed of 7 members on average).	15/12/2020	Technical Reports
											2	Integrated use of non-animal methods for the regulatory assessment of chemicals	This will cover a range of activities aimed at developing Integrated Approaches to Testing and Assessment (IATA) with a view to their harmonisation and implementation at international level. Key outputs are contributions to guidance documents developed by harmonisation bodies such as the OECD, WHO, ICH, VICH and EDQM.	31/10/2020	Technical Reports
9866 - CSSD JRC.F.3	7731 - CSSD-WPK2 Anticipating the evolution of chemicals policy	This will explore opportunities for evolving chemicals policy towards a more comprehensive cross-sector approach, with information on chemical hazards being derived from non-animal methodologies. In accordance with the chemicals REFIT, the focus will be on developing assessment approaches that contribute to human health and environmental protection goals in an effective, efficient and sustainable manner. This will be underpinned by knowledge on the links between chemical exposure and possible impacts on public and ecosystem health. The work will contribute to JRC activities related to the UN Sustainable Development Goals.	JRC.F.3	1.3.3.a	ENV	JRC	CNECT GROW RTD SANTE	FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) Chem Cos Pharm Food Agri EU - Competent Authorities of EU Member States Chemicals, Cosmetics, Pharmaceuticals, Food, and Agrochemicals Industry	01/01/2019 31/12/2020	INS-RS	3	Emerging methodologies for chemical sustainability	This will cover a range of activities aimed at developing methodology for assessing chemical safety and sustainability, with emphasis on human health and environmental concerns, such as endocrine disruption, mixture effects, and Persistent, Bioaccumulative and Toxic chemicals. The scope will go beyond regulatory testing, to additionally support voluntary initiatives taken by different industry sectors.	31/10/2020	Technical Reports
											4	Exploring the chemical contribution to human disease and ecosystem health	This will investigate the state of knowledge on the complex associations between exposure to chemicals and adverse impacts on public health and the ecosystem, with consideration of the situation in transitional economies and developing countries (e.g. Africa). It will include contributions to the transversal JRC activity on Sustainable Development Goals, as well as capacity building activities.	31/10/2020	Technical Reports

JRC 2019 - 2020 DETAILED WORK PLAN

Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category	
1.3.3.b Air quality, pollutant emissions and industrial accident prevention - monitor and model ambient air quality and emissions (for the reduction of transport specific emissions, see key orientations 3.1.1.c and 4.1.a); carry out integrated impact assessments of air quality and climate policies, support the mainstreaming air quality in other policy areas (energy, transport, climate, agriculture, human health) and provide tools to make it easier to manage air quality at national, regional and local level; support the implementation of EU air quality policies through harmonisation and standardisation programmes, providing training to Member States, and by improving and validating innovative methods and air quality modelling (through the FAIRMODE network); support the implementation of the Industrial Emissions Directive by determining best available techniques for reducing industrial emissions to air, water and soil; develop information systems on, and carry out analyses of, industrial accidents.																
4854 - AIR JRC.C.5	2422 - ACTRIS 2 Aerosols, Clouds, and Trace gases Research Infrastructure Network 2	The project is a follow-up of the FP7 project ACTRIS (2011-2015) in which JRC has been a partner. It aims to coordinate the European ground-based network of stations equipped with advanced in-situ and remote sensing atmospheric instrumentation for measuring aerosols, clouds and short-lived gaseous species. ACTRIS-2 will have the essential role to ensure the production of	JRC.C.5	1.3.3.b	ENV	RTD	CLIMA	EMET - European monitoring and Evaluation Programme WMO - World Meteorological Organization (WMO)	01/05/2015 30/04/2019	CON-IA	1	Intercomparisons for carbonaceous content of PM	Reports on organisation and performance evaluation related to annual inter-laboratory comparison exercises for the determination of elemental and organic carbon in PM deposited on filters, within the ACTRIS-2 community and beyond. The exact number and dates of intercomparisons will follow from decisions made by the consortium.	30/04/2019	JRC Technical reports	
4854 - AIR JRC.C.5	3840 - AQAP Air Quality Assessment	This Administrative Arrangement (AA) supports the implementation and further development of EU air policies. In particular it aims to support, guide and check air pollution monitoring activities in	JRC.C.5	1.3.3.b	ENV	ENV	DEVCO REGIO	CEC - European Committee for Standardization	01/01/2016 31/12/2019	CON-AA	201901	Final report	Final report on activities undertaken under the AA	21/12/2019	Technical Reports	
4854 - AIR JRC.C.5	3842 - IACA Integrated analysis of a changing atmosphere	The work package Analysis of a Changing Atmosphere supports the implementation and development of the EU's Clean Air policy framework. It further explores emission reduction scenarios that are beneficial for air and climate, and as well regarding human health and crop yields. Core activities are related to the JRC mandate to control the quality of air pollution data measured by the Member States as requested by the 2008/50/EC Air Quality Directive. Air Pollution data are observed and reported according to Council Decision 81/462/EEC on the conclusion of the Convention on Long-range Transboundary Air Pollution. Ex-post and scenario evaluations of the effectiveness of emission reduction policies are carried out to answer specific policy questions and anticipate emerging issues. The activities contribute to the evaluation of the Air Quality Directive, launched by DG ENV in 2017, and the envisaged comprehensive air policy review. The work is complemented by activities on development, application, harmonisation and standardisation of modelling, measurement and innovative sensing of air pollution to pave the way to better regulations in the future. A solid foundation for future activities in the field of citizen science is built up by preparing harmonised protocols for the evaluation and benchmarking of sensors against the Data Quality Objectives of indicative measurements set in the Air Quality Directive (2008/50/EC) and in collaboration with strategic European reference centres. The work package also aims at integrating sensor measurements into public information systems by releasing open source software and platforms ensuring compliance with the requirements of the Inspire Directive (2007/2/EC) out of the box. The work package comprises the Proof of Concept TRANSPODS project to promote the transfer of technology to industry for the commercialisation and production of the JRC patented PODS sampler in the context of a license agreement with an external partner.	JRC.C.5	1.3.3.b	ENV	JRC,JRC	CLIMA GROW	- WORLD HEALTH ORGANIZATION REGIONAL OFFICE FOR EUROPE BIPM - International Committee on Weights and Measures CEN - European Committee for Standardization EEA - European Environment Agency EURAMET - European Organisation of Metrology (EURAMET) UN ECE - UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE UN FCCC - UN Framework Convention on Climate Change (UN-FCCC)	01/01/2016 31/12/2020	INS-PC,INS-RS	11	Analysis of air pollution data and their impacts in the context of long-range transport, the UNECE Convention on Long-range Transport and international assessments	1) Ex-post analysis of the impact of the policies addressing air quality abatement and climate warming mitigation, focusing on the trend in aerosol direct radiative forcing observed across Europe. This will be based on the analysis of aerosol optical characteristic measurements performed at key locations across Europe, starting from Ispra. This study is related to the assessment of the potential global warming mitigation that could be achieved by following the strategy promoted by the clean air and climate coalition (CCAC) focused on the abatement of short-lived radiative forcers. (technical report) 2) Fast Scenario Screening Tool FASST application for cost-benefit analysis of mitigation scenarios for climate and air quality in a European and global perspective specifically in the framework of the UNECE Convention on Long-range Transboundary Air Pollution and/or the Intergovernmental Panel on Climate Change (IPCC). (scientific publications)	30/11/2019	Technical Reports	
												12	Performance evaluation of measurement capabilities	The JRC has the legal obligation to organise quality assurance programmes for the Member States' National Air Quality Reference Laboratories. In technical reports, divided by pollutant categories, the capabilities of the Member States will be analysed and discussed.	30/11/2019	Technical Reports
												13	Advanced measurements and their impacts on air pollution assessment	Innovative measurement techniques such as sensor systems or diffusive samplers will be applied and their impacts on air quality assessments will be prepared.	13/12/2019	Journal contributions (Scopus)
												15	Streamlining carbon measurements	Efforts carried out on the measurement and assessment of organic and elemental carbon in ambient air will be discussed and summarised. A way forward will be proposed on a reference material, which was initiated by an exploratory research project, and the possibility to use the results in source apportionment. The Ispra EC Atmospheric Observatory data will be used as a benchmark in this evaluation. embedding it in the context of a COST Action focusing on isotope analysis in aerosol research promoting and expanding its application to carbonaceous aerosols for their source apportionment.	30/11/2020	Journal contributions (Scopus)
												1504	PoC Transpods: Ensuring transfer technology	Consolidation of license agreement, ensuring correct technology transfer, operational improvements of system, upgrading of analytical protocol and exploitation of synergies with ambient air quality directives.	30/09/2020	Technical Reports
												16	Testing of reference and non-reference measurement techniques	Legal requirements oblige the Member States to use reference methods when measuring air pollution in most circumstances. New techniques are being proposed by the research community which will be tested for their performance and usefulness with regard to legal data quality objectives. Streamlining of the UNECE monitoring programme and FP8 research projects dealing with air pollution measurements will be fostered.	30/11/2020	Technical Reports

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
222 - DRMKC JRC.E.1	4383 - EU-CAPP Scientific support to EU chemical incident risks and Seveso Directive implementation	<p>This project is aimed to support chemical accident/incident risk management in the EU and specifically, accident analysis, management of hazard data, and exchange and capacity building in EU countries to improvement management of chemical safety and security. This work package supports implementation of several key EU policy areas, notably the Seveso Directive, Critical Infrastructure Protection and CBRN policy. The scientific products are also used to support initiatives in WPK 4382 associated with the Civil Protection Mechanism and the EU Instrument for Peace and Stability. JRC accident analysis and scientific work on good practice/emerging risks is derived from unique access to collective knowledge and competence to deliver these particular scientific products. It is critical to Member State prevention and preparedness strategies associated with both chemical accident and CBRN risk management. In support of an EC obligation under the Seveso Directive, the JRC manages reports of major accidents from EU Member States, including controlling for quality, precision and completeness, so that they contribute to the body of knowledge on prevention and preparedness of chemical accident risks. Under the Seveso Directive the EC is obligated to analyse and disseminate lessons learned from major accidents in EU and EEA countries. Management and analysis of EU data also incurs a responsibility on JRC as the central scientific reference for EU accident data to ensure through for exchange and dissemination of good practice among EU competent authorities, as the secretariat of the EU Technical Working Group on Seveso Inspections (TWG 2) and as a centre of scientific and technical knowledge and exchange for EU and EEA regulators. With 30 countries and nearly 200 Seveso inspectorates, there is considerable knowledge generated on risk management practices, as well as highly specialised technical information necessary to improve monitoring and enforcement in over 50 major hazard industries handling a large diversity of acutely toxic substances. There is still a long road to go in untangling this dense body of knowledge to establish EU common inspection criteria and good practice guides across this wide range, as well as developing new methods and tools to confront new challenges associated with constantly changing markets and technology.</p> <p>This work package also supports the JRC Disaster Risk Knowledge Management Centre and is closely associated with WPK 4382.</p>	JRC.E.2	1.3.3.b	ENV	ENV,JRC	DEVCO ECHO GROW HOME	<p>CC EU - Candidate Countries EU MS EU - Member states EU OECD - Organisation for Economic Co-operation and Development (OECD) UN ECE - UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE UNEP - United Nations Environment Programme (UNEP)</p>	01/01/2016 18/12/2020	CON-AA,INS-RS	201901	Chemical Accident Emerging Trends - 2019	This deliverable includes all publication of papers produced from analysis of chemical accidents and also the EC obligation to disseminate these lessons learned. Under Seveso Directive Article 21, MAHB will produce at least 1 Lessons Learned Bulletins (June and December) containing analytical briefs of lessons learned from chemical accidents related to specific thematic topics. The topics for bulletins and other studies are chosen based on recent trends, and accidents with input from current projects and collaborations with international partners and Member States.	20/12/2019	Technical Reports
											201902	Chemical accident risk management and enforcement practices-2019	Collaborations with EU Member States and industry on good practice documents for inspectors and industry on good practice for implementing and enforcing effective risk management on Seveso sites. This element includes at least one publication on good practice and one Seveso inspection workshop hosted by Malta with the JRC on enforcement and risk management of warehouses and storage depots.	20/12/2019	Technical Reports
											201903	Modernisation eMARS Chemical Accident Reporting System - 2019	This work supports the Seveso Implementing Decision and consists of the scientific input to the design of eMARS to propose re-design options presented to EU and OECD Member States for reporting major chemical accident lessons learned. It includes managing interfaces with ENV and Member States, soliciting and implementing feedback proposals, and testing trial versions of various options. The modernisation of the eMARS data format, fields and structure is particularly important in the context of Smart Regulation so as to improve data fitness for measuring regulatory impacts. The dialogue will also be very relevant for input to the EU implementation of the Sendai Framework Loss Data Initiative. This deliverable is contingent on adequate scientific and IT programming resources.	20/12/2019	Scientific information systems and databases
											201904	eSPIRS and eMARS Maintenance and HelpDesk	This deliverable consists of final report summarising assistance and support in 2019 to Member States in reporting to eMARS and eSPIRS, including completing data fields properly, quality control and report follow-up, problem-solving on specific cases, advice and support on using the XML bulk import and confidentiality management tools. It also includes response to database queries, maintenance updates, and management supervision of the entire system. It also includes support to DG ENV in moving eSPIRS database operations to the Environment Agency.	20/12/2019	Sci information systems and databases
											202001	Chemical Accident Analysis Emerging Trends - 2020	This deliverable includes all publication of papers produced from analysis of chemical accidents and also the EC obligation to disseminate these lessons learned. Under Seveso Directive Article 21, MAHB will produce at least 1 Lessons Learned Bulletins (June and December) containing analytical briefs of lessons learned from chemical accidents related to specific thematic topics. The topics for bulletins and other studies are chosen based on recent trends, and accidents with input from current projects and collaborations with international partners and Member States.	18/12/2020	JRC technical reports
											202002	Chemical accident risk management and enforcement practices-2020	Collaborations with EU Member States and industry on good practice documents for inspectors and industry on good practice for implementing and enforcing effective risk management on Seveso sites. This element includes at least one Seveso good practice publication and one Seveso inspection workshop hosted by Croatia with the JRC on meeting requirements for providing information to the public on major hazard sites as required by the Seveso Directive.	18/12/2020	Technical Reports
											202003	Support to eMARS Implementing Decision 2020	This work supports the Seveso Implementing Decision and consists of the scientific input to the upgrading of eMARS for the EU Implementing decision and support in analysing and reporting major chemical accidents to Member States. This deliverable includes the process of proposing design options presented to EU and OECD Member States for reporting major chemical accident lessons learned in the eMARS database, required to align the eMARS database with policy impact monitoring requirements and improvements to accident analysis from JRC and other research. It includes managing interfaces with ENV and Member States, soliciting and implementing feedback proposals, and testing trial versions of various options. It also includes the completion of the accident analysis handbook for Member States. This deliverable is contingent on adequate scientific and IT programming resources.	18/12/2020	Scientific information systems and databases
											202004	eSPIRS and eMARS Maintenance and HelpDesk	This deliverable consists of final report summarising assistance and support in 2019 to Member States in reporting to eMARS and eSPIRS, including completing data fields properly, quality control and report follow-up, problem-solving on specific cases, advice and support on using the XML bulk import and confidentiality management tools. It also includes response to database queries, maintenance updates, and management supervision of the entire system. It also includes support to DG ENV in moving eSPIRS database operations to the Environment Agency.	16/06/2020	Sci information systems and databases
4854 - AIR JRC.C.5	5103 - ACTRIS PPP Aerosol, Clouds, and Trace gases (ACTRIS) - Preparatory Phase	ACTRIS is the European Research Infrastructure for the observation of Aerosol, Clouds, and Trace gases. ACTRIS is composed of observing stations, exploratory platforms, instruments calibration centres, and a data centre. ACTRIS serves a vast community working on models and forecast systems by offering high quality data for atmospheric gases, clouds, and trace gases. As	JRC.C.5	1.3.3.b	ENV	RTD			01/11/2017 31/12/2019	CON-IA	1	Application for European Research Infrastructure C	The necessary preparatory procedures and documents for an application of ACTRIS to ERIC will be prepared and submitted.	30/04/2019	Scientific information systems and databases
4854 - AIR JRC.C.5	6600 - AQSEns Integrating smart sensors and modelling for Air Quality monitoring in a city	This Administrative Arrangement (AA) supports the implementation and further development of EU air policies. The aim of this project is the development and on-line implementation of calibration procedures for the individual air quality sensors. Also a unique hybrid approach of combining high-resolution modelling with high-resolution monitoring shall be demonstrated to improve the quality procedures and eventually increase the reliability of the network output data from sensors and sensor systems.	JRC.C.5	1.3.3.b	ENV	ENV	CLIMA DEVCO REGIO		01/01/2018 31/12/2020	CON-AA	1	Report on the performance of sensors.	Air pollutants to be considered are particulate matter (PM), nitrogen dioxide (NO2), carbon monoxide (CO) and black carbon (BC).	01/07/2019	JRC technical reports
											2	Report on on-the-fly-calibration of sensors in air quality assessment	The performance of sensors to measure air pollution strongly depends on the possibility to frequently re-adjust and calibrate sensors. The possibility, implementation, advantages and disadvantages of an on-the-fly-calibration will be discussed.	30/01/2020	JRC technical reports
											3	Final report	Final report on activities undertaken in the AA.	30/11/2020	JRC technical
4854 - AIR JRC.C.5	8102 - P-air Pressure-on-air	The revised EU National Emission Ceiling (NEC) Directive (2016/2284) on the reduction of national emissions of certain atmospheric pollutants sets out the emission reduction commitments with which Member States should comply up to 2030 and beyond. The Directive lists the most relevant sectors impacting air quality in Europe that Members States should consider in drawing their national air pollution control plans: agriculture, energy, industry, road transport, inland shipping, domestic heating, use of non-road machinery and solvents. The work package "Pressure-on-air" is an initial response to the observation that several of these sectors impacting the EU air quality are undergoing or are planned to undergo substantial structural changes driven by policies pursuing goals other than air quality control. Consequently, negative pressures on air quality due to these structural changes are generally not addressed. Effective and coordinated research is necessary, in order to understand the extent to which the evolution and implementation of policies such as the Climate and Energy policy, road transport policies (e.g. mobility packages) and the Common Agricultural Policy (CAP) may trigger structural changes that could be detrimental for air quality. Inadvertent negative pressures in particular need attention, carefully assessing if they might prevent the successful achievement of the NEC	JRC.C.5	1.3.3.b	ENV	JRC	AGRI ENER GROW MOVE		01/08/2018 31/05/2019	INS-RS	1	Feasibility study for the Pressure-on-Air project	<p>The study will contain a detailed description of the challenges, the proposed methodology and the latest data available. It will outline the research and policy needs, as well as the JRC added value.</p> <p>The research will be structured around the following three building blocks:</p> <p>Challenge 1: Connecting research, people and policy makers</p> <p>Challenge 2: Understanding baseline conditions and spotting burning issues.</p> <p>Challenge 3: From baselines to solutions</p> <p>Given this general context, the main efforts in developing the feasibility study will focus on defining concrete contributions from the relevant JRC units, fine tuning the content with policy partners and collecting suggestions from relevant experts.</p>	31/05/2019	Technical Reports
4855 - GHG-MoVe JRC.C.5	8403 - SOPHIA Source Of Fine fraction Particles and Health ImpAct	SOPHIA aims at determining the most effective emission reduction strategies at regional and global scale. To reach this goal, we will investigate the emission sources with the strongest impact on the formation of air pollution (e.g. PM2.5 concentration) and which combination of emission reduction measures would produce the highest impact on human health. These objectives will be developed coupling the JRC EDGAR emission data and scenarios with chemical climate models and epidemiological studies. This study will allow us to determine the most effective reduction strategies at regional and global scale.	JRC.C.5	1.3.3.b	ENV	n/a	AGRI CLIMA DEVCO ENER MOVE	<p>- MAX PLANCK GESELLSCHAFT ZUR FOERDERUNG DER WISSENSCHAFTEN E.V. - Max Planck Institute UN FCCC - UN Framework Convention on Climate Change (UN-FCCC) WHO - World Health Organization</p>	01/01/2020 30/06/2022	CON-TW	202001	Global emission gridmaps of air pollutants	1)Update of the EDGAR emission time series till most recent years 2)Development of monthly global emission gridmaps at 0.1x0.1 degree resolution and high sector disaggregation using the EDGAR database	31/12/2020	Sci information systems and databases
											202101	Impact assessment of emission reduction strategies	1)Assessment and update of technologies and abatement measures in EDGAR for key emitting sectors (e.g. power generation, road transport, residential, agriculture) 2)Development of retrospective emission scenarios to evaluate the effectiveness of the implementation of mitigation measures at the global scale, looking at different sectors (e.g. power generation, road transport, residential, agriculture).	31/12/2021	Sci information systems and databases
											202201	Assessment of air quality and health effects	1)Evaluating which emission sources are contributing mostly to air pollution levels (PM2.5 concentrations) using the output from chemical climate models 2) identification of most effective emission reduction strategies to reduce mortality attributable to air pollution, based on results from exposure response functions.	30/06/2022	Journal contributions (Clarivate)

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1.4. Maritime affairs, fisheries and the Blue Economy															
1.4.a Implementation of the Common Fisheries Policy - develop and apply biological, economic, social, spatial and genetic/genomic approaches to sustainable and competitive aquaculture and fisheries, in the EU and worldwide.															
9482 - BlueEcoFish JRC.D.2	302 - SuFIA Sustainable Fisheries and Aquaculture	The sustainable exploitation of marine fish constitutes a major challenge, and is the only way to ensure also economic profitability and resilience of the fisheries and aquaculture industry in the long-term. Moving towards a sustainable and profitable exploitation of marine renewable living resources depends on the provision of sound scientific advice, as stipulated in the basic regulation underpinning the Common Fisheries Policy (EU) 1380/2013. The JRC, having a clear mandate and a successful record of supporting the CFP scientific advice provision process, will focus on new approaches for the provision of scientific advice to fisheries management and policy making and contribute to the international scientific progress in this field, as well as to training and capacity building. These activities are closely linked and complementary to Work Packages 7630 Blue Economy and the Administrative Arrangement FishMan (WPK 4886) between the JRC and DG MARE. Moreover this work package will accommodate, provided sufficient resources are available, the new additional request for analytical support to Art.50 TEU (Note from MARE Director General Joao Aguiar Machado to JRC Director General Vladimir Sucha ("Limited-Internal"; Brussels, 24 November 2016): Fisheries - Request for Analysis.).	JRC.D.2	1.4.a	MARE	JRC,RTD	ENV	FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) EFCA - European Fisheries Control Agency GFCM - General Fisheries Commission for the Mediterranean ICES - International Council for the Exploration of the Sea STECF - Scientific, Technical, and Economic Committee for Fisheries	01/01/2014 31/12/2020	CON-IA,IN-S-RS	248302191	Monitoring the Common Fisheries Policy 2019	Article 50 of the Common Fisheries Policy (CFP; Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013) stipulates: "The Commission shall report annually to the European Parliament and to the Council on the progress on achieving maximum sustainable yield and on the situation of fish stocks, as early as possible following the adoption of the yearly Council Regulation fixing the fishing opportunities available in Union waters and, in certain non-Union waters, to Union vessels. The JRC will carry out the analysis and needed to report on progress in achieving the Maximum Sustainable Yield objectives in line with the Common Fisheries Policy.	15/05/2019	Science-for-policy reports
											248610618 1	Novel methods and approaches for the assessment of the status of stocks and management strategy evaluation frameworks	Currently a lack of novel methods and approaches prevails that enhances the assessment of the status of stocks and enables management strategy (MSE) evaluation frameworks underpinning the long-term sustainable and profitable exploitation of stocks. PANDORA will develop and utilize improved stock assessment models to estimate fishing exploitation rates for maximum sustainable and/or economic yields and associated ecological and economic trade-offs in multi-species, multi-fleet contexts. A first review will reflect on actual needs and how to best address those with emphasis on the JRC fisheries modelling and MSE toolbox.	31/05/2019	Technical Reports
											948230219 2	Competence Development for the Mapping of Essential Fish Habitats in Support of the Common Fisheries Policy	In line with the Common Fisheries Policy (CFP) requirement to implement an ecosystem-based approach to fisheries management and the provision of best available scientific advice, the JRC will investigate into the Mapping of Essential Fish Habitats. This includes the development of blue shark habitat modelling in the Mediterranean, the establishment of a generic Ocean Productivity Index for Fisheries, real-time maps of bottom trawling preferable avoidance in the Mediterranean and the Exploration of the potentials of dynamic fisheries management and marine operational ecology.	18/12/2019	Journal contributions (Scopus)
											948230219 3	Genetic and Genomic Approaches in support of the Common Fisheries Policy	In line with its Key Orientations, and the requirements for best available scientific advice enshrined by the Common Fisheries Policy (CFP) basic Regulation (EU) 1380/2013, the JRC will assess how to best integrate state-of-the-art genetic and genomic technology and approaches in fisheries and aquaculture management. This will work will be carried out in cooperation with DG MARE and in collaboration with international institutions such as the International Council for the Exploration of the Sea (ICES) and NOAA. Issues that will be addressed include genetic fish abundance estimates ("stock assessment"), the EU landing obligation, stock delineation and traceability.	18/12/2019	Journal contributions non-listed
											948230219 4	Capacity Building for Fisheries Research and Modelling	The JRC will provide training and advice to fisheries scientists of EU Member States and Third Countries, for the JRC in-house fisheries modelling framework Assessment for All (a4a), Management Strategy Evaluation and the Fisheries Library based on R (FLR). To maximise the impact, courses will mainly be based on case studies that address acute fisheries management needs.	18/12/2019	Training
											948230219 5	Innovation and Research in support of the Common Fisheries Policy	The JRC will carry out research and technology development to foster novel and innovative approaches to fisheries science and modelling. Emphasis will be put on the accommodation of data-poor stocks and Management Strategy Evaluation in support of the multiannual management plans for fisheries foreseen under the remit of the Common Fisheries Policy (CFP). Results will be disseminated through scientific peer-reviewed publications, conferences and workshops.	18/12/2019	Journal contributions (Scopus)
											948230220 1	Monitoring the Common Fisheries Policy 2020	Article 50 of the Common Fisheries Policy (CFP; Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013) stipulates: "The Commission shall report annually to the European Parliament and to the Council on the progress on achieving maximum sustainable yield and on the situation of fish stocks, as early as possible following the adoption of the yearly Council Regulation fixing the fishing opportunities available in Union waters and, in certain non-Union waters, to Union vessels. The JRC will carry out the analysis and needed to report on progress in achieving the Maximum Sustainable Yield objectives in line with the Common Fisheries Policy.	26/06/2020	Science for Policy reports
											948230220 2	Fisheries and Aquaculture Genetic and Genomics in support of the Common Fisheries Policy	In line with its Key Orientations, and the requirements for best available scientific advice enshrined by the Common Fisheries Policy (CFP) basic Regulation (EU) 1380/2013, the JRC will assess how to best integrate state-of-the-art genetic and genomic technology and approaches in fisheries and aquaculture management. Issues that will be addressed include genetic fish abundance estimates, the EU landing obligation, stock delineation and traceability. A scientific advice document on the EU landing obligation will be published together with the International Council for the Exploration of the Sea (ICES).	23/10/2020	Journal contributions non-listed
											948230220 3	Capacity Building for Fisheries Research and Modelling	The JRC will provide training and advice to fisheries scientists of EU Member States and Third Countries, for the JRC in-house fisheries modelling framework Assessment for All (a4a), Management Strategy Evaluation and the Fisheries Library based on R (FLR). To maximise the impact, courses will mainly be based on case studies that address acute fisheries management needs.	16/12/2020	Training
948230220 4	Innovation, Technology Development and Research for Sustainable Fisheries and Aquaculture Management	The JRC will carry out research and technology development to foster novel and innovative approaches and modelling to fisheries and aquaculture management that underpins the sustainable and profitable exploitation of marine living resources. These activities will support the multiannual management plans for fisheries foreseen under the remit of the Common Fisheries Policy (CFP), and the ecosystem based approach to fisheries and aquaculture management. Results will be disseminated through scientific peer-reviewed publications, conferences and workshops.	16/12/2020	Journal contributions (Scopus)											
9482 - BlueEcoFish JRC.D.2	4886 - FishMan Managing Scientific Advice and Monitoring Fisheries Data	Under the remit of this Administrative Arrangement, the JRC produces scientific advice in support of the Common Fisheries Policy. Core activities include administrative and scientific support to the Scientific, Technical and Economic Committee for Fisheries, support to the Data Collection Framework (IEC 199/2008) and the implementation of the DCF to future data collection multi-annual (DC-MAP) for 2014-2020, but also response to ad-hoc requests by DG MARE. The work and research carried out under this AA is largely complemented by institutional research activities under the scope and remit of the project AquaFish.	JRC.D.2	1.4.a	MARE	MARE,MARE			01/04/2018 31/03/2021	CON-AA,CON-AA,CON-AA	948248861 91	AA FishMan Annual Activity Report	At the end of the activity period covered by this AA, the JRC delivers the annual progress report to DG MARE outlining and summarizing pursued activities and outcomes covered by the AA remit, but also providing additional information of other projects and activities carried out.	31/03/2019	Project management related documents/reports identified as outputs of the JRC Work Programme
											948248861 92	Scientific advice to Fisheries Management	This report documents the JRC scientific advice provision, including socio-economic assessments, required under the remit of the Common Fisheries Policy.	31/03/2019	Science for Policy reports
											948264362 01	Scientific advice to the Common Fisheries Policy: Resource management and socio-economics of fisheries and aquaculture	A comprehensive documentation of JRC activities executed under the remit of the Administrative Arrangement FishMan with MARE will be produced	31/03/2020	Science for Policy reports
9482 - BlueEcoFish JRC.D.2	7831 - EUReefs Predicting the impact of coral reef loss: from local	Coral reefs are experiencing one of the worst emergencies ever recorded, with mass mortality happening across large areas with ever increasing frequency due to rising temperatures. Since corals play	JRC.D.1	1.4.a	JRC	JRC	ENV MARE		01/01/2019 31/12/2020	ER-18	1	Final project report	The final technical report will summarize all the scientific result of EUReefs and provide a summary of the scientific papers originated from the project. A mid-term technical report will be produced at the end of year 1.	31/12/2020	Journal contributions (Scopus)

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9482 - BlueEcoFish JRC.D.2	8223 - S3P Blue Growth Smart Specialisation Activities related to Blue Economy	The activities carried out by JRC-B3, in close collaboration with DG MARE will be targeted at blue economy S3-related information, knowledge and expertise provision for the policy-makers, authorities and stakeholders in charge of research and innovation policies and territorial development funding. The S3 Platform will act as a knowledge provider on smart specialisation and blue economy: it will contribute to the analysis of related economic data and will support DG MARE with its direct relations to the network of regional policy makers and experts from the EU and beyond – focussing on knowledge gaps, recurrent weaknesses and needs for peer learning. Following DG MARE prioritisation of interests, it shall analyse common innovation priorities, strengths and bottlenecks of smart specialisation in categories of regions particularly interesting for DG MARE such as coastal regions or regions with innovation priorities related to blue economy, irrespective of their geographical pattern. A thematic web-based facility could be envisaged on the blue economy related activities where policy-makers would be directed to relevant information linked to their needs. Effective cooperation across trans-regional S3 investment partnerships would be facilitated by thematic seminars and guidance materials to strengthen regional/local capacities in the field, while also ensuring increased synergies and greater impact of the activities (in line with the experience gained in the existing thematic smart specialisation platforms). More partnerships related to blue economy could be supported via calls for expressions of interest and applying/adapting the methodology developed by JRC-B3 for the establishment and start-up of S3 partnerships under the current thematic platforms. Based on achieved results, a fully-fledged Blue Economy Thematic Smart Specialisation Platform could be envisaged at a later stage. Furthermore, additional efforts could be made to support blue economy cooperation in the EU Macro-Regional Strategies with the specific marine focus such as the EU strategy for the Baltic Sea Region (EUSBSR) and the EU Strategy for the Adriatic-Ionian Region (EUSAIR). The activities pursued in this Work Package are accommodated by an Administrative Arrangement with DG MARE, which also covers Work Package 7630 Blue Economy.	JRC.B.3	1.4.a	MARE	MARE	REGIO		01/01/2019 31/12/2020	CON-AA	n/a	n/a	n/a	n/a	n/a

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1.4.b Assessment of the Blue Economy - support the Blue Growth Strategy through the analysis of value and opportunities of the Blue Economy (also contributing to its global dimension - linked to key orientation 9.2.3.b).															
9482 - BlueEcoFish JRC.D.2	7630 - BluEco Blue Economy	<p>The scale of opportunities arising from ocean research, innovation and applications, is guesswork, but certainly huge, as can be sensed by a recent conservative estimate, according to which ocean assets, such as fisheries, aquaculture, shipping, energy and tourism, are worth US\$24 trillion and produce an annual value of \$2.5 trillion from their outputs. The authors of this WWF study concluded in 2015: "If the ocean were a country it would be the seventh largest economy on the planet.". A recent OECD study confirms that notion.</p> <p>The European Commission emphasizes that Europe must not miss this opportunity. With its Blue Growth strategy, the European Union acknowledges that seas and oceans are drivers for the European economy and have great potential for innovation and growth.</p> <p>With this work package, the JRC seeks, in close collaboration with DG MARE and other Policy DGs, to create a robust scientific knowledge base that will underpin a Blue Economy strategy and policy framework for the European Union allowing to maximise the exploitation of oceanic assets, without damaging the benefits to future generations, and taking into account the economic as well as social prosperity and the environmental dimension. Traditional, as well as emerging Blue Economy sectors will be rigorously assessed with respect to their past, current and future socio-economic impact, together with sectorial interdependencies, creating added value of leading to inert-sectorial competition.</p> <p>Results will annually be published together with DG MARE, and the interaction with stakeholders, be it from the policy and governance realm or the industry, pro-actively pursued. The activities pursued in this Work Package are accommodated by an Administrative Arrangement with DG MARE, which also covers Work Package 8223 Smart Specialisation Activities related to Blue Economy.</p>	JRC.D.2	1.4.b	MARE	JRC,MARE	DEVCO GROW		01/01/2019 31/12/2020	CON-AA,INS-RS	94827630191	Annual Economic Report on the Blue Economy 2020	The Blue Economy encompasses all the sectorial and cross-sectorial economic activities related to oceans, seas and coasts. The annual economic report of the EU Blue Economy is part of the European Commission's Blue Growth Strategy. The report covers the following established sectors: Living resources (fisheries, aquaculture, fish processing and marketing and distribution), marine extraction of oil and gas, ports, warehousing and water projects, shipbuilding and repair, maritime transport, and coastal tourism. In addition, the report also covers the following emerging sectors: Biotechnology, deep-sea mining, defence and security, desalination, environmental protection, multiuse platforms, renewable energy and research & education. The intention is to enhance the robustness and scope of the data and methodologies to continuously improve the quality and usefulness of the report for policy makers and stakeholders.	11/06/2019	Whole parts of policy documents
											94827630194	Innovation and Research in support of the Blue Economy	The JRC will contribute to the Blue Economy through research activities that will be disseminated through scientific peer-reviewed publications, conferences and workshops.	18/12/2019	Journal contributions (Scopus)
											94827630201	Annual Economic Report on the Blue Economy 2020	The Blue Economy encompasses all the sectorial and cross-sectorial economic activities related to oceans, seas and coasts. The annual economic report of the EU Blue Economy is part of the European Commission's Blue Growth Strategy. The report covers the following established sectors: Living resources (fisheries, aquaculture, fish processing and marketing and distribution), marine extraction of oil and gas, ports, warehousing and water projects, shipbuilding and repair, maritime transport, and coastal tourism. In addition, the report also covers the following emerging sectors: Biotechnology, deep-sea mining, defence and security, desalination, environmental protection, multiuse platforms, renewable energy and research & education. The intention is to enhance the robustness and scope of the data and methodologies to continuously improve the quality and usefulness of the report for policy makers and stakeholders.	26/06/2020	Whole parts of policy documents
											94827630202	Report on assessment of marine ecosystems condition and their services in support to Blue Economy.	A report will pave the way for the assessment of the economic impact of changes in marine ecosystems service provision on Blue Economy.	18/12/2020	Technical Reports
											94827630203	Blue Energy and emerging sectors in the blue economy 2020	Renewable energies, in particular ocean energy and offshore wind, desalination, deep-sea mining are among the Blue economy emerging sectors that can provide significant contribution to the blue economy in the near future. This deliverable seek to address the lack of data and information available for the renewable energy (blue energy), desalination and deep sea-mining sectors in order to better address their contribution to the Blue economy and to support the scope, robustness and usefulness of the analysis on emerging sectors, by making use of the Research, Innovation and Competitiveness indicators developed for the Energy Union and of the role of desalination in the Water-Energy Nexus.	31/03/2020	Whole parts of policy documents
											98427630193	Assessing Marine Ecosystem Condition for the Provision of Services	Marine biodiversity and healthy ecosystems supports the delivery of a bundle of goods and services (food, genetic resources, climate regulation) that can underpin the Blue Economy. The ecosystem state determines the level of ecosystem service provision, on which human societies and their prosperity ultimately depend. That is also enshrined in the "Biodiversity Strategy to 2020" aiming under its Target 2 to maintain and enhance ecosystem services in Europe. Condition and trends of marine ecosystems across EU will be assessed, thus providing the basis for the assessment of ecosystem services and their contribution to Blue economy.	18/12/2019	Technical Reports
											98427630194	Blue Energy and emerging sectors in the blue economy.	Renewable energies, in particular ocean energy and offshore wind, desalination, deep-sea mining are among the Blue economy emerging sectors that can provide significant contribution to the blue economy in the near future. This deliverable seek to address the lack of data and information available for the renewable energy (blue energy), desalination and deep sea-mining sectors in order to better address their contribution to the Blue economy and to support the scope, robustness and usefulness of the analysis on emerging sectors, by making use of the Research, Innovation and Competitiveness indicators developed for the Energy Union and of the role of desalination in the Water-Energy Nexus.	31/03/2019	Whole parts of policy documents
											98427630195	Blue Energy Update	Europe is the global leader of marine energy technology (ocean energy and offshore wind). Increased policy support combined to technological leadership has paved the way for market leadership in wave, tidal energy development. This deliverable provide a socio-economic and techno-economic assessment of ocean/marine energy technologies, including the opportunity for employment creation.	31/10/2019	Technical Reports
1.4.c Maritime Security - improve EU maritime surveillance systems, enhance their interoperability and provide support to implement selected actions under the EU maritime security strategy (other work on security is covered under key orientations in 7.2).															
4973 - BOSS JRC.E.5	1901 - CISEPOV CISE Pre-Operational	The CISE (Common Information Sharing Environment) for the Maritime Domain will enter into the final phase (roll-out) in 2019, according to CISE's guiding principles established in Commission Communication (COM(2009)538 final) of 15.10.2009 and further defined in Commission Communication (COM(2014) 451 final) of 08.07.2014.	JRC.E.5	1.4.c	MARE	MARE	CNECT DIGIT	EDA - European Defense Agency EFCA - European Fisheries Control Agency	03/12/2014 28/02/2019	CON-AA	12	Final deliverables for the CISE POV	This deliverable will contain all the final reports on the activities of the WPK CISE POV	28/02/2019	JRC technical reports
4973 - BOSS JRC.E.5	5040 - CISERO CISE Roll Out	<p>The CISE (Common Information Sharing Environment) for the Maritime Domain will enter into the final phase (roll-out) in 2018, according to CISE's guiding principles established in Commission Communication (COM(2009)538 final) of 15.10.2009 and further defined in Commission Communication (COM(2014) 451 final) of 08.07.2014.</p> <p>The JRC has supported DG MARE in the development of CISE from the very early stages. Currently, this support is materialised under the AA 33537, which will expire on August, 31st 2018 and will be renewed to allow the finalisation of the current activities and to bridge the gap between the end of the EUCISE Pre-Operational Validation phase (FP7 EUCISE2020) and the start of the CISE roll-out (CISERO).</p> <p>The new AA will include the support to DG MARE for all the technical activities related to the implementation of CISE including: i) the support to the TAG; ii) the final definition of the CISE Test Bed including the test plan and, if requested, the execution of tests with Authorities and Agencies; iii) taking into account the lessons learned from the EUCISE2020, the refinement and consolidation of CISE technical components, of the CISE Data and Service model as well as the activities related to the launch of its standardisation, the support to MARE and EASME in the monitoring of the Project awarded to support the improvement of legacy IT system in view of the connection to CISE</p>	JRC.E.5	1.4.c	MARE	MARE	CNECT DIGIT EMSA - European Maritime Safety Agency EUROPOL - EUROPOL EUSC - European Union Satellite Centre MS EU - Member states EU		01/03/2019 28/02/2021	CON-AA	1	Bi-annual report on the progress of the CISE Transitional phase N°1	This deliverable describes the different activities linked to the CISE Transitional phase	01/09/2019	JRC technical reports
											11	Bi-annual report on the progress of the CISE Transitional phase N°4	This deliverable describes the different activities linked to the CISE Transitional phase	28/02/2021	Technical Reports
											12	Feasibility study on the integration of CEF building blocks in the operational CISE phase.	This document contains the feasibility study on the integration of CEF building blocks in the operational CISE phase, realised by the JRC.	28/02/2021	Technical Reports
											13	Pilot development report N°2	This document describes the activities conducted by the JRC to develop the pilot development with Member States under the CISE transitional phase.	28/02/2021	Technical Reports
											2	Bi-annual report on the progress of the CISE Transitional phase N°2	This deliverable describes the different activities linked to the CISE Transitional phase	01/03/2020	Technical Reports
											3	Bi-annual report on the progress of the CISE Transitional phase N°3	This deliverable describes the different activities linked to the CISE Transitional phase	01/09/2020	JRC technical reports
											4	Specifications of the CISE conformity test tool	This deliverable contains the specifications of the CISE conformity test tool.	01/07/2019	Technical Reports
											5	Procedures for the maintenance activities and definition of the knowledge database	This document describes the procedures for the maintenance activities and definition of the knowledge database elaborated by the JRC for the CISE Transitional phase.	01/05/2019	Technical Reports
											6	Feasibility study on the integration of CEF building blocks in the operational CISE phase.	This document contains the feasibility study on the integration of CEF building blocks in the operational CISE phase, realised by the JRC.	01/11/2020	Technical Reports
7	Terms of Reference for the development of pilots during the CISE Transitional Phase	This document contains the terms of Reference for the development of pilots project with Member States during the CISE Transitional Phase	01/05/2019	Technical Reports											
8	Pilot development report N°1	This document describes the activities conducted by the JRC to develop the pilot development with Member States under the CISE transitional phase.	01/03/2020	Technical Reports											
9	Conformity test tool – version 1	This deliverable contains the software and user manuals developed by the JRC, related to the conformity test tool of CISE.	01/11/2019	Sci information systems and											

JRC 2019 - 2020 DETAILED WORK PLAN															
Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
1.5. Health and food safety															
1.5.1. Health															
1.5.1.a Healthcare, health information, and promotion of a healthier society - in the field of harmonisation and improvement of healthcare and health information in the EU: provide expert support (for example technical, legal and organisational) to professional associations and patient associations for the development of European disease registries (including for rare diseases and for the European Reference Networks); provide high quality health data to relevant processes at EU level, such as the State of Health; launch of an innovative and comprehensive quality-assured cancer healthcare pathway (starting with breast cancer, followed by colorectal cancer, etc.); monitor cross-border health threats and reference systems including certified reference materials for health measurements. In the framework of health promotion and prevention of non-communicable diseases (NCDs): support of policies for fighting cardiovascular disease, cancer and diabetes, both childhood and adult obesity, in line with the Tartu call for healthy lifestyle. To help member states to reach the sustainable development goals on health: support of policy anticipation and implementation efforts in health promotion and NCDs prevention; selection, evaluation and dissemination of interventions for implementation in Member States through support to the Steering Group on Health Promotion, Disease Prevention and Management of Non-Communicable Diseases.															
222 - DRMKC JRC.E.1	6300 - EIOS2018 Epidemic Intelligence	The Epidemic Intelligence from Open Sources (EIOS) platform combines into a single technical implementation the Hazard Detection and Risk Assessment System (HDRAS) of the World Health Organization and the European Commission Initiative on Breast Cancer (ECIBC) and the European Commission Initiative on Colorectal Cancer (ECICC).	JRC.E.1	1.5.1.a	SANTE	n/a		GHSAG - Global Health Security Action Group	02/06/2018 31/12/2020	CON-TW,CON-TW	1	Final report	A final report will be delivered summarising the tasks and the steps undertaken to implement the contract and to improve the functionalities of the web-platform.	15/12/2020	Sci information systems and
9378 - HQHI JRC.F.1	7382 - HC Quality Harmonisation of healthcare quality for breast and colorectal cancers in Europe	This WPK encompasses the European Commission Initiative on Breast Cancer (ECIBC) and the European Commission Initiative on Colorectal Cancer (ECICC). The objective of both initiatives is to establish a voluntary, EU-wide quality-assurance scheme in each domain comprising essential criteria to be met by healthcare service providers. The aim is to reduce the burden of cancer on society and families by various measures, including: (i) earlier detection of cancer; (ii) reduction of false diagnosis; (iii) ensuring adherence to good practice; (iv) guidance documents; and data analyses and literature reviews on request from MSs and Commission services.	JRC.F.1	1.5.1.a	SANTE	JRC,SANTE,SANTE	GROW RTD	MIN Health EU+ - European Ministries of Health (Member States and Associated Countries)	01/01/2019 31/12/2020	CON-AA,CON-AA,INS-RS	1	The European Commission Initiative on Breast Cancer (ECIBC) and Colorectal Cancer (ECICC)	JRC will release new Quality Assurance guidelines for breast cancer screening and diagnosis, guidelines covering the rest of the breast cancer healthcare pathway and the roll out (piloting) of the ECIBC QA scheme in a number of Member States. The deliverable will also include peer-reviewed scientific output and outputs produced for the new European Commission Initiative on Colorectal Cancer - ECICC.	17/12/2020	Science for Policy reports
9376 - PREVENT JRC.F.1	7383 - NCDs PREVENT Health promotion, disease prevention and management of non-	The WPK provides: training and written materials to policy makers; methodologies, tools, and guidance documents; and data analyses and literature reviews on request from MSs and Commission services. The WPK comprises 2 activities: (1) tools for informed policies on primary non-communicable	JRC.F.1	1.5.1.a	SANTE	JRC,SANTE,SANTE	AGRI CNECT EAC EMPL		01/01/2019 31/12/2020	CON-AA,CON-AA,CON-AA,INS-RS	1	Science for health promotion and disease prevention	This deliverable will include new briefs for the Knowledge Gateway; technical reports supporting Member States monitoring efforts on food composition and portion sizes; science updates and ad-hoc support to Member States and stakeholders on nutrition, physical activity and alcohol related topics.	17/12/2020	Technical Reports
9378 - HQHI JRC.F.1	7422 - ONC-RD-REGISTRIES Monitoring cancer and rare disease burden in Europe	This WPK comprises two activities, focusing on the European Cancer Information System (ECIS) and The European Platform on Rare Disease Registration (EU RD Platform). THE ECIS reports and disseminates homogeneous and harmonised cancer burden indicators, permitting the exploration of geographical patterns and temporal trends of incidence, mortality and survival data across Europe. ECIS supports research as well as public-health decision-making, and serves as a point of reference and information for European citizens. In 2019-2020 the JRC will further improve the European cancer registry data collection workflow and related management and processing of information to feed the ECIS (incl. setup of a routine data call – initially biannual - and inclusion of geographical references). A new data call is planned for 2020, for which preparatory work will be addressed in 2019 – consisting in further development of structured facilities to centralize the management of information on the European cancer registries, new functionalities introduced in the ECIS web application such as focus on childhood and rare tumours, revision of the data call	JRC.F.1	1.5.1.a	SANTE	JRC,SANTE,SANTE	RTD	ENCR - European Network of Cancer Registries IARC - INTERNATIONAL AGENCY FOR RESEARCH ON CANCER MIN Health EU+ - European Ministries of Health (Member States and Associated Countries)	01/01/2019 31/12/2020	CON-AA,CON-AA,INS-RS	1	Towards a more comprehensive European Cancer Information System	This deliverable includes an improvement of the European cancer registry data collection and related data management and processing as well as its use for research and scientific purposes; feasibility of data links to other geo-referenced datasets; strengthening harmonization towards a unique European dataset of cancer data; development of a methodology to extrapolate from regional to national indicators for countries not fully covered by cancer registration; and defining workflow for yearly computation of cancer burden indicators predictions.	31/12/2020	Technical Reports
											2	Providing and promoting standards and tools for accessing and using rare diseases data at EU level	This deliverable includes: consolidation of EU RD Platform and ERDRI towards interoperable RD registries, making RD patient data searchable and findable at EU level; support to the ERNs for establishing new ERN core registries, individual registries and interoperability inside and across ERNs; extension of EU RD Platform / ERDRI to biobanks and omics data; coordination of EUROCAT and SCPE and use of their data for research, scientific purposes and policy making.	31/12/2020	Technical Reports
213 - TMA CC JRC.I.3	7567 - PHTM Public Health Threats Monitoring and Epidemic Intelligence from Open Source	The general objective of the work package is to further develop the media monitoring system MEDISYS for the early identification, monitoring and reporting of signals on existing and emerging threats to health within the one health approach. The work has a direct impact on the monitoring activities of our partners (European Food Safety Authority - EFSA, EMCDDA, World Health Organisation - WHO, European Centre for Disease Prevention and control - ECDC, G7, public health authorities in the member states) which rely on MEDISYS for their open source surveillance. The work package contribute to the project by developing technology that is user-driven and responds to current challenges in the field of text and data mining. Through the work package, we collaborate with the most important stake holders with a strong interest in open source surveillance. The work package is needed for providing media monitoring solutions in the area of one health. We are collaborating with stakeholders who expressed their continued interest and signed service-level agreements/administrative agreements with unit I.3 to carry out further research and development, e.g. WHO relies on the MEDISYS processing chain and the EIOS (Epidemic Intelligence from Open Source) portal as key component for their daily surveillance. In the work package, unit I.3 will work on: 1) food safety in collaboration with EFSA; 2) communications in the area of food safety in collaboration with EFSA; 3) drugs and new psychoactive substances in collaboration with EMCDDA; 4) threats to human health, in particular outbreaks of communicable diseases in collaboration with WHO; and 5) environmental risks in collaboration with DG ENV. MEDISYS uses the EMM technology and relies on natural language processing and statistical machine translation techniques. Machine learning is used for event metadata extraction and for the identification of new psychoactive substances. The scope of the work package does not focus only on a particular set of diseases relevant to human, animal or plant health, but rather considers all threats in the one health approach used by WHO. The same technology can be used for e.g. monitoring of Ebola, Zika or coronavirus in the same way as for e.g. chemical warfare agents, food safety, dual use research of concern, medical devices. Unit I.3 can also provide tools that are more targeted at communications teams for reputation or stakeholder monitoring and for publishing newsletters.	JRC.I.3	1.5.1.a	SANTE	EA	ENV	EFSA - European Food Safety Authority EMCDDA - European Monitoring Centre for Drugs and Drug Addiction	01/01/2019 31/12/2021	CON-TW,CON-TW,CON-TW,CON-TW,CON-TW,CON-TW	EFSA2020	EFSACOM & PLANT HEALTH 2020	The general objective of the SLA is to further develop the media monitoring system MediSys for the early identification, monitoring and reporting of signals on existing and emerging plant health threats. EFSA has become one of the main users of JRC's event-based surveillance system MEDISYS, e.g. monitoring the spread of Xylella fastidiosa in the EU. This SLA will further enhance our capacity for event-based surveillance and crisis management on the needs of the EU in health crisis management. Collaboration between EFSA, EU member states and JRC will be further strengthened, also via contact with the plant health panel at EFSA.	31/12/2020	Technical systems
											EFSA2018	Media Monitoring for EFSA COM team	Research and development of text mining and analysis capabilities to further the quality and capabilities of the current software and services supported by EMM. Respond to Institutional ad-hoc requests for advice on, or execution of text mining and analysis tasks. Deliver the systems, operational support and services to meet the requirements of the EFSA Communications directorate.	17/04/2019	Technical systems
											EFSA2019	EFSACOM (2019)	Research and development of text mining and analysis capabilities to further the quality and capabilities of the current software and services supported by EMM. Respond to Institutional ad-hoc requests for advice on, or execution of text mining and analysis tasks. Deliver the systems, operational support and services to meet the requirements of the EFSA Communications directorate.	31/12/2019	Technical systems
											EFSA2016	EFSA event-based surveillance (EFSA PLANTS 2016)	Improved Internet biosurveillance systems used for Plant Health and Food/Feed Safety monitoring at EFSA enabling EFSA to fulfil its responsibilities related to the identification of emerging risks in both news and scientific literature and providing S&T advice related to crisis management.	08/12/2019	Technical systems
											ENVRISK2019	ENVRISK 2019	We will provide support to DG ENV for Environmental Risk Monitoring based on open source news information, including the definition of topics of interest, identification of relevant information sources and customisation of newsletter templates to allow dissemination to DG ENV. This involves training on the EMM media monitoring tools, including the category editor and Newsdesk. DG ENV will use customised newsletter templates for their monitoring activities. We will provide general operational support (MEDISYS, NewsDesk, Category Editor) as required.	31/12/2019	Technical systems
											ENVRISK2020	ENVRISK 2020	We will provide support to DG ENV for Environmental Risk Monitoring based on open source news information, including the definition of topics of interest, identification of relevant information sources and customisation of newsletter templates to allow dissemination to DG ENV. This involves training on the EMM media monitoring tools, including the category editor and Newsdesk. We will provide general operational support (MEDISYS, NewsDesk, Category Editor) as required.	31/12/2019	Technical systems
											MEDISYS DRUGS2018	Media monitoring of psychoactive substances	Research and development of text mining and analysis capabilities to further the quality and capabilities of the current software and services supported by EMM. Respond to Institutional ad-hoc requests for advice on, or execution of text mining and analysis tasks. Deliver the systems, operational support and services to meet the objectives of the EMM work package. This deliverable will be linked to a number of publications and releases of new or upgraded technical systems.	31/08/2019	Technical systems
MEDISYS DRUGS2019	MEDISYS DRUGS2019	Research and development of text mining and analysis capabilities to further the quality and capabilities of the current software and services supported by MEDISYS. Respond to Institutional ad-hoc requests for advice on, or execution of text mining and analysis tasks. Deliver the systems, operational support and provide services. Research will focus on the identification of new psychoactive substances from internet and darknet sources using a machine-learning algorithm to identify brands and street names currently used for drugs in the EU.	31/12/2019	Technical systems											
275 - Medical Technology JRC.F.2	7602 - SCIENCE-HT Science for better health technologies	SCIENCE-HT aims at 1) conducting evidence-based approaches on safety & performance of medical devices, 2) exploring the status and challenges of converging technologies in health products, including an assessment of regulatory preparedness and 3) experimental studies, e.g. (surface) characterisation and bio-elution of advanced/novel materials used in devices. SCIENCE-HT addresses the urgent need for reliable data on safety, performance and risk-benefit ratios of health technologies derived from clinical trial data and, where possible, post-market information reflecting 'real-world' use of products. Such data are indispensable for upstream elements of health technology assessment (HTA), focusing on clinical benefits and risks. Importantly, such data will also allow deriving benchmarks for development/assessment of new devices, leading to products that are 'safe-by-design' since experiences from post-market are fed into pre-market device development. The need for better evidence is particularly urgent in cases where technologies converge in one health product, e.g. drug-delivering devices (cardiac stents), devices based on biology-inspired design or "bio-printing" which combines 3d-printing with	JRC.F.2	1.5.1.a	SANTE	JRC	GROW RTD	Chem Cos Pharm Food Agri EU - Competent Authorities of EU Member States Chemicals, Cosmetics, Pharmaceuticals, Food, and Agrochemicals Industry EDMA - European Diagnostic Manufacturers Association (EDMA) EMA - European Medicines Agency (EMA) EPF - European Patients Forum (EPF) EUcomed - Eucomed represents the Medical Technology industry in Europe	01/01/2019 31/12/2020	INS-UR	1	Convergence of novel technologies in health products: drivers, scientific challenges, gaps and possible solutions to ensure the continuous adaptation of regulatory science to innovation	The deliverable will describe the current status and implications for regulatory assessment paradigms of novel and converging technologies in health products and will encompass several possible outputs (e.g. technical reports and potential peer-reviewed scientific articles).	15/10/2020	Technical Reports
											2	Evaluation of data on medical device safety, performance and benefit-risk ratio	The deliverable will describe the implications for upstream stages of health-technology assessment and health product design and pre-market assessments. It will encompass a variety of possible outputs (e.g. as technical reports and potential peer-reviewed scientific article)	16/11/2020	Technical Reports

JRC 2019 - 2020 DETAILED WORK PLAN

Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
10091 - EvidenceBasedHealth JRC.F.7	7622 - OMICSinSociety Implications of omics technologies for regulatory frameworks	The work package aims at providing the necessary scientific support for the implementation of Omics technologies into the relevant regulatory areas. One goal of this action is to provide support for the access to at least 1 million sequenced genomes in the EU by 2022 and to identify and address both the scientific and the regulatory challenges involved. To do this, it will establish a state of play in the different relevant areas, contribute to the scientific knowledge where possible and develop resources and guidelines in collaboration with the appropriate stakeholders. The ultimate aim is to implement the JRC concept paper "Omics in Society with a focus on Genomics". The work package will provide the basis for the possible creation of a future Centre for Advance Studies in the field of "Omics in Society".	JRC.F.7	1.5.1.a	SANTE	JRC,JRC	CNECT RTD		01/01/2019 31/12/2020	INS-E&IA,INS-RS	1	Regulatory Omics and Bioinformatics	This deliverable will identify and address the scientific and technical challenges for implementing omics strategies and methods, with a focus on their bioinformatics components, in regulatory contexts. It will produce, through intra-JRC and international collaborations, technical reports, scientific articles, workshop reports, capacity building frameworks, etc. It will also deal with and address the regulatory challenges for implementing omics strategies and methods as it will focus on evaluating impacts of these disruptive technologies both in terms of opportunities for the citizen, patient and consumer, and in terms of providing advice to develop proper and efficient regulatory framework for their acceptance and oversight. Within this deliverable the following topics will be addressed: the relevance of human genome sequencing frameworks in society, the use of genomics for diagnostic purposes, the monitoring of antimicrobial resistance, the inclusion of omics in the CBRN-E and security landscape, the emerging analysis of the gut microbiome for non-communicable diseases, the validation and preparation of adequate omics data sets to be used for regulatory purposes, the genome-wide association studies and their use and interpretation in respect to the policy framework.	31/12/2020	Journal contributions (Scopus)
											2	Translation of genomics innovation into the clinical environment	The deliverable will include the organisation – together with F.1 – of a Conference on "Translation of genomics research into prevention, diagnostics and therapeutics of breast cancer" with the aim to document the potential of genomics in the prevention, diagnostics, and therapy for breast cancer and the new opportunities it may bring for the treatment of patients in the EU, to identify the challenges to the implementation and uptake in health systems to ultimately support patient-centred policies. In parallel, a JRC internal dialogue with experts from different fields will be established to discuss how the genomics translation to health is perceived from different points of view (e.g. modelling, data mining, cybersecurity, data protection, ethics ...) and to discuss possible contributions/synergies among JRC Directorates. This would serve to promote cross-disciplinary interaction, connect different competences and isolated initiatives in genomics and health.	31/12/2019	Science for Policy reports
											4	Mapping for JRC-wide engagement on health	Next years will be characterised by an enormous expansion of the "omics" data generation, their storage capability and analysis which will have a disruptive impact on society as a whole. This deliverable will take stock of available current and future JRC expertise and examine how these can be connected to deliver added value to the future JRC support to health policies. JRC activities outside the eHealth field (like horizon scanning, economic modelling of technology developments, citizen engagement, analysis of legal issues, use of AI, radiation dose monitoring registers, and Centres for Advanced studies activities) will be mapped for their potential to be connected to health applications, also with the aim of providing injections for further JRC growth in other new and fast expanding fields linked the e-health, like big data and blockchain. It will require JRC-wide engagement to allow, by the end of 2020, to design and implement a JRC health strategy.	31/12/2020	Technical Reports
											5	Capacity building & preparedness for omics	Building on its the multiannual involvement in training, capacity building and networking activities to help enforcement laboratories to build capacity and to implement proper facilities and expertise in molecular biology based analytical methods, the JRC will use its position and network to be prepared to provide scientific and technical input to policies that go beyond the classical health and care such as, for example, CBRNE, hybrid threats, dual use and capacity building in the field of (gen)omics monitoring.	31/12/2020	Training
332 - CORSA JRC.E.2	7802 - EMEX-5G Electromagnetic Exposure in 5G Networks for Health and Safety	Public concerns in the past two decades about the effect of electromagnetic radiation from mobile masts on health are well known. Scientific studies and legislative measures at the European level aim to minimise the risks to health due to EMF exposure. EU Directive 2013/35/EU deals with the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents including electromagnetic fields (EMF). As the next generation of mobile communications technologies (5G) are being developed, tested and integrated for the roll out of 5G networks in the early 2020s, regulators are once again faced	JRC.E.2	1.5.1.a	JRC	JRC,JRC	CNECT SANTE	CEPT - Conference of European Posts and Telecommunications Administrations (CEPT) ITU - International Telecommunication Union	01/01/2019 31/12/2020	ER-18,INS-UR	12	Final report on Electromagnetic exposure of 5G Networks on Health and Safety	The final deliverable will be based on the following intermediate activities and related reports: 1. Overview of the current scientific debate on the subject (M1-M6) 2. Evaluation of current EMF exposure models in the context of 5G technologies and use cases (M6-M12) 3. Elaboration of Ispra site-based 5G deployment scenario as a reference test environment (M6-M12) 4. Development of an improved exposure model (M12-M18) 5. Simulation results for the Ispra site model. Methodology (M13-M21) 6. Field measurements and model validation (M18-M24).	18/12/2020	Science for Policy reports
1.5.1.b Support policies related to Health Technology Assessment (HTA), chemicals and nanomaterials - support the further development of evidence-based approaches and of reliable data to facilitate cooperation on HTA; monitor chemical data; harmonise the methodology for endocrine disruptors related chemical assessment; disseminate novel toxicity approaches. For nanomaterials, focus will be on															
5133 - Illicit JRC.F.4	4946 - TPD Support to Tobacco Products Directive (tobacco/e-cigarettes)	This HTA supports EC services in the implementation of Union legislation in the field of tobacco products especially novel tobacco products such as e-cigarettes and heat-not-burn products, and cigarettes with characterising flavours, including harmonisation/standardisation processes and involvement on the Joint Action on Tobacco Control as set out in agreement with Regulation (EU) No 282/2014 (establishing the Health Program (2014-2020) and including societal input for science/engagement (engagement hub). The Tobacco Products Directive (2014/40/EU) aims to improve the functioning of the internal market for tobacco and related products, while ensuring a high level of health protection for European citizens. The Directive lays down rules governing the manufacture, presentation and sale of tobacco and related products. Furthermore, it lays down a number of safety and quality requirements for nicotine-containing electronic cigarettes	JRC.F.4	1.5.1.b	SANTE	SANTE		Tech Serv - Member States and their Technical Services/type approval authorities WHO - World Health Organization	01/01/2017 31/12/2020	CON-AA	4	Technical support to the implementation of the Tobacco Products Directive provided in 2019	An annual report will be prepared as specified in the Administrative Arrangement. It will summarise the achievements of the project during the reporting period.	20/12/2019	Technical Reports
											5	Technical support to the implementation of the Tobacco Products Directive provided in 2020	An annual report will be issued as required by the Administrative Arrangement. It will summarised the achievements of the project during the reporting period.	18/12/2020	Technical Reports
10091 - EvidenceBasedHealth JRC.F.7	6525 - GENOMICS Genomics – present and future societal implications	In line with the suggested focus of the JRC transversal 'Omics in society' project on human genomics, and complementing the envisaged work on the proposed themes (Genome-wide association studies, Epigenomics, Biomarkers and biomonitoring, and Ethical aspects of omics) I.2 will analyse human genomics applications from a citizen perspective as well as with a forward-looking, future view. The work in 2018 will prepare the ground for citizen engagement initiatives and foresight analysis of the future of genetic information in 2019. The overall aim of this set of activities is to better understand •the narratives and promises embedded in the discourses and developments in human genomics •matters of care for European citizens and different actors, i.e. how those narratives resonate with society, namely the societal and ethical dimensions that need to be taken into account for EU policies (this also includes identification of research needs and essential elements in research programmes). •behavioural aspects of applying genomic information for health to inform respective policies •possible future developments of human genomics applications and their implications for European	JRC.I.2	1.5.1.b	SANTE	JRC	RTD		01/01/2018 30/06/2020	INS-RS	1	Systemic overview of the human genomics field	The report will provide a systemic overview on the field of human genomics, including the state of the art and future technological trends of generating and using genetic information, and a mapping of relevant actors in the field. For epistemic communities the report will describe the knowledge, values, and vested interests. It will also include an analysis of behavioural aspects of the use of genomic information.	30/05/2020	Science for Policy reports
											2	Ethics dialogues on human genomics	The report will describe the insights, expectations and imaginaries of different actors (experts and non-expert citizens) around the development and deployment of human genomics technologies	31/12/2019	Science-for-policy reports
											3	The future of human genetic information	The report will present the results of the analysis. Depending on the issues and possible developments identified, the analysis could cover implications of genomics for healthcare organisation and efficiency, future conditions to benefit from genomics in healthcare including access to health data and data ownership, and patient involvement. The foresight analysis will put strong emphasis on behavioural aspects to provide insights on e.g. changing risk perceptions, changing use of healthcare services, self-management of health and related personal data. Furthermore, ethical aspects including insights, expectations and imaginaries of different actors, and the role of "Do it Yourself/Do it together" (DIY/DIT) spaces in the human genomics context could be included.	30/05/2020	Science-for-policy reports
9376 - PREVENT JRC.F.1	7103 - FOP Front-of-pack food labelling schemes	The work developed in this WPK stems from a direct request from DG SANTE to the JRC; it will fulfil the request set in Regulation No 1169/2011, 35(5) on the provision of food information to consumers for the Commission to submit a report to the EP and the Council on additional forms of expression and presentation of the nutrition declaration, including the use of front-of-pack (FOP)	JRC.F.1	1.5.1.b	SANTE	SANTE			01/01/2018 30/04/2019	CON-AA	1	Front of pack labelling in the EU	This deliverable includes the building of a database and the outcome of a thorough analysis of its content, including a comparison of current front of pack labelling schemes available in the EU, their understanding by consumers and effect on their behaviour, dietary choices and potential health and other benefits or impacts of the introduction of a harmonised FOP scheme at the EU level.	30/04/2019	Science-for-policy reports
433 - SciNANO JRC.F.2	7804 - PIRAT Personalised Immunological Risk Assessment	The PIRAT project contributes to the Exploratory Research (ER) Programme 2019. The main goal of the proposed ER project is the development of a blood-on-a-chip device which allows the measurement of inter-individual immune responses after exposure to emerging health products. The risk of getting certain diseases and the patient's response to standardised treatment schemes	JRC.F.2	1.5.1.b	JRC	JRC,JRC	SANTE		01/01/2019 31/12/2020	ER-18,INS-UR	1	Final technical report	The Final technical report will summarise the scientific results of the project and provide a summary of the scientific papers originating from the project. A mid-term technical report will be produced at the end of year 1	19/12/2020	Technical Reports

JRC 2019 - 2020 DETAILED WORK PLAN															
Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
1.5.2. Food safety, food quality and food fraud															
1.5.2.a Food and feed safety - manage three EU reference laboratories, which includes developing harmonised/validated methods, organising laboratory proficiency tests and providing new analytical tools for food and feed safety control, food contact materials and the pre-marketing authorisation of genetically modified organisms and feed additives; support official control in EU Member States related to food products and the integrity of the food chain by providing quality assurance tools (analytical methods, proficiency tests and reference materials) and training for monitoring substances of concern; support the implementation and enforcement of the food legislation provisions relating to engineered nanomaterials.															
204 - Compliance JRC.F.5	604 - FA Feed Additives	The JRC is legally obliged to host the European Union Reference Laboratory for Feed Additives (EURL-FA), as stated in Art. 21 of Regulation (EC) No 1831/2003, defining the feed additives authorisation procedure. Art. 93 (4b) of Regulation (EU) 2017/625 further expands the EURL-FA role towards the responsibilities and tasks of EURLs for official controls as defined by Art. 94 of this Regulation. About 5 million EU farmers produced food of animal origin by feeding their animals with 480 million tons feed per year. These figures show the relevance of this economic sector. Safe and high-quality feed is a must for animal/human health, and shall be produced under sustainable conditions, reflecting, on the one hand, the scarcity of raw materials and, on the other hand, the This work package comprises the activities of the JRC to fulfil the two legal mandates attributed to the European Union Reference Laboratory for Genetically Modified Food and Feed (EURL GMFF). The EURL GMFF carries out the tasks on GMO authorisations assigned to it by Regulation (EC) No 1829/2003 and its implementing acts, and those deriving from Regulation (EU) 2017/625 on official controls. Thereby, the EURL GMFF is a key actor for the correct implementation of the EU policy on GMOs. The main activities covered by this work package include:	JRC.F.5	1.5.2.a	SANTE	JRC,SAN TE		CEN - European Committee for Standardization EFSA - European Food Safety Authority NRLs - NRLs - national reference laboratories	01/01/2016 31/12/2020	CON-AA,INS-RS	1	Feed additives activities in 2019	Comprehensive overview for the year 2019 comprised of the two components, namely regarding "authorisation" and "control" activities. The part regarding "authorisation" covers all method evaluation reports, the workshop and ad-hoc support to DG SANTE and/or EFSA. The part regarding "control" includes reports on the results of the proficiency test and/or trainings, the annual reports and ad-hoc support to DG SANTE.	31/12/2019	Technical Reports
											2	Feed additives activities in 2020	Comprehensive overview for the year 2020 comprised of the two components, namely regarding "authorisation" and "control" activities. The part regarding "authorisation" covers all method evaluation reports, the workshop and ad-hoc support to DG SANTE and/or EFSA. The part regarding "control" includes reports on the results of the proficiency test and/or trainings, the annual reports and ad-hoc support to DG SANTE.	31/12/2020	Technical Reports
204 - Compliance JRC.F.5	803 - GMO Genetically Modified Organisms	- Assessment and validation of methods provided by applicants for the detection, identification and quantification of GMOs in food and feed. This step is mandatory in the process of authorisation of any GMO in the EU (no method – no authorisation). It includes laboratory experiments for method validations/verifications and bioinformatics analysis in the frame of specificity checks; - Reporting to the European Food Safety Authority (EFSA) on validated methods; - Acquisition of appropriate control samples and their provision to official control laboratories for correct GMO testing; - Steering and management of the European Network on GMO Laboratories (ENGL); the ENGL is mandated by Regulation (EC) No 1829/2003 to support the EURL GMFF in its tasks and is thus an integral part of the regulatory framework; - Provision of details and guidance on methods of laboratory analysis, including reference Food contact materials (FCMs) are critical components in the food chain to ensure food safety. However, a potential transfer of substances of concern from FCMs into food may occur at various food chain stages. Hence, parts used for instance in food processing equipment, containers for transport, storage or purchase as well as kitchen and tableware have to be considered and their safe use assessed. Various materials end up being addressed, ranging from traditional ones, e.g. paper and board, recyclable and compostable, plastics and ceramics, to highly technological innovations (nanocomposites, active or intelligent materials). The JRC is hosting the European Union Reference Laboratory for Food Contact Materials (EURL-FCM) according to the legal mandate established in Regulation (EU) 2017/625. The EURL-FCM has to provide analytical methods and proficiency tests (PTs) in order to enable harmonised official controls in the Member States and to monitor their quality. In that context the EURL-FCM is	JRC.F.5	1.5.2.a	SANTE	JRC,SAN TE	GROW TRADE	EFSA - European Food Safety Authority ENGL - European network of GMO laboratories NRLs - NRLs - national reference laboratories	01/01/2016 31/12/2020	CON-AA,INS-RS	2019	2019 summary of the EURL GMFF activities fulfilling its legal mandates	The deliverable provides for the year 2019 a comprehensive overview of all activities carried out by the European Union Reference Laboratory for GMO Food and Feed according to the tasks mandated by Regulation (EC) No 1829/2003 (for GMO authorisations) and Regulation (EU) 2017/625 (for GMO official control). The deliverable includes information on method validation, preparation and execution of comparative (proficiency) testing studies, steering and managing the European Network of GMO Laboratories (ENGL), support to National Reference Laboratories, scientific and technical support to the Commission (e.g. in case of unauthorised products on the market). The deliverable emphasises the EURL GMFF actions resulting in a clear policy impact and contributing to the functioning of the EU legal framework on GM food and feed products.	31/12/2019	Technical Reports
											2020	2020 summary of the EURL GMFF activities fulfilling its legal mandates	The deliverable provides for the year 2020 a comprehensive overview of all activities carried out by the European Union Reference Laboratory for GMO Food and Feed according to the tasks mandated by Regulation (EC) No 1829/2003 (for GMO authorisations) and Regulation (EU) 2017/625 (for GMO official control). The deliverable includes information on method validation, preparation and execution of comparative (proficiency) testing studies, steering and managing the European Network of GMO Laboratories (ENGL), support to National Reference Laboratories, scientific and technical support to the Commission (e.g. in case of unauthorised products on the market). The deliverable emphasises the EURL GMFF actions resulting in a clear policy impact and contributing to the functioning of the EU legal framework on GM food and feed products.	31/12/2020	Technical Reports
67 - Food Safety JRC.F.5	3777 - FCM Food Contact Materials	This JRC.F.5 innovation WPK integrates activities that enable the JRC to respond to emerging situations of concern to humans/animals in Food and Feed Safety. Plant breeding techniques (PBTs) evolved from non-targeted approaches to create phenotypic variability (using DNA targeting techniques) introducing precise, targeted mutations in the plant genome. Uncontrolled PBT products threaten to diffuse into the EU market. A combination of DNA sequencing and PCR-based detection methodologies will be developed to characterise and quantify (novel) mutant genotypes in a mixture of plant DNA. Reg. 1169/2011 requires the labelling of 14 priority substances or products causing allergies when intentionally present in food. The lack of common and agreed measurement references does not allow the comparison of analytical results reported worldwide. A robust methodology is deployed and dedicated reference materials will be designed, in collaboration with JRC.F.6, to ensure that food producers identify and correctly quantify relevant proteins derived from major food allergens, and will be soon able to provide accurate food labelling to consumers.	JRC.F.5	1.5.2.a	SANTE	JRC,SAN TE	GROW	CEPIC - European Chemical Industry Council (CEPIC) CEN - European Committee for Standardization CEPE - Paints, printing inks and artists' colours in Europe	01/01/2018 31/12/2020	CON-AA,INS-RS	2019	Food Contact Materials activities in 2019	The deliverable provides for 2019 a comprehensive overview of all activities carried out by the European Union Reference Laboratory for Food Contact Materials according to the tasks legally mandated by the relevant Regulations. The deliverable includes information on analytical methods used and/or developed, preparation, execution and follow-up of comparative (proficiency) testing studies, support to the network of NRLs, organisation of the annual NRLs workshop, trainings set-up and provided by the EURL-FCM, and the scientific and technical support provided to the Commission.	31/12/2019	Technical Reports
											2020	Food Contact Materials activities in 2020	The deliverable provides for 2020 a comprehensive overview of all activities carried out by the European Union Reference Laboratory for Food Contact Materials according to the tasks legally mandated by the relevant Regulations. The deliverable includes information on analytical methods used and/or developed, preparation, execution and follow-up of comparative (proficiency) testing studies, support to the network of NRLs, organisation of the annual NRLs workshop, trainings set-up and provided by the EURL-FCM, and the scientific and technical support provided to the Commission.	31/12/2020	Technical Reports
67 - Food Safety JRC.F.5	7568 - EPFS Emergency Preparedness for Food Safety	Reg. 1169/2011 requires the labelling of 14 priority substances or products causing allergies when intentionally present in food. The lack of common and agreed measurement references does not allow the comparison of analytical results reported worldwide. A robust methodology is deployed and dedicated reference materials will be designed, in collaboration with JRC.F.6, to ensure that food producers identify and correctly quantify relevant proteins derived from major food allergens, and will be soon able to provide accurate food labelling to consumers.	JRC.F.5	1.5.2.a	SANTE	JRC	TRADE	EFSA - European Food Safety Authority MS EU - Member states EU	01/01/2019 31/12/2020	INS-RS	2019SANT E	Support to DG SANTE in 2019 on plant breeding techniques; allergens detection and measurement; safe reuse of plastic FCMs; safe use of food-grade insects	Non-public comprehensive overview of the support provided to DG SANTE in 2019, related to i) the detection methodologies for the detection and characterisation of products issued from novel plant breeding techniques; ii) the deployment by the JRC of a robust allergens detection and measurement methodology, and the steering of the European Network of Allergen Detection Laboratories, iii) the identification of potential sources of incidental contamination and robust methods for monitoring contaminants in plastic recycling for the safe reuse of plastic FCMs, and iv) the development of an analytical methodology to monitor potential contaminants in 'food-grade' insects.	31/12/2019	Technical Reports
											2020SANT E	Support to DG SANTE in 2020 on plant breeding techniques; allergens detection and measurement; safe reuse of plastic FCMs	Non-public comprehensive overview of the support provided to DG SANTE in 2020, related to i) the analytical methodologies developed by the JRC for the detection and characterisation of products issued from novel plant breeding techniques; ii) JRC advances on allergens detection and measurement methodology, and the steering of the European Network of Allergen Detection Laboratories, iii) development of a robust monitoring approach for the chemical safety of recycled plastics reused as FCMs, and iv) update on analytical methods developed to monitor potential contaminants in 'food-grade' insects.	31/12/2020	Technical Reports
1.5.2.b Food and feed quality and fraud - manage the Knowledge Centre on Food Fraud and Quality (see also key orientation 7.1.a); assist in the fight against food fraud in emerging cases; operate two European reference centres (authenticity of wine, water in poultry); produce certified reference materials for food and feed analysis; coordinate an EU wide testing campaign to tackle the alleged differences in quality of food products.															
341 - Reference Materials JRC.F.6	344 - FFRMs Food and feed Reference Materials	This work package develops Reference Materials (RMs), including Certified Reference Materials (CRMs), required for the implementation of EU food and feed legislation, in particular for the quantification of GMOs in food and feed products, control of the hygiene of milk products and the quantification of contaminants and residues in food. GMO companies need to ensure that GMO CRMs which are produced according to ISO Guide 34	JRC.F.6	1.5.2.b	SANTE	JRC		ENGL - European network of GMO laboratories EU-RL M - European Reference Laboratory for Mycotoxins EU-RL MMP - European Reference	01/01/2014 31/12/2020	INS-RS	201	Reference materials for the implementation of EU food and feed legislation	Development of Reference Materials (RMs), including certified reference materials, required for the implementation of EU food and feed legislation, in particular for (EC) No 1829/2003, (EC) No 619/2011, (EC) No 1881/2006, (EC) No 396/2005, DIR 92/46/EEC, DIR 89/362/EEC, (EC) No 882/2004 and (EU) 2017/625.	31/12/2019	Reference materials
											4	GMO CRMs for the	Release of further GMO Certified Reference Materials for the soya event GTS 40-3-2. JRC-IRMM had been asked	31/12/2016	Reference
68 - KCFFQ JRC.F.4	3941 - Food fraud Food fraud and quality	This WPK represents the main activity of the EC Knowledge Centre for Food Fraud and Quality. It aims to develop, optimise, validate and implement tools to fight food fraud and organises and oversees surveys of food quality in the Member States. A network of technical experts from the Member States' competent authorities will be created to help identifying gaps in knowledge related to detecting food fraud and suggest approaches how to fill those gaps by research and development of appropriate fraud detection tools. Equally important is the activity to organise comparative tests of quality related characteristics of food in different Member States to ensure that consumers are well informed about the food they intend to purchase. The electronic media monitoring MedSys tool for picking up early signs of fraud in the food chain will be improved in collaboration with JRC.I.3 (Text and Data Mining) and linked to a methods database to allow searching for appropriate analytical methods for fraud detection. Existing competences as well as information systems related to food fraud detection in the Member States will be mapped by using the TIM tool to strengthen synergies among different actors, increase their power to prevent food fraud in Europe, and offer a centralised service to authorised users to control food fraud. As an associated partner in the "SEATRACES" proposal within the Interreg Atlantic Area 2014-2020 call financed by the European Regional Development Fund (ERDF) the activities to detect fraud in the fisheries sector will continue. Also, the research programme related to fraud in the honey sector by using advanced spectroscopic methods will be stepped up. The power of Next Generation Sequencing (NGS) and NMR as well as mass spectrometry based metabolomics for authentication of food products will be further developed. JRC will continue chairing the DG AGRI expert board in monitoring water content in poultry meat as mandated by Regulation (EC) No. 543/2008 and contribute towards collaborative research programmes funded under the Horizon 2020 programme (OLEUM and EU-China-Safe). Both programmes will strengthen cooperation with important players active in the olive oil (OLEUM) and wine sector (EU-China-Safe)	JRC.F.4	1.5.2.b	SANTE	JRC,JUS T,JUST,R TD,RTD	AGRI GROW MARE TAXUD	MS EU - Member states EU	01/01/2017 31/12/2020	CON-AA,CON-AA,CON-IA,INS-RS	1	JRC's contribution to the development of a common EU-China vision of global food authenticity issues	The final report on the JRC's activities in this H2020 project will summarise the contributions to: - Collection, harmonization, sharing and archiving of data collected and generated by the project. - Transfer and implementation of fraud detection methods related to wine. - Updating project website. - Developing a Training program. - Annual e-Newsletter. NOTE: Annual progress reports will be sent to the coordinator of the project as ARES notes and registered in PUBSY as category 7.2 output.	30/06/2021	JRC technical reports
											2	Support to DG AGRI and Member States on monitoring water content in poultrymeat	The JRC will set the agenda for the annual NRL meeting and the special expert group meeting in a Member State including visits of slaughter houses and related installations. The JRC will also be involved in the preparation and evaluation of a collaborative trial for the validation of methods to determine the water and protein contents, respectively, in poultrymeat. This deliverable was previously foreseen in the WPK 6180 but following the new reporting system adopted by JRC, it was reallocated to this WPK on production of knowledge to KCFFQ.	31/03/2019	JRC technical reports
											3	Final report of the Dual-Quality Food project.	The report will summarise the results of the EU-wide testing campaign to create the objective evidence whether quality related characteristics of banded food vary to a significant extent across the markets in EU Member States. It will provide an input for further policy making, i.e. to decide whether further regulatory measures are necessary to inform consumers correctly about the composition of branded foods they intend to buy.	31/10/2019	JRC technical reports
											4	Report of the contributions made by JRC to the H2020 project OLEUM including the release of a compisational database for olive oil	The contribution of the JRC to the outcome of the H2020 funded OLEUM project will be described and submitted to the project coordinator. In addition, the database capturing the output of the project will be hosted and made available to authorised users of the project and COM services.	01/07/2020	Sci information systems and databases
											5	Scientific publications	The food fraud and quality related scientific output of the WPK will be published in peer-reviewed journals.	31/08/2020	Journal contributions

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
68 - KCFFQ JRC.F.4	6180 - ERC-CWS 2018 European Reference Centre for Control in the Wine Sector 2018	Commission Regulation (EC) No 555/2008 mandates JRC to host and manage the EU Wine Databank. As a requirement, JRC will organise and participate to proficiency tests. The EU Wine Databank and an efficient coordination and collaboration within the Member State Designated Laboratories (MSDLs) network are potent tools to fight fraud in the wine sector, in particular chaptalisation and watering. In addition, the wine reforms of 2008 and 2013 have confirmed the importance of EU quality wines linked to their geographical origin (protected designation of origin – PDO and protected geographical indication – PGI) and varietal identification.	JRC.F.4	1.5.2.b	AGRI	AGRI	SANTE	MS EU - Member states EU	01/06/2018 31/05/2020	CON-AA	D1	Support to DG AGRI and Member States (MS) on wine related fraud issues	- Results and interpretation of the proton NMR applied for a metabolomics approach to authenticate wines. - Harmonised Standard Operating Procedure (SOP) describing the use of High Resolution Mass Spectrometry for a metabolomics approach to authenticate wines. - Results on the feasibility study on the potential of applying Next Generation Sequencing and spectroscopy to authenticate wines. - Updated version of the EU wine databank. - Accreditation of the isotopic ratio mass spectrometry for official support to MS. - Report on the Proficiency test organised by JRC related to isotopic measurements.	31/05/2019	Technical Reports
68 - KCFFQ JRC.F.4	6681 - NGF Next generation DNA fingerprinting (NGF) for untargeted species identification	The NextGenFingerprinting (NGF) project contributes to the Exploratory Research (ER) Programme European actions to fight food fraud have increased during the last decade, and one of the most important authentication issues is species identification. The ER NGF project aims to explore the possibility to include several different DNA markers in one new and combined fingerprinting approach. Through universal primers, DNA markers will be amplified, such as DNA barcode regions, restriction sites, insertions/deletions, microsatellites, and single nucleotide polymorphisms. The amplified DNA markers will be subjected to a restriction endonuclease cleavage followed by high resolution melting analysis (fingerprint). This analytical strategy, called next generation DNA fingerprinting (NGF), will take DNA fingerprinting to a level of complexity that has not yet been introduced to molecular biology. The generated DNA fingerprints and a chemometric analysis will assign the species identity through a database comparison. The NGF method will be universal for plants and more discriminative compared to current methods. Additionally, NGF will require no a priori knowledge of the species' DNA sequence. The entire method takes place in a closed system within two to three hours with a reduced cost per sample compared to other identification methods.	JRC.F.4	1.5.2.b	JRC	JRC	SANTE	MS EU - Member states EU	01/01/2018 31/03/2019	ER-17	201901	Manuscript on the outcomes of the study	A manuscript will be published on a peer-reviewed journal reporting the results of the study.	31/03/2019	Article contribution to periodicals or to conference proceedings listed in the Thomson-Reuters' Science Citation Index Expanded (SCI-e) or Social Science Citation Index (SSCI)
68 - KCFFQ JRC.F.4	7142 - MAHONEY The potential of mapping	The project aims at studying the relation between factors influencing honey production and the incidence of fraud in honey production, with the aim of defining a strategy to better detect, map and	JRC.F.4	1.5.2.b	JRC	JRC	AGRI ENV	MS EU - Member states EU	16/01/2019 31/03/2021	ER-17	HD1	Final report	Outcomes of the projects including honeybee habitat maps, modelling of the landscapes suitability, results of analytical measurements, frauds detected and conclusions.	31/03/2021	Technical Reports
1.5.2.c Plant health - protect plant health through early detection and plant health monitoring initiatives.															
9488 - NatCap JRC.D.3	4760 - XF-ACTORS Xylella fastidiosa Active Containment Through a Multidisciplinary-Oriented Research Strategy	The work package will develop and demonstrate methods for the detection of symptoms associated with Xylella fastidiosa infection in Olive trees using remote sensing. It will capitalize on the larger XF-ACTORS consortium that will include intensive environmental and physiological monitoring of trees, leaf and plant-level spectral monitoring of plants during Xylella fastidiosa infection. The work package at JRC will take lessons learnt from these field and lab studies and	JRC.D.1	1.5.2.c	SANTE	RTD	AGRI ENV		01/12/2016 30/11/2020	CON-IA	1	JRC contributions to the XF-ACTORS H2020 project	a) A set of scale-appropriate techniques for the remote sensing-based monitoring of olive-dominated landscape for the early detection and damage mapping of Xylella fastidiosa infection. b) Pre-operational implementation of remote sensing based monitoring of an olive-tree dominated landscape at the forefront of the Xylella fastidiosa outbreak.	30/11/2020	JRC technical reports
1.6. Regional policy															
1.6.a Territorial modelling for impact assessment of policies and investments - manage a Knowledge Centre for Territorial Policies and carry out integrated modelling to better assess the impact of investments and policies in cities, regions and macro-regions, including demographic trends, climate change impacts, employment and productivity, accessibility and connectivity and territorial resilience.															
488 - TERMOD_INVES T JRC.B.3	1007 - LUISA Application of the LUISA Modelling Platform to Cohesion and Investment Policies	LUISA is a modelling platform developed by the EC-JRC to support territorial impact assessment of policies which have direct or indirect spatial implications, such as regional policy, transport, environment, energy. It is a pillar of the pilot Knowledge Centre for Territorial Policies and interacts with the Knowledge Centre for Demography and Migration and with the Competence Centre on Modelling. It contributes to horizontal project on Resilience, to the FOCUS project. LUISA allows investigating and understanding territorial dynamics in a wider continental dimension, while considering local and regional driving forces. LUISA's standard configuration is consistent with the most recent EU socio-economic assumptions and projections, and it incorporates observed trends and preferences, as well as existing policies. Alternative scenarios which consider different assumptions and/or alternative policies can be simulated in order to gain insight on their potential territorial implications The main output from LUISA are in the form of indicators of territorial performances covering the following fields: 1. Demographic change, population distribution and migrations 2. Economic performances (e.g. GDP, sectoral production, employment, convergence, ..) 3. Access to services (e.g.: to public structures, recreational and cultural sites, ..) 4. Infrastructures for housing, transport, energy and other services 5. Environmental performances (e.g. pollution levels and mitigation measures) 6. Patterns of Energy Production/Consumption at regional and urban scale 7. Urban growth LUISA is a component of the EC Toolbox#33 for Territorial Impact Assessment (Better Regulation Package) and key tool for REGIO for the evaluation of cohesion policies. Reference scenario is IAM-SUL develops a framework to support the implementation and assess the impact of urban/regional strategies that aim to foster sustainable development. The approach is based on the application of integrated assessment tools, among which SHERPA is the main instrument. The framework is based on: (1) collecting and integrating urban/regional measures, with a particular focus on the transport, energy and residential sectors (2) developing and applying integrated assessment tools to support local to EU-wide impact assessments (3) harmonizing and standardizing modeling methodologies across Member-States (4) fostering capacity building across and outside of the EU IAM-SUL is instrumental in supporting the objectives of growth and competitiveness of European cities and metropolitan areas in the context of the EU Structural and Investment Funds. By supporting "urban proofing", i.e. by ensuring that urban aspects are adequately accounted for in EU legislation, IAM-SUL also contributes to "better EU regulation". IAM-SUL allows for a better integration of local measures acting on air quality improvement, climate change mitigation, clean energy and sustainable mobility. IAM-SUL supports the "urban agenda" through the active participation to the "Partnership on Air Quality", an EU initiative to strengthen ties between the Member States of the European Union, national parliaments, regions and cities to tackle urban challenges. Collaborations with China are focusing on source-apportionment and integrated assessment with the aim of exchanging experiences and best practices.	JRC.B.3	1.6.a	REGIO	JRC	CLIMA ECFIN ENER ENV ESTAT GROW RTD SG	CoR - Committee of the Regions EEA - European Environment Agency EIB - European Investment Bank OECD - Organisation for Economic Co-operation and Development (OECD) WB - World Bank	01/01/2016 31/12/2021	INS-RS	201803	What contributes to overall city attractiveness?	Meta-analysis of factors contributing to city attractiveness within its regional context, taking into account the role of all stakeholders (citizens, institutions, businesses, and the research community). A library of best practices will be developed in conjunction with the Urban Data Platform and city profiling from LUISA will help to identify the most effective measures according to specific city characteristics. Joint work with CC COIN and MIT Lab. Related to the CITIES Initiative	14/12/2019	Article contribution to periodicals or to conference proceedings listed in the Thomson-Reuters'
9638 - FOCUS JRC.B.3	2002 - IAM-SUL Integrated Assessment Methodologies to promote Sustainable and resilient Urban Living		JRC.C.5	1.6.a	REGIO	JRC	CEN - European Committee for Standardization EEA - European Environment Agency	01/01/2016 31/12/2020	INS-RS	201901	Determinants of Urban and Regional growth	a.Long-run regional/urban determinants of growth in relation to specific elements of territorial capital (initial selection of determinants: human capital, agglomeration economies, spatial spill-over, access to market and services); b. Short-run growth in relation to specific elements of 'territorial capital' and macroeconomic context (this aspect directly interact with the resilience framework)	30/09/2020	JRC technical reports	
										202001	Contribution to Territorial Impact Assessment	Support to REGIO for activities related to up-scaling of TIA procedures. Organising common (DG REGIO – JRC) meetings with the evaluation units of all the other DGs to present what are the existing methodologies for TIA, provide examples of successful TIAs we did in the past, present possibilities for TIA training, make other DGs aware of the different territorial dimensions (RUP, Cross Border, Urban) when preparing an initiative, when embarking on their IA and if needed what support we (JRC and REGIO) can offer for TIA. A priority list will be established of 5-6 DGs that their initiatives have the most territorial interest. Data gathering and refined. Involves RHOMOLO.	10/12/2020	Technical Reports	
										201901	EU Atlas for NO2	This Atlas will assess the impacts of potential air quality plans targeting the reduction of local traffic within cities (e.g. low emission zones, traffic bans...). The assessment will be performed in a wide set of EU cities. Impacts will be quantified in terms of reduction of the nitrogen dioxides levels.	31/03/2019	Science for Policy reports	
										201902	SHERPA - Control strategies	The SHERPA tool assesses regional and urban impacts. It aims to support impact assessments by the Commission and to help national, regional and local authorities design and assess the impacts of control strategies on air quality and climate. An additional module will be implemented to provide information on measures available to policymakers. Several indicators will be developed and attached to these measures to deliver insight on various aspects: impact on air quality, green-house-gases emissions, costs, health...	30/06/2019	Technical systems	
										201903	Harmonisation of air quality management practices; Air and Climate co-benefits: A city perspective	1) Harmonisation of FAIRMODE practices to be performed in the frame of the Fairmode working group on air quality management practices which involves a series of pilot regions and cities. 2) Assessing the need of developing tools to support the effective implementation of measures that have co-benefit on air and climate. The report will be based on the outcome of the dialogue that will take place with selected pilot cities, partners of both the Covenant of Mayors Initiative (Climate) and FAIRMODE pilot exercise (air quality)	31/10/2019	JRC technical reports	
										202001	Regional and urban policies for air quality	This report will explore the possible options to improve air quality in EU regions and cities. Possible measures will be detailed with their associated impacts (costs, health, green-house gases...)	28/02/2020	Science-for-policy reports	
										202003	FASST 2020	This deliverable will consist in updating the FASST screening tool with new source-receptor relationships based on the SHERPA methodology. In addition to input data referring to more recent years, the source-receptor updates will allow for a higher spatial resolution and lead to an increased flexibility to select the regions over which impacts (e.g. health) are estimated.	30/10/2020	Technical systems	
4856 - ARCTIC JRC.C.5	2021 - PACAR Policies and atmospheric change impacting the Arctic		JRC.C.5	1.6.a	ENV RTD	JRC	AACA - Adaptation Actions for a Changing Arctic AMAP - Arctic Monitoring and Assessment Programme EEAS - European External Action Service IGAC - International Global Atmospheric Chemistry (IGAC) NOAA - National Oceanic and Atmospheric Administration UN ECE - UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE UN FCCC - UN Framework Convention on Climate Change (UN-FCCC) UNEP - United Nations Environment Programme (UNEP)	01/01/2016 31/12/2020	INS-RS	201801	Aerosol transport to the Arctic: an analysis through observations and multi-model ensemble	Available global chemistry-climate model simulations and observations in the Arctic stations will be combined to estimate the trends in the last decades of black carbon and other aerosols, and evaluate the impact of changing large scale atmospheric circulation versus the anthropogenic emission trends. Predictions made by several climate models and source-receptor estimates by the FASST model will be compared to select important processes for assessing future pollution and its impact on the environmental change in the Arctic. By describing the main sources of anthropogenic pollution and distinguishing them from impacts by global climate change the deliverable will provide an estimate on how current and future policies on emissions of atmospheric pollutants modify the remote pollution and environmental change in the Arctic.	15/05/2019	Science for Policy reports	
										201802	Assessment of present environmental conditions in the Arctic	A set of indices will be calculated in order to estimate changes in the Arctic and their impacts on surrounding areas and global environment. Depending on environmental issues and available observations and model outputs indices will address changes in the atmosphere, ocean and land. Observational data and model outputs will be collected and used for calculating indices describing ongoing changes and to compare observational with model estimates.	15/05/2019	Journal contributions (Clarivate)	
										201901	Future projections based on environmental indices	Indices developed in Deliverable 201802 will be applied with future climate scenarios in order to evaluate the possible change of future climate in the Arctic and its impact on the regional, surrounding and global environmental conditions. The analysis will be made with different climate model simulations available from CMIP5 or other data sets and under different warming levels.	30/11/2019	Science-for-policy reports	
									201902	Assessment on black carbon and methane pollution in the Arctic	By applying the statistical methodology developed for the comparison between model simulations and observations, CMIP5 and large ensemble chemistry-climate model simulations will be used to evaluate the ongoing trends of black carbon and other aerosols. Statistical evaluation will be combined with estimates made by chemistry-climate model simulations made at the JRC in order to understand impacts of current and future policies on aerosol emissions on pollution in the Arctic. The deliverable will contribute to the interim report by the Arctic Council Arctic Monitoring and Assessment Programme Expert Group on Short Lived Climate Pollutants that is planned by 2019.	30/11/2019	Journal contributions (Scopus)		

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
		present assessment and future projections with different global warming scenarios.						US-EPA - US Environmental Protection Agency WB - World Bank WHO - World Health Organization			202001	Earth sytem model simulations of Arctic climate change due to anthropogenic black carbon and methane emissions	The new set of future estimates of anthropogenic emissions of Black Carbon and Methane will force climate simulations by the NCAR Community Earth System Model in order to evaluate their impact on the Arctic climate and, in particular, on the sea-ice melting trend. Simulations will contribute to the new report by the Arctic Council Arctic Monitoring and Assessment Programme Expert Group on Short Lived Climate Pollutants that is planned by 2021.	30/06/2020	Journal contributions (Scopus)
											202002	Climatic and environmental indices of air pollution in the Arctic	Environmental indices related to the air pollution will be developed. They will be based on in-situ observations and model simulations. Indices will be calculated for future climate and economic scenarios in order to estimate the change of air pollution due to climate change and increased human activities in the Arctic.	30/11/2020	Science for Policy reports

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
147 - REMO JRC.B.3	3485 - RHOMOLO VI Macro-economic modelling: regional and sectoral analysis (VI)	Macro-economic modelling support to ex-ante policy impact assessment with regional and sectoral detail. To use the spatial computable general equilibrium model RHOMOLO to evaluate the growth and welfare effects of (i) R&D and innovation policies; (ii) human capital policies; (iii) transport infrastructure investments; (iv) territorial impact assessment; and (v) structural reforms. The development, maintenance and update of the RHOMOLO model, which is linked and aligned with the dynamic macroeconomic model QUEST.	JRC.B.3	1.6.a	REGIO	REGIO	ECFIN EMPL RTD SG		01/07/2017 30/06/2020	CON-AA	3	Interim Report 01/07/2018 - 30/06/2019	Interim Report for the period 01/07/2018 - 30/06/2019	15/07/2019	JRC technical reports
											4	Final Report on the AA - 01/07/2019 - 30/06/2020	Final Report for the period 01/07/2019 - 30/06/2020	30/06/2020	JRC technical reports
488 - TERMOD_INVES	3927 - TERMES Territorial Modelling	The main purpose of this Administrative Arrangement (AA) is to increase the capabilities and application of the LUISA Territorial Modelling Platform in order to provide support to the preparation of the AA. Early contacts with the "Policy and Strategy Division" of the European Investment Bank's "Economics Department" have shown the great potential for the RHOMOLO model to be used for the impact assessment of the EIB investments in order to guide investments and determine priorities.	JRC.B.3	1.6.a	REGIO	REGIO, REGIO	ECFIN ENER	CoR - Committee of the Regions OECD - Organisation for Economic	01/03/2016 31/12/2021	CON-AA, CON-AA	0012021	Reporting & Dissemination	Production of reports and publication of indicators in the Territorial dashboard (periodic).	31/12/2021	Technical Reports
147 - REMO JRC.B.3	5043 - Rhomolo-EIB Macro-economic Modelling for investments by the European Investment Bank (EIB)	The RHOMOLO-EIB work package thus aims at further developing the model to be able to provide the EIB with accurate ex-ante policy impact assessment with regional and sectoral detail.	JRC.B.3	1.6.a	REGIO	n/a	ECFIN EMPL REGIO RTD	EIB - European Investment Bank	01/10/2016 31/12/2021	CON-TW	1	Description of RHOMOLO-EIB model	Publication detailing features of the RHOMOLO-EIB model and properties	31/03/2019	Journal contributions (Clarivate)
											ImpactAssessment2019	Impact assessment of EIB investments 2019	RHOMOLO simulations on impact assessment of EIB investments, with results delivered as Excel tables and technical reports explaining the results.	31/03/2019	JRC technical reports
											Report2018Final	Final report 01/09/2017 31/03/2019	Report of activities and actions agreed with EIB, including publications, presentations, simulations and sensitivity analyses for mid-2018/March 2019.	31/03/2019	JRC technical reports
											SensAnalysis2019	Sensitivity analyses on RHOMOLO simulations 2019	Sensitivity analyses and presentations on RHOMOLO simulations on impact assessment of EIB investments.	30/06/2019	JRC technical reports
488 - TERMOD_INVES T JRC.B.3	5400 - REGISTER II Regional Indicators and Territorial Cohesion Analysis II	The main purpose of this Administrative Arrangement (AA) is to elaborate European wide information relating to key themes (e.g.: demography, environment, urban development, transport ...) and provide REGIO with indicators, maps and other data relevant for the analysis of European cities and regions. It follows up AA REGISTER	JRC.B.3	1.6.a	REGIO	REGIO	ECFIN EMPL ENER		01/01/2018 31/12/2020	CON-AA	201801	Inputs to the EC reporting on Cohesion policy	Following from the 7th Cohesion Report a set of thematic fact-sheets will be updated/produced on issues such as transport & accessibility, demography, economic development, evaluation of European Urban areas.	31/01/2019	JRC technical reports
											202001	Final Report	Report on simulation of policy scenarios, defined jointly with REGIO following hypotheses of funding on geographical and / or thematic priorities.	31/12/2020	JRC technical reports
141 - TEM JRC.C.6	6416 - REGIOTRANS2 Transport networks analysis to support EU policy on regions and cities	The overall goal of the AA is to contribute to the socio-economic analysis underlying the design of EU regional and urban policy and to complement the toolset employed for the performance evaluation of EU cohesion investment programmes. In particular, the focus of REGIOTRANS2 is mainly in relation to the role that the transport system plays in facilitating the implementation of regional and urban policy, and within that framework, on the recent global recession and consequent slow recovery have revealed considerable heterogeneity in economic performance across countries, regions and local actors. This Work Package contributes to the efforts towards the identification of drivers of crisis recovery and investigate the structural characteristics of the regions and determinants of resilience. Resilience is herein conceived as the multidimensional capacity of regional and local economy to absorb shocks, adapt or transit to new sustainable development path. It is considered a multi-stakeholder challenge, since it spans the entire governance framework, at multiple dimensions of society, involving multiple sectors. Hence it is fully based upon the territorial approach as the mean to	JRC.C.6	1.6.a	REGIO	REGIO	MOVE		01/01/2019 31/12/2021	CON-AA	1	Annual Report 2019	Deliverable describing results and, where relevant, tools and methodologies, corresponding to the activities carried out as part of the project during 2019.	31/12/2019	Science for Policy reports
											2	Annual Report 2020	Deliverable describing results and, where relevant, tools and methodologies, corresponding to the activities carried out as part of the project during 2020.	31/12/2020	Science for Policy reports
											3	Annual Report 2021	Deliverable describing results and, where relevant, tools and methodologies, corresponding to the activities carried out as part of the project during 2021.	31/12/2021	Science for Policy reports
7596 - Resilience4EU JRC.B.1	6460 - TERES Territorial Resilience	The recent global recession and consequent slow recovery have revealed considerable heterogeneity in economic performance across countries, regions and local actors. This Work Package contributes to the efforts towards the identification of drivers of crisis recovery and investigate the structural characteristics of the regions and determinants of resilience. Resilience is herein conceived as the multidimensional capacity of regional and local economy to absorb shocks, adapt or transit to new sustainable development path. It is considered a multi-stakeholder challenge, since it spans the entire governance framework, at multiple dimensions of society, involving multiple sectors. Hence it is fully based upon the territorial approach as the mean to	JRC.B.3	1.6.a	REGIO	JRC	ECFIN EMPL HOME SG	OECD - Organisation for Economic Co-operation and Development (OECD)	01/01/2018 31/12/2020	INS-RS	201901	Territorial Determinants of Resilience	Multi-level modelling (LUISA and extended modules) is applied to identify the role of countries and regions as a potential driver of local resilience. Different explanatory variables will be explored in order to cover multiple dimensions of resilience, encompassing economic and social categories, as well as different model specifications to obtain the best possible fitting. Regional economic modelling (Rhomolo) will contribute to simulate the introduction of specific policy measure either to evaluate the impacts of shocks (for ex. intra-EU mobility) of in the frame of the the study of determinants. Specific focus will be dedicated to resilience in cities.	15/12/2020	Science for Policy reports
147 - REMO JRC.B.3	6503 - RHOMOLO INST Macro-economic	This work package is created to complement "WPK 3485 RHOMOLO VI" and "WPK 5043 Rhomolo-EIB" exploring areas of data and model development whose potential has not been fully	JRC.B.3	1.6.a	REGIO	JRC	ECFIN EMPL		01/01/2017 31/12/2020	INS-RS	2	Technical Reports	A series of technical reports will document the modular development of the RHOMOLO model and the identification of its structural parameters. The reports will be released in the course of the project.	31/12/2020	JRC technical reports
147 - REMO JRC.B.3	7745 - GEGRAM General Equilibrium Gravity Model for the EU regions	The GEGRAM project contributes to the Exploratory Research (ER) Programme. The main goal of the proposed ER project is to explore and develop a structural gravity general equilibrium model for the EU regions. The focus of the model is on the effects that trade liberalization processes have on the EU regions. To achieve this, trading relationships are	JRC.B.3	1.6.a	JRC	JRC	REGIO TRADE		01/06/2018 31/05/2020	ER-17	1	Final report	The Final technical report will summarise the scientific results of the project and provide a summary of the scientific papers originating from the project. A mid-term technical report will be produced at the end of year 1	31/05/2020	Technical Reports
1.6.b Economic, social and environmental cohesion and development - develop indices, customize satellite-based data and perform quantitative analyses at urban, regional, cross-border and macro-regional levels, including on drivers of population dynamics and air quality control.															
222 - DRMKC JRC.E.1	3416 - Sentinel GHSL Pre-operational service framework for GHSL production using Copernicus Sentinel data	This 4-year activity aims to: Firstly, customise a set of satellite-based data processing and analysis techniques developed by the JRC for global human settlement (GHS) detection and analysis in order to render them suitable for a production service framework. Secondly, to develop the technical requirements for a pre-operational Copernicus service framework for the production of Global Human Settlement measurements and exposure indicators. The future service and its information products shall help the EU and countries around the world meet the needs of Sustainable Development Goal 11, Sendai Framework for disaster risk reduction and the Global Urban Agenda. The AA will be continued after February 2020. Details will be discussed with DG REGIO later this year.	JRC.E.1	1.6.b	REGIO	REGIO	DEVCO ECHO ESTAT GROW	OECD - Organisation for Economic Co-operation and Development (OECD) UN HABITAT - United Nations, Human Settlement Programme (UN HABITAT) UN ISDR - United Nations International Strategy for Disaster Reduction (UN-ISDR) UNDP - United Nations Development Programme WB - World Bank	01/03/2016 28/02/2021	CON-AA	SentinelGH SL2019	Third intermediate Report	The report describes the production of the first global prototype integrating Landsat, S1 and S2 information about built-up areas and their characterization for the epochs 1975, 1990, 2000, and 2014(Landsat)/2015(S1)/2016-2017(S2). Sentinel (S1-S2) GHSL integrated prototype including change detection and validation protocol. Updated set of population grid and SDGs indicators. Cost-benefit analysis of the processing workflow, optimization guidelines. Data sheets and technical specifications for operational services. Final delivery of the updated European Settlement Map developed from VHR imagery data. Consolidated set of tools supporting the new GHSL interactive platform.	31/03/2019	JRC technical reports
											SentinelGH SL2020	Sentinel GHSL - Final Report	The report summarises the activities performed since the beginning of the AA with a special focus on the activities in the last year, which were not covered by the previous progress reports. The production of the first global prototype integrating Landsat, S1 and S2 information about built-up areas and their characterization for the epochs 1975, 1990, 2000, and 2014(Landsat)/2015(S1)/2016-2017(S2). Sentinel (S1-S2) GHSL integrated prototype including change detection and validation protocol. Updated set of population grid and SDGs indicators. Cost-benefit analysis of the processing workflow, optimization guidelines. Data sheets and technical specifications for operational services. Final delivery of the updated European Settlement Map developed from VHR imagery data. Consolidated set of tools supporting the new GHSL interactive platform.	28/02/2020	Technical Reports
9638 - FOCUS JRC.B.3	4304 - URBPLAT-Data Urban Data Platform	The main purpose of this Administrative Arrangement (AA) is to implement and populate the Urban Data Platform - a spatial data hub for access and visualization of data and indicators related to European urban areas. The work contributes to the implementation of the Knowledge Centre for Territorial Policies pilot project.	JRC.B.3	1.6.b	REGIO	JRC, REGIO	CLIMA ENER ENV MOVE	CoR - Committee of the Regions	01/09/2016 31/12/2021	CON-AA, INS-RS	201901	URBPLAT-DATA Version 3.0	New Operational Version of the Urban Data Platform. Contributes to the WP KC-TP HUB and KC-TP partnership and networking	30/06/2019	Scientific information systems and databases
4854 - AIR JRC.C.5	4800 - iScape Improving the Smart Control of Air Pollution in Europe	Aims to integrate and advance the control of air quality and carbon emissions in European cities through the development of sustainable and passive air pollution remediation strategies, policy interventions and behavioural change. It will tackle air pollution reduction at target receptors with an innovative SME-led approach, focusing on the use of "Passive Control Systems" in urban spaces. Improvements in air quality, microclimate and behavioural aspects of urban dwellers will be achieved by applying real-world physical interventions on the urban tissue to alter ventilation rates and dispersion patterns in the selected cities assessed for future climate change scenarios and representative of different cultural and lifestyles in Europe. It will support sustainable urban development by promoting the sharing of results with policy-makers and planners using local test-cases, and providing scientific evidence and ready-to-use solutions potentially leading to real-time operational interventions. This work package will focus on geographical harmonisation and generalisation of the iSCAPE urban domains in regions of high population density. It will link the lessons learned from regulatory consequences to population exposure and human health. It will promote specific deliverables with commercial value in the international industry and furnish expert knowledge for developing	JRC.B.6	1.6.b	REGIO	RTD	CLIMA ENV RTD SANTE	EEA - European Environment Agency WHO - World Health Organization	01/09/2016 31/08/2019	CON-IA	D7c	Impact of urban abatement policy on climate change	This is a peer-reviewed publication from the key products of the project that could be used in developing countries for promoting sustainable growth while mitigating climate change.	28/02/2019	Article contribution to periodicals or to conference proceedings listed in the Thomson-Reuters' Science Citation Index Expanded (SCI-e) or Social Science Citation Index (SSCI)

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
568 - WEFE Nexus JRC.D.2	6440 - H2OCities Water challenges in cities	<p>The work package addresses multiple dimensions of urban water and sets them into relationship to energy, food and ecosystems. H2OCities looks into the inherent relation between cities and water and aims at enumerating its influence on our social, economic, political and cultural lives in an urban setting. To do so, it builds a set of indicators on direct and indirect water trends and pressures, which allows municipalities to:</p> <p>a.) perform a baseline assessment of their urban water situation, b.) identify priorities to become "water-wise" cities and c.) identify appropriate innovative solutions to tackle water reuse (of special relevance for the Mediterranean region) as part of the UN Sustainable Development goals for Water (SDG 6) and cities (SDG 11).</p> <p>Particular emphasis is given on a circular and green economy thinking, such as reuse of reclaimed water or nature-based solutions, in order to fill the knowledge gaps, e.g. in view of an EU Guidance for a reuse risk management framework. H2OCities addresses also aspects of "Water in the city" as a tool for science diplomacy at local, i.e. urban level, useful to address other urban challenges such as climate adaptation, sustainable use of land, but also energy transition. To this end, it supports the development of a concept for Covenant of Mayor for Water building on the Urban Water Agenda.</p>	JRC.D.2	1.6.b	ENV	JRC	CLIMA ENER JRC REGIO RTD	EP - European Parliament NetWERCH2O - Network for Water in European Regions and Cities (NetWERCH2O) OECD - Organisation for Economic Co-operation and Development (OECD) UN HABITAT - United Nations, Human Settlement Programme (UN HABITAT) WSSTP - Water supply and sanitation Technology Platform	01/01/2018 31/12/2020	INS-RS	20191	Nature-based solutions for smarter cities	Urban greening and nature-based solutions offer the opportunity for cities to adapt to enhance their climate resilience with benefits on energy saving, pollution reduction and flood mitigation. Based on an urban think tank and the results of related indirect actions a prioritization approach for multi-functional urban greening solutions considering the expected benefits for energy, urban agriculture, ecosystems and water quality is proposed with a perspective to see how cities can contribute to global policy targets, e.g. as expressed by the SDGs. In case on biodiversity and ecosystems, the question of how urban green space can become part of a regional network of green infrastructure which supports biodiversity and ecosystem services can be addressed.	31/08/2019	JRC technical reports
											20192	WEFE governance imaginaries in cities	Carry out societal engagement in two different case studies (Europe and the Mediterranean) aiming at fostering a debate about governance issues of the WEFE Nexus in urban and peri-urban areas. The input to these engagements are scenario outcomes from other WEFE-Nexus Work Packages as well as different insights including "traditional knowledge" and local practices. The engagements will be done through social research methodologies based on group discussions and material deliberation (e.g. futuring tours) or online engagements making use of the Dialogue Platform developed within the H2020 MAGIC Project, preceded by a study of institutional analysis and stakeholder mapping, local narratives that interest the WEFE. The outcomes of these engagements include a report of insights, expectations and imaginaries of the communities involved that will inform the scenario development team.	30/11/2019	JRC technical reports
											20193	Intelligent Urban Water Scoreboard	Development of a science-based, robust and reproducible set of urban water indicators for water-wise cities aiming at capturing a municipality's performance characteristics with regard to water supply services (drinking water + wastewater), climate resilience (flood, droughts, sealing), water governance, attractiveness and sustainability in relationship to water (blue/green surfaces, water footprint) and resource recovery from the urban water cycle. The scoreboard will be directly embedded into the Urban Data Platform and support also the Urban Water Agenda. The following data categories will be used: a.) Stemming from JRC in-house tools and facilities, b.) Urban data collections and c.) other sources. The development of the indicator will be accompanied by the development of a community of stakeholders such as the EU Urban Water Agenda, the Water Sanitation and Supply Technology Platform, the Network for Water in European Cities and Regions.	31/12/2019	Scientific information systems and databases
											20201	Blueprint for the Next Generation of Urban Nature-Based Solutions	The creation of regenerative and water-wise urban spaces requires an effective and enduring circular economy approach aligned with the needs of a system with inherently sustainable solutions and orientated towards a state of progression. Such systemic approaches to addressing the problems of contemporary urban communities permit municipalities to function as ecosystems and can lead to a multitude of co-beneficial solutions, tackling both environmental and socio-economic challenges. This blueprint is a guidance to and developed with interested municipalities. It shows how to deploy next generation nature-based solutions (NBS) and addresses: the social values of water quality and availability of urban spaces, the interaction between green and blue spaces for the benefit of people and urban nature, the use of NBS in local multiple track sustainability diplomacy and intercity collaboration in the EU and beyond (Winning-by-Twinning), best-practices and performance (Urban Water Scoreboard).	31/12/2020	Science for Policy reports
9638 - FOCUS JRC.B.3	7082 - URBAN2030 Urban dimension of the 2030 Agenda for Sustainable Development	The action aims to support REGIO work on the monitoring and reporting of the urban dimension of the 2030 Agenda for Sustainable Development as well as the New Urban Agenda. It will contribute to ensure coherence between the EU action and the Global action on sustainable urban development, including by facilitating the coordination with Member States.	JRC.B.3	1.6.b	REGIO	REGIO	DEVCO NEAR SG	UN HABITAT - United Nations, Human Settlement Programme (UN HABITAT)	01/05/2018 31/12/2020	CON-AA	012019	Urban dimension of the 2030 Agenda for Sustainable	European Handbook for the preparation of Voluntary Local Reviews on SDGs and Contribution to the EC Report 2019 on the "Implementation of the urban dimension of the 2030 Agenda for Sustainable Development"	20/12/2019	Whole parts of policy documents
											012020	urban dimension of the 2030 Agenda for Sustainable Development	Final report	31/05/2020	Whole parts of policy documents
1.6.c Support for territorial and local macro-regional and smart specialisation strategies - develop integrated processes and qualitative methods to support the development, implementation and monitoring of smart specialisation strategies and other territorial and local strategies; support the transition to smart grids and capacity building at national, regional, urban, cross-border and macro-regional levels.															
146 - S3 Platform JRC.B.3	5038 - SSP-4 Smart Specialisation Platform – Phase IV	The S3 Platform provides support to national and regional authorities for the implementation of smart specialisation strategies, to help reform national/regional research and innovation systems and promote international collaboration. In order to address the diversity of Europe's regions, the	JRC.B.3	1.6.c	REGIO	REGIO	AGRI EAC ENER	CoR - Committee of the Regions EP - European Parliament	01/07/2017 31/12/2020	CON-AA	02 03	Final report Interim report on work carried out	Final report on work carried out and key achievements in SSP4 (i.e. until mid-2019) Report on work carried out in 2020	30/06/2019 31/12/2020	JRC technical Science-for-policy reports
9638 - FOCUS JRC.B.3	5041 - URBADEV Support to the EU Urban Policy and Urban Development Strategies	This Work Package aims at providing support to the activities of the Urban Development Network-UDN of the European Commission managed by DG REGIO, and to inform future EU policy with an impact on cities and urban areas, either directly or indirectly. Three hypothesis support the research proposal: 1.in the European context, "what is urban" can be identified and extended to encompass the whole territory 2.the re-articulation among economy, society and territory will affect (facilitate or contrast) a "smart	JRC.B.3	1.6.c	REGIO	JRC,REGIO,REGIO	REGIO	CoR - Committee of the Regions	01/07/2017 31/12/2021	CON-AA,CON-AA,INS-RS	0012020 FinalReport Methodological guide	Reporting & updated tool Final Report Methodological guidance ¹	Report on updated methodology and web-tools (STRAT-Board as part of the Territorial Dashboard) Final Report on activities and publications linked to the Work Package. Methodological guidance on the establishment of Integrated urban development strategies	15/12/2020 30/06/2019 30/06/2019	Sci information systems and databases JRC technical reports Technical Reports
146 - S3 Platform JRC.B.3	5146 - S3P-TER-INNO S3P- Analysis and methodologies of Territorial Innovation	This work-package aims to study the functioning of territorial innovation ecosystems (at regional and urban level) and the role of individual key players in a set of selected regions. Selected criteria: regions moving towards quadruple helix model (4H) under their RIS3. The Knowledge Centre for Territorial Policies (KC TP) aims to change the way knowledge for territorial policies is shared and used to increase its impact and improve its efficiency. It achieves it by better integrating and coordinating the supply and demand for knowledge. It provides one-stop access to data, policy analysis, interactive tools and methods for policy makers, scientists and other stakeholders via an IT platform and a clearing house for policy questions.	JRC.B.3	1.6.c	REGIO	JRC	CNECT GROW	CoR - Committee of the Regions	02/01/2017 30/06/2019	INS-RS	2	Analysis of EU territorial innovation ecosystems	Based on Del. 1, this analysis will build a (cross-regional) typology of innovation-catalyser actors; compare mapped innovation ecosystems (and others that might be documented in available literature) scrutinising their key enabling factors, drivers and dynamics, governance and sustainability models; extract conclusions and recommendations for regional & urban development policy.	30/06/2019	JRC technical reports
488 - TERMOD_INVES T JRC.B.3	5163 - KCTP Knowledge Centre for Territorial Policies	This work-package aims to study the functioning of territorial innovation ecosystems (at regional and urban level) and the role of individual key players in a set of selected regions. Selected criteria: regions moving towards quadruple helix model (4H) under their RIS3. The Knowledge Centre for Territorial Policies (KC TP) aims to change the way knowledge for territorial policies is shared and used to increase its impact and improve its efficiency. It achieves it by better integrating and coordinating the supply and demand for knowledge. It provides one-stop access to data, policy analysis, interactive tools and methods for policy makers, scientists and other stakeholders via an IT platform and a clearing house for policy questions.	JRC.B.3	1.6.c	REGIO	JRC	CLIMA ENER SG	CoR - Committee of the Regions OECD - Organisation for Economic Co-operation and Development (OECD)	01/01/2017 31/12/2021	INS-RS	201901 201902	KCTP release 2019 (Autumn Edition) KCTP Workshops and CoP	Up dated release of the Territorial Tools (Dashboards for data and Strategies). Includes: new analytical tools and enhanced visualization features The dissemination and promotional activities such as: Organisation of Thematic Workshops, participation to the European Week of Regions and Cities, participation in scientific conferences. Activities within the Community of Practice on Cities	20/11/2019 19/12/2019	Technical Reports Technical Reports
153 - DT&AI JRC.B.6	5680 - S3P-DIH Smart Specialisation and Digital Innovation Hubs	The European Commission strategy from May 2016, "Digitising European Industry – Reaping the full benefits of a Digital Single Market" based on the collective effort of public and private stakeholders across Europe at regional, national and EU level the Commission aims to ensure that any industry in Europe can fully benefit from digital innovations to upgrade its products, improve processes and adapt its business models to the digital change. One of the pivotal parts of the Strategy is the pan-European network of digital innovation hubs (DIHs). For which there is an investment of € 500 million to provide business with advice and possibilities to test digital innovations. JRC B3 and DG CONNECT will collaborate around 4 deliverables to support the strategy and the Digital Innovation Hubs, in particular on the connections between Smart Specialisation processes, regional growth, ICT, Smart Specialisation and Industrial Modernisation. • Deliverable 1: Online tool - JRC B3 will take on the development of a portal that will put	JRC.B.3	1.6.c	CNECT	CNECT, CNECT			19/04/2017 30/06/2021	CON-AA,CON-AA	3	Mapping and analysis of DIH investment patterns	Based on the catalogue of DIHs JRC B3 will analyse the DIH participation in FP7 and H2020 projects – to identify what type of experiments they carry out and compare these data sets with data on Smart Specialisation priorities, regional innovation strengths, to analyse patterns of regional pre-conditions, services offered to see the DIHs regional embeddedness, networks and value chains.	31/03/2019	Technical Reports
											4	Case studies of DIHs.	Based on the analysis from WP2, a selected number of regions will be explored in more depth, to better understand the connection between different forms of pre-conditions and the activities of the DIHs.	31/03/2019	Technical Reports
											5	Evolution of the Online Tool	Evolution of Online tool (Deliverable 1) with new functionalities and a catalogue of around 500 DIHs	30/06/2021	JRC technical reports
											6	new series of Case Studies	New series of Case studies identifying, documenting and diffusing good practices of DIH involved in developing and implementing Smart Specialisation Strategies, as well as of regions developing DIH strategies under or in connection with their RIS3.	30/06/2020	Science for Policy Briefs
148 - STRIVE JRC.B.3	6305 - Lagging Regions II Targeted Support for RIS3 (Lagging Regions II)	Implemented by JRC.B3 since September 2014, successive European Parliament Preparatory Actions (PA) focused first on the Greek region of Eastern Macedonia and Thrace (REMTh) and then eight further slow and low growth regions, have aimed to facilitate the refinement and implementation of the RIS3 strategy in these regions and to generate lessons for other lagging regions in Europe. Over the period 2016-2018, this has been pursued through two complementary work packages based Administrative Agreements with DG REGIO, namely: "support for growth and governance in lagging regions" (WPK 3475) and "the economic competitive advantages and the potential for smart specialisation at regional level in Romania" (WPK 5522).	JRC.B.3	1.6.c	REGIO	REGIO	EP - European Parliament		01/07/2018 30/06/2020	CON-AA	04	Final Activity Report	Final Report on: Outcomes of specific regional stakeholder activities Horizontal analysis of lessons learned Future planning and further developments Dissemination and replication of activities	30/06/2019	Technical Reports
											LAGREG2 2	Second interim progress report	Second First update of progress	30/11/2019	Technical Reports
											LAGREG2 D1	Interim Progress Report 1	First update of progress	31/03/2019	Technical Reports
											LAGREG2 D3	Final Report	Final report - overview of activities, conclusions and policy recommendations - key documentation in annex	30/06/2020	Technical Reports
148 - STRIVE JRC.B.3	6308 - Stairway 2E IV Cohesion Policy & synergies with R&D funds: the "Stairway to	Cohesion Policy & synergies with R&D funds: the "Stairway to Excellence" - phase IV Following an additional mandate of the European Parliament, the resources of this new Preparatory Action will allow for the continuation of activities developed earlier under phase III of	JRC.B.3	1.6.c	REGIO	REGIO	EP - European Parliament		01/07/2018 30/06/2020	CON-AA	01	Interim report	Report on S2E IV mid term review	30/04/2019	Technical Reports
											03	Final Report 2020	Compendium of activities and contribution (events/ presentations, papers, publications, etc.)	30/06/2020	Technical Reports

JRC 2019 - 2020 DETAILED WORK PLAN															
Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
146 - S3 Platform JRC.B.3	6761 - S3P INST S3 Platform - Institutional Support	This workpackage intends to: (i) support the execution of wpk 5038 – SSP4 in collaboration with DG REGIO, and (ii) include a limited number of complementary activities of the S3 Platform on the consolidation of conceptual and methodological issues related to smart specialisation. 1) With regard to the first point, the S3 Platform will provide support to national and regional authorities for the implementation of smart specialisation strategies, to help reform national/regional	JRC.B.3	1.6.c	REGIO	JRC	AGRI DEVCO EEAS FPI GROW RTD	CoR - Committee of the Regions EP - European Parliament	01/07/2017 31/12/2020	INS-RS	1	SMARTER Conference Special issue	Special issue of a scientific journal on the outcome of the bi-annual science for policy conference on smart specialisation and territorial development. Its second edition is going to be organised in September 2018 in Seville.	30/04/2019	Journal contributions (Clarivate)
											2	Working papers on smart specialisation worldwide	Fiches on the uptake of smart specialisation and examples of territorial innovation policy in selected world countries or areas.	31/12/2020	Science-for-policy reports
9638 - FOCUS JRC.B.3	6940 - CITIES-CoP CITIES Initiative – Community of Practice	The Community of Practice for the Cities Initiative (CITIES-CoP) – working in the context of the Knowledge Centre for Territorial Policies – has been approved by the Directorate of 11 September 2017 with the mandate to formalise linkages, collaborations and joint deliverables. In particular, CITIES-CoP is mandated to identify (up to three) long-term forward-looking ambitious project proposals useful at different levels (EU, national, community etc.) that would be then prioritised by JRC management and discussed with DG REGIO. Suggested angles of work include for instance: (i) the analysis of the development of cities using the Global Human Settlement Layer; (ii) direct work with selected cities; (iii) the identification of relevant international partners, such as MIT 'media lab'; and (iv) potential links to the JRC work on resilience. CITIES-CoP will therefore consolidate and provide a corporate and coordinated approach to important policy initiatives, such as the Global and EU Urban Agendas, and the Sustainable Development Goals (SDG) process. CITIES-CoP will also constitute an appropriate environment to identify synergies and areas of collaboration, as well as to generate new knowledge for evidence-based policy, whilst capitalising on the multidisciplinary expertise of its members and the JRC. The Community will bring together colleagues from the Commission and relevant research agencies working on urban-related issues. This WP includes three strands of activity: (a) knowledge sharing on urban issues through the organization of workshops in the context of the Knowledge Centre for Territorial Policies, the setup of a platform @Connected and the exchange of data and methods, (b) Explore new research lines aiming to foster innovative holistic approaches for urban studies and forward-looking elements, including bottom-up methodologies based on the concept of "city attractiveness" and leveraging the role of cities as experimental laboratories, (c) elaborate long-term forward-looking and ambitious proposals useful at different levels (EU, national, community) as mentioned above.	JRC.B.3	1.6.c	REGIO	JRC	CLIMA DEVCO ENER HOME MOVE NEAR SG	OECD - Organisation for Economic Co-operation and Development (OECD) WB - World Bank	01/01/2018 31/12/2020	INS-RS	1	Thematic Workshops on urban-related topics	At least 2 workshops will be organized every year, each being dedicated to a specific theme. Proposed themes: (a) Energy/safety in the built-up environment; (b) Mobility/accessibility; (c) Urban form; (d) Demographic challenges in cities (Ageing/Migration/...); (e) Integrated Urban Strategies; and (f) Global urbanisation issues. The purpose of the workshops (and of the overall CoP) is to stimulate cross-organizational collaborations and knowledge sharing, as well as to promote communication between knowledge production and policy making. Ultimately, the activities under this WPK should provide guidance for the implementation of urban policies at both Global and EU level.	31/12/2019	Article contribution to a monograph or other periodicals
											2	Concept note on city attractiveness	A concept note on city attractiveness will be prepared, in collaboration with the partners of the CITIES-CoP. The concept note will single out the most urgent issues related to cities and urban development; it will formulate research questions; it will identify knowledge gaps; and it will propose a conceptual framework to answer the research questions.	31/12/2019	Article contribution to a monograph or other periodicals
											3	New research lines with long-term forward-looking ambitions	Following the mandate received by the Directorate, CITIES-CoP will elaborate long-term forward-looking and ambitious project proposals useful at different levels (EU, national, community). Potential Topics: (a) the cross-match between urbanisation and development; (b) Global Urbanisation and GSHL; (c) Citizens' involvement and participation. Exploratory project/activity proposals will be formulated – in collaboration with contributing Units.	31/12/2019	JRC technical reports
											CITown	CITown - Building ownership and occupancy in EU cities	The aim of the Activity is to investigate the feasibility to perform an analysis of ownership and occupancy levels of buildings in major European cities and its related socioeconomic impacts. Many people want to live in Europe's major cities because of what these cities have to offer in terms of lifestyle, culture, jobs and education. The increased demand has also attracted investors, seeking to establish high-end property portfolios. This has spiralled-up property and rental prices, thus causing a decrease in the affordable housing stock. EUROSTAT (2016) calls this phenomenon the "housing gap". The Activity will evaluate how transformation in building ownership (to investors) and occupancy in major cities (to start: Amsterdam, Madrid, Sofia and Milan) may modify the "normal" functioning of the city, including socially, for example in terms of available housing and economical, for example the raising/disappearance of activities. The expected outcomes are: - Evaluation of the relevance of the "housing gap" in European cities. - Proposal for a methodology to assess the (potential) vulnerability of cities to the "housing gap".	30/11/2019	Science for Policy reports
148 - STRIVE JRC.B.3	7822 - ATRIE Analysis of Transitions in	Regional innovation ecosystems in Europe are faced with manifold and pressing demands for change, which can severely test the ability of regions to respond. Technological change - most	JRC.B.3	1.6.c	REGIO	JRC	EAC EMPL		01/01/2019 31/12/2020	INS-RS	ATRIEd1	Policy Brief	Poicy Brief on Transitions	16/12/2019	Science for Policy Briefs
148 - STRIVE JRC.B.3	7823 - S3 Skills Regional Skills	An important element of Vocational Education and Training (VET) and Adult Learning (AL) is the regional dimension, since there are place specific characteristics of the economy and labour	JRC.B.3	1.6.c	EMPL	EMPL			01/01/2019 31/12/2019	CON-AA	S3SkillD1	Final Report	Final report of activities undertaken, outcomes and conclusions	16/12/2019	Technical Reports
146 - S3 Platform JRC.B.3	7824 - S3P - MACROREGIONS	As to date four macro-regional strategies endorsed by the EU are emphasising greater co-ordination between different stakeholders and the alignment of resources in order to address	JRC.B.3	1.6.c	REGIO	JRC	NEAR REGIO		01/01/2019 31/12/2020	INS-RS	Final	Final report of S3P Macroregions	Report of S3P Macroregions results.	23/12/2020	Technical Reports
146 - S3 Platform JRC.B.3	7827 - S3P-TER-INNO S3P- Analysis and methodologies of Territorial Innovation Ecosystems	This work-package aims to study the functioning of territorial innovation ecosystems (at regional and urban level) and the role of individual key players in a set of selected regions. Selected criteria: regions moving towards quadruple helix model (4H) under their RIS3. Planned activities: - Explore the role that a territorial innovation ecosystem can play to facilitate bottom-up cooperation and develop a culture of innovation and an entrepreneurial mind-set - Study emerging territorial innovation enablers/catalysers like RIS3 clusters (e.g. Lapland), community co-creation spaces such as Maker spaces, Living labs, Co-working spaces (e.g. Catalonia), co-creation methodologies (e.g. Innovation Camps). - Scrutinise key enabling factors, drivers and dynamics, governance and sustainability models, as well as map in a relational model the diversity of intermediary institutions and places making part of, as well as their interlinks. - Develop a methodological framework	JRC.B.3	1.6.c	REGIO	JRC	CNECT GROW	CoR - Committee of the Regions	01/01/2019 31/12/2020	INS-RS	2	Methodological report on place-based innovation ecosystems and new case studies	Based on the analytical experience matured with the case studies performed in 2017 and 2018, this report will systematise the methodology applied for their analysis, including lessons learnt and possible improvements. Additional contributions from external experts to enrich the methodology are foreseen. The methodological improvements suggested in the report will be tested in new case studies to be defined.	23/12/2019	Technical Reports
											3	Toolbox for Entrepreneurial Discovery Process	This deliverable will experiment with participatory and co-creation methodologies that might be used by regions and cities in support of their Entrepreneurial Discovery Process, both in the design and implementation of innovation strategies (notably S3, but not limited to it). As a result, a Toolbox containing different facilitation methods and techniques for participatory and co-creation activities with quadruple helix stakeholders will be delivered.	23/12/2020	Technical Reports
146 - S3 Platform JRC.B.3	8383 - S3P-EAST Smart Specialization in	Smart Specialization in Eastern Partnership Countries	JRC.B.3	1.6.c	REGIO	n/a			01/01/2019 31/12/2019	CON-AA	Final	Final report	Final report	31/12/2019	Technical Reports
1.7. Research, science and innovation															
1.7.a Research and innovation policies - model, monitor and analyse the drivers of and barriers to research and innovation, including the effectiveness of policy instruments related to research and innovation at EU, national, regional and (cross-) sectoral levels; support R&I funding agencies by developing a semantic similarity tool to help avoiding double funding of research; develop indicators, scoreboards, information systems and web platforms for monitoring and analysing the implementation of EU research and innovation policies; provide support through foresight and horizon scanning to identify research and innovation priorities; provide open access to research infrastructures; manage a Competence Centre for Technology Transfer for policy support and capacity building.															
213 - TMA CC JRC.I.3	5128 - TIM COMPARED TIM Semantic Similarity platform for research	A Pilot Semantic similarity tool for funding agencies in Europe will be developed using funds from the ISA* programme. Double funding of research funded by public funding agencies is a recognised issue for which no operational solutions are available today. This is particularly true in	JRC.I.3	1.7.a	JRC	JRC,JRC	CNECT DIGIT RTD		01/01/2018 31/12/2020	DEL,INS-RS	1	Pilot Semantic Platform for R&D grants	Pilot platform for semantic comparison of R&D grants, and associated database. This pilot platform will serve as a test to decide if the project should be scaled up or not.	26/04/2019	Sci information systems and databases
145 - TIC-2030 JRC.B.3	6318 - GLORIA GLORIA Global Industrial Research & Innovation Analyses	GLORIA provides evidence to support the EU and national level policy-making in key areas of research and innovation policy. It is a direct support to RTD's Horizon 2020 Work Programme 2018-2020. It builds on the IRIMA (Industrial Research Investment Monitoring and Analysis) projects undertaken together with DG RTD since 2004, but gives more emphasis on the analyses of global industrial research and its feed into the policy cycle. It continues the analysis of company data from the sample of world top 2500 R&D innovators, but takes a new policy focus on industrial dynamics. Much more than being big direct employers, producers and innovators, the top R&D innovators have huge indirect market and innovation power. They control supply and distribution chains, help smaller firms grow and internationalise, own participations in start-ups, provide work experience for future entrepreneurs, spin-off technologies, and collaborate with Universities and public research institutions for knowledge. Therefore, GLORIA focuses on detecting differences in industrial dynamics across regions and countries, and on better understanding the behaviour of top R&D innovators to harness globalisation. Capitalising on the interaction with companies within the project, company-level data is further disentangled into companies' different innovation investments, technological portfolios and their geographic distribution across countries and regions. This is crucial because Europe aspires to host (and eventually reshore) the R&D activities of leading innovative multinational firms, rather than seeing these offshored to other countries, and remove barriers to entrepreneurship, firm growth and employment. This activity not only reaps information from companies but also provides a structured dialogue with them. GLORIA benefits from the close coordination with DG RTD as key success factor for the project. This position leverages the project to gather information across the EU from Member States, businesses, public institutions and academia, resulting in unique capacity to deliver quality analysis, independent from private or national interest and to rely on a variety of science and policy disciplines.	JRC.B.3	1.7.a	RTD	JRC,RTD	CNECT ECFIN EMPL GROW REGIO	OECD - Organisation for Economic Co-operation and Development (OECD) WIPO - World Intellectual Property Organization	01/06/2018 30/11/2020	CON-IA,INS-RS	3	D1.3 Report on the results of the 2019 Survey	Results of the EU Survey on Industrial R&D Investment trends will be presented. Survey is sent to the EU companies of the EU Industrial Scoreboard.	30/09/2019	Science-for-policy reports
											4	D1.4 2019 EU Industrial R&D Investment Scoreboard	The Scoreboard contains economic and financial data of the world's top 2500 companies ranked by their investments in research and development (R&D).	31/12/2019	Science-for-policy reports
											5	D4.1 Final review statement by independent experts	Final review statement by independent experts	30/04/2020	Science-for-policy reports
											5	D2.1 GLORIA Working Papers and Policy Briefs 2018	Based on the description of the main research topics, the planned results of WP2 of IRIMA III will be compiled in a rolling-plan that will be used as a monitoring and information sharing tool. This rolling-plan will be regularly updated and shared with DG RTD. The planned results are expected to be released as Working Papers, Technical Reports and Policy Briefs. It is envisaged to produce a minimum of 10 publications (Working Papers and Technical reports format) and a minimum of 6 Policy Briefs over the two years. The Working Papers will be published regularly in the IPTS working papers series on Corporate R&D and Innovation, and the appropriate acknowledgement and visibility to the IRIMA project will be included. Technical reports and policy briefs will also be published regularly.	28/02/2019	Science-for-policy reports
											6	D4.2 Final report	Final project report	30/05/2020	Science-for-
											6	D2.2 GLORIA Working Papers and Policy Briefs 2019	Based on the description of the main research topics, the planned results of WP2 of IRIMA III will be compiled in a rolling-plan that will be used as a monitoring and information sharing tool. This rolling-plan will be regularly updated and shared with DG RTD. The planned results are expected to be released as Working Papers, Technical Reports and Policy Briefs. It is envisaged to produce a minimum of 10 publications (Working Papers and Technical reports format) and a minimum of 6 Policy Briefs over the two years. The Working Papers will be published regularly in the IPTS working papers series on Corporate R&D and Innovation, and the appropriate acknowledgement and visibility to the IRIMA project will be included. Technical reports and policy briefs will also be published regularly.	29/02/2020	Science-for-policy reports
											8	D3.2 Summary of the March 2019 Gloria Workshop	This report summarises the results of the March 2019 Gloria Workshop	31/05/2019	Science-for-policy reports
											9	D3.3 Summary of the September 2019 Workshop	Summary Report of the September 2019 Workshop	30/11/2019	Science-for-policy reports
											147 - REMO JRC.B.3	6454 - HETFIGE HETerogeneous Firms General Equilibrium model	The HETFIGE project contributes to the Exploratory Research (ER) Programme. This ER project, has the objective of exploring and developing a general equilibrium theoretical framework of heterogeneous firms in which endogenous firm-level innovation decisions and R&D investments can be modelled. Different modelling approaches will be explored as different policies might be better captured under different frameworks. These frameworks will also take into account the	JRC.B.3	1.7.a

JRC 2019 - 2020 DETAILED WORK PLAN

Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
7772 - ER-Projects JRC.A.5	6544 - ER 2017 WP1-15 Exploratory Research Programme Management - Projects and Activities	The Exploratory Research Programme (ER) is a strategic initiative of JRC to enhance its scientific excellence and innovation capabilities. While these should have some link to EU policy, there are no pre-defined themes. ER is an opportunity to consider possible futures and to engage in blue sky thinking which may challenge accepted paradigms. Designed as a bottom up process, JRC scientists submit proposals for either activities or projects. Activities such as scoping workshops or expert studies tend to have short term duration while projects present a more substantial research agenda and can last up to two years. ER PROJECTS and ACTIVITIES are embedded in the knowledge production units and foster cross-unit collaborations. Unit A.5 has the responsibility for the coordination and monitoring of the exploratory research programme. This ER project and work package serves as place holder for human and financial resources which will then be allocated to the respective units. Accordingly, ER output is registered against the respective projects.	JRC.A.5	1.7.a	JRC	JRC,JRC JRC			01/01/2018 31/12/2020	ER-17,ER-18,ER-19	01	Output for each WP	Each successful ER proposals selected by the Directorate will have its own WP with thematic description, resources and deliverables. Each ER WP must produce a final report at the end of the project.	31/12/2019	Article contribution to periodicals or to conference proceedings listed in the Thomson-Reuters' Science Citation Index Expanded (SCI-e) or Social Science Citation Index (SSCI)
432 - TT-CC JRC.I.4	7525 - TTCC Technology Transfer Competence Centre	The purpose of this Project is to develop and operate a Competence Centre on Technology Transfer (TTCC) intended to serve as the European Commission's primary platform for delivering input to technology transfer policy and capacity building policies and programmes. TTCC complements other JRC activities in the domain of innovation support and makes practical experience and understanding of the technology transfer process available for the practical implementation of smart specialisation strategies and beyond. TTCC is anchored in cumulated expertise in the provision of services to DGs, regional and local authorities and relevant stakeholders. It is focused on providing expertise in particular in three key areas, namely: technology transfer operational capacity, financial instruments conception and design and support to innovation ecosystems and clusters. TTCC will build on, and integrate, separate TT previous work packages both institutional and competitive, which i) encourage exploitation of JRC's and EC's inventions and IPRs ii) promote TT collaboration among public RTO's in Europe and iii) support the development of regional innovation systems through technology transfer, with a focus on less developed regions particularly in Central and Eastern Europe. In particular TTCC will take advantage of the strong networks that have been developed in the previous WPs with the Members of the TTO-CIRCLE acting its antennas in the Member States and the community of 1000+ of TT practitioners in Western Balkans, Danube and Neighbouring Countries that will continue to be supported via the JRC Enlargement and Integration Action. The project includes also the activities that JRC.I.4 is currently implementing within an administrative arrangement signed with DG NEAR. Under the arrangement JRC provides technical and scientific support to DG NEAR in the management and execution of an action funded under	JRC.I.4	1.7.a	JRC	JRC,JRC JRC,NE AR	CNECT DEVCO EAC EEAS FISMA FPI GROW NEAR REGIO RTD		01/01/2019 31/12/2020	CON-AA,INS- E&A,INS- PC,INS-RS	1	Final Report of TT-CC Project	This final technical report will include all outputs related to the different components of the project, by reporting on: 1) the development, operation and main outputs of the Competence Center along with the recommendations for its possible follow ups; 2) the promotion of the exploitation, and uptake by industry or public administrations, of the IPR generated and/or owned by the European Commission; 3) the initiatives undertaken to foster collaboration on technology transfer among large public research organisations in Europe (TTO CIRCLE); 4) the activities directed at capacity building on technology transfer (e.g. in South East Europe) in support to policy DGs. Moreover, an annual progress reports will be issued at the beginning of 2019.	30/12/2020	Technical Reports
											201801	final report from the Administrative Agreement with DG NEAR	The report will provide a detailed description of the JRC activities carried out in support to DG Near for building up capacity on technology transfer in the 6 Western Balkan countries.	30/06/2019	Technical Reports
											201802	Design of a proof of concept programme for the western balkans	A regional programme for proof of concept funding will be designed with EIB and the beneficiary countries with a view to its possible launching in 2019	31/12/2019	Technical Reports
569 - BIOECONOMY JRC.D.1	7529 - Monitor4BE Monitoring Framework of the EU Bioeconomy	To objective of the WPK is to define a comprehensive framework to monitor progress of the bioeconomy in the EU covering all aspects of sustainability. The WPK will design, develop and implement a bioeconomy monitoring system with the contribution of all Units participating in the Bioeconomy project. The monitoring framework will be hosted in the BKC ICT platform. A set of indicators will be selected in order to provide concise	JRC.D.1	1.7.a	RTD	JRC	AGRI CLIMA ENER ENV GROW		01/01/2019 31/12/2020	INS-RS	1	Description of the Monitoring Framework of the EU Bioeconomy	The report will describe the concept, design, indicator set and implementation of the framework to monitor the EU Bioeconomy.	31/12/2019	Technical Reports
											2	Monitoring system of the EU Bioeconomy	System established within the Bioeconomy Knowledge Centre to monitor the progress of the EU Bioeconomy	31/12/2020	Sci information systems and
145 - TIC-2030 JRC.B.3	7627 - TIC 2030 Strategy TIC 2030 Strategy	This WPK will connect the work of project 146 - Technological & Innovation Challenges for Industry 2030 across the JRC to allow for better thematic collaboration and a more structured information	JRC.B.3	1.7.a	GROW	JRC	REGIO RTD	OECD - Organisation for Economic Co-operation and Development	01/01/2019 31/12/2020	INS-RS	1	TIC 2030 Strategy Synthesis Report	Summary of the findings and main lessons of this WPK	31/12/2020	Science for Policy reports
421 - RSFG JRC.G.II.7	7806 - RISE Robust Indoor Localization in Complex Scenarios	The RISE work package contributes to the Exploratory Research (ER) Programme. The main goal is to contribute to research and development in the area of indoor localisation in infrastructure-free environments. It addresses current limitations related to varying environments, temporal loss of sensor data and localisation in large and complex environments. The project will explore recent achievements made in related research areas (e.g. the use of deep neural networks for scene recognition) and provide reference data sets that can be used by other organisations.	JRC.G.II.7	1.7.a	JRC	JRC,JRC			01/01/2019 31/12/2020	ER-18,INS- UR	RISE2020	Final Report	The Final technical report will summarise the scientific results of the project and provide a summary of the scientific papers originating from the project. A mid-term technical report will be produced at the end of year 1.	31/12/2020	Technical Reports
145 - TIC-2030 JRC.B.3	8324 - Complex Economic Complexity for	Economic Complexity is a novel method to analyse and forecast economic development based on the dynamics of technologies and knowledge. Unlike traditional models, Economic Complexity use	JRC.B.3	1.7.a	GROW	JRC	CNECT ECFIN	OECD - Organisation for Economic Co-operation and Development	01/01/2019 31/12/2020	INS-RS	1	Synthesis Report on the COMPLEX project	Summary of findings across this WPK - which broader lessons are stemming from our research?	31/12/2020	Technical Reports
1.7.b Fuel cells and hydrogen technologies - support the Fuel Cells and Hydrogen Joint Undertaking by monitoring and assessing the technologies and the multi-annual programme. This JRC work is closely linked with workstreams described in Sections 1.8 (transport - namely, on alternative fuels) and 3.2 (energy).															
167 - EST JRC.C.1	2186 - FWC FCH2JU Framework Contract with FCH2 JU	This package contributes to the strategy development, implementation and assessment of the Fuel Cells and Hydrogen Joint Undertaking (FCH2JU) for the duration of H2020. The role of JRC is described in section 4.3 of the FCH2JU Multi-Annual Work Programme (MAWP) and the collaboration mechanism laid down in to the Framework Agreement between JRC and FCH2 JU. Annual deliverables are described in details in the FCH2JU Annual Work Plans. In line with JRC mission and role under H2020, the contribution typically addresses topics of cross-cutting nature such as safety, standardisation and the related pre-normative research as well as the relationship and alignment to the EU regulations. As stated by the mid-term review of the first FCH JU, a lack of coordination regarding the RCS issues has characterised the development of the programme in the FP7 period. JRC plays a unique role at the interface between research,	JRC.C.1	1.7.b	RTD	RTD	ENER MOVE	- FUEL CELLS AND HYDROGEN JOINT UNDER	18/02/2016 31/12/2022	CON-TW	FCH2JU01	Contributions to FCH2JU steering processes (recurring yearly)	This is a cluster of deliverables supporting the Fuel Cells and Hydrogen second Joint Undertaking (FCH2JU) in setting and implementing its strategy, as well as providing assessment its progress to targets. The provision of reference data for the benchmarking of the European programme is a major component of the activity package. For the same overarching objective, JRC performs also a review of the annual progress based on data collection from projects. Topics such as pre-normative research and standardisation strategies receive particularly attention. Moreover, JRC performs analysis of all safety events produced in the frame of projects execution. Also harmonisation of testing protocol, to allow for a coherent and comparable performance assessment of components such as fuel cells and electrolysers, is part of the activities. The annual contribution is spelled out in specific deliverables in every annual Rolling Plan, which is integral part of the Annual Work Programme of the FCH2JU.	31/12/2022	JRC contributions to policy documents
1.7.c Low-carbon energy observatory - provide data, analysis and assessment of the state of the art of different energy technologies, their industrial development, market barriers and global competition; estimate the potential contribution of the technologies in the future energy mix; carry out an inventory of scientific developments and new and emerging technologies. The relevant JRC work is closely interconnected with work described in Section 3.2 (energy).															
241 - KM-EnU JRC.C.7	2140 - LCEO Low Carbon Energy Observatory	The Low Carbon Energy Observatory (LCEO) is an Administrative Arrangement with DG-RTD that addresses 12 low carbon energy supply technologies identified in the SET-Plan Integrated Roadmap. Its objectives are: - Provide world-class data, analysis and intelligence on energy research and innovation policy and performance at EU, national and regional level, including developments in major countries outside Europe in order to support EU Energy research and innovation policy. - Facilitate technological development and deployment of innovative solutions by providing a neutral assessment on the state of the art of different energy technologies, identification of market barriers, as well as best practices in terms of mobilisation of private and public funds and policy measures. The assessments are based on data, information and project results from EU-funded projects , from selected international, national and regional projects (conditional on availability of data), from publications and from other appropriate sources. An inventory of scientific developments and new and emerging technologies (TRLs from 1 to 3, novel and high risk research ideas) has been set up and will be progressively added to over the	JRC.C.2	1.7.c	RTD	RTD	ENER		01/04/2015 31/03/2020	CON-AA	230	Technology Development Reports 2020	LCEO technology development reports describe the technology maturity status and development trends. A separate report is made for each of each of 14 energy supply technologies. These will update the second set of reports delivered in 2018.	31/03/2020	Technical Reports
											280	Technology system synergies ad issues	This report focuses on current research and trends on how an increasing share of variable renewable energy can be balanced with flexible power sources, storage and ICT (see AA amendment 2017)	31/03/2020	Technical Reports
											370	Future and Emerging Energy Supply Technologies 2019	Annual report to present emerging concepts (TRLs from 1 to 3) in the arena of low carbon energy, analysing them in relation to the EU policy objectives and highlighting their potential to impact them. It will also report the status of the FET inventory/database.	30/12/2019	Technical Reports
											440	Review of Global Energy Scenarios	The report will update the 2017 review, addressing reports and scenarios published by major organisations (e.g. IEA World Energy Outlook, ETP, BNEF etc...) and technology associations and reporting on estimates on future technology costs, deployment and market potential and investments, for the technologies in focus. It would also highlight other major potentially disruptive technological developments as well as trends in other exogenous input factors for the models.	30/06/2019	Technical Reports
											480	Deployment Scenarios for LCEO Technologies	Results of JRC-EU-TIMES techno-economic model scenarios run to study the uptake and deployment of technologies and their interaction with the energy infrastructure including storage options in an energy systems perspective. This supports the 2020 technology development reports (D2.3.x)	31/03/2020	JRC technical reports

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<p>1.7.d Bioeconomy - manage a Knowledge Centre for Bioeconomy serving the following purposes: collect, structure and make accessible data and information on the bioeconomy from different sources; develop methods and data for assessing the environmental performance of bio-based products based e.g. on the Product Environmental Footprint; bring together the knowledge and expertise needed to assess the status, progress, and impact of the bioeconomy; develop and make available forward-looking tools and results of foresight exercises; provide a basis for coherent cross-sectoral policy-making on the bioeconomy, including across relevant agriculture, food, environment, climate, energy and industry policies; provide data and analysis on sustainable biomass supply and demand at EU level and worldwide, covering all types and uses of biomass; provide a basis for coherent policies on the bioeconomy, including relevant agriculture, food, environment, climate, energy and industry policies. The JRC's work on the bioeconomy will be closely interconnected with work described in Sections 1.1 (agriculture and rural development), 1.3 (environment), 1.4 (blue economy), 1.6 (regional), 1.5 (health and food safety), 1.9 (employment), 3.1 (climate action) and 3.2 (energy) and 4.1 (industrial base).</p>																
569 - BIOECONOMY JRC.D.1	2300 - BIOMASS BIOMASS assessment, flows and modelling for agriculture, forest, fisheries, aquaculture and algae sectors	BIOMASS will build on and develop further the overarching knowledge base and forward looking capacity on biomass supply, demand and flows at the EU and global levels, with a higher level of detail over Europe, in line with the BIOMASS mandate. This will provide a basis on which to assess the sustainability of and impacts linked with the production and use of biomass, and the competition and synergies between sectors with regard to biomass resources. The work will cover all primary sources of biomass and will highlight the assumptions, uncertainties, and gaps to be filled.	JRC.D.1	1.7.d	RTD	JRC,RTD	AGRI CLIMA ENER ENV GROW MARE MOVE SG		02/01/2017 31/12/2020	CON-IA,INS-RS		B1	EU biomass assessment and outlook	Consolidated project-level report on biomass supply, uses and flows for all biomass sources, derived datasets and identified gaps. Prospective analysis of biomass supply and demand and their respective impacts with baseline and alternative scenarios (comprehensive report in accordance with the JRC BIOMASS Mandate). All Units in the BIOECONOMY project will collaborate to this deliverable.	31/12/2020	Science-for-policy reports
		B2										Agricultural biophysical assessment	This deliverable report on the current state-of-the-art monitoring of pasture, and detail how new developments based on advanced, added-value Earth Observation information can contribute to the operational pasture monitoring chain as well as to the assessment of spatial variability of biomass availability at local level.	01/12/2019	Journal contributions (Scopus)	
		B3										Forest sector assessment and modelling	The deliverable will develop advanced concepts of forest resource and forest-based sector assessment and modelling, enhancing the spatially explicit aspects, the refinement of cost supply curves and the value chains assessments. Spatially explicit assessments of woody biomass and its changes across the EU territory will be carried out, further integrating land use, forest resources and forest-based sector models.	01/12/2019	Technical Reports	
		B4										Commercial fish stock and aquaculture supply	Review of the state-of-the-art with respect of the biomass supply by integrating the available information with monetary values for some key variables and completing the present time series and feasibility study to assess 2018 and 2019 data inclusion from landing obligation	16/12/2020	Journal contributions (Scopus)	
		B5										Aquaculture (algae production) guidelines	Description JRC is part of a working group drafting guidelines for sustainable seaweed aquaculture. This deliverable will contribute to the knowledge of the aquaculture sector in Europe and will provide a useful tool for the development of a sustainable algae production in Europe	16/12/2019	Journal contributions (Scopus)	
		B6										Macroalgae and microalgae biomass data and sustainability of producing methods	Improvement of the quality of the database on macroalgae biomass and flows; assessment of the microalgae production sector in Europe; analysis of the production potential of different producing methods (aquaculture and harvesting) and assessment of the available evidence on the sustainability of producing methods in relation to ongoing anthropogenic and environmental pressures.	16/12/2019	Journal contributions (Scopus)	
		B7										Algae production Industry directory	This tool, to be developed in collaboration with EMOdnet, will provide reliable data on the algae industry sector in Europe. This data will feed good quality data based analysis on the potential growth of this sector.	31/12/2020	Datasets	
569 - BIOECONOMY JRC.D.1	3828 - KCB Knowledge Centre for Bioeconomy coordination & knowledge management	The Knowledge Centre for Bioeconomy (KCB) brings together knowledge and experts from within and outside the Commission, including all relevant JRC competences, to build a common and enhanced knowledge base for policymaking on the bioeconomy.	JRC.D.1	1.7.d	RTD	JRC,RTD,RTD	AGRI CLIMA DEVCO EAC EMPL ENER ENV GROW MARE MOVE REGIO SG TRADE		01/01/2016 31/12/2020	CON-AA,CON-AA,INS-RS		201900	Bioeconomy knowledge and expertise	Library of knowledge resources including datasets (data catalogue), studies, news, events and term definitions. Syntheses of evidence including thematically or geographically structured dashboards, visualisations, briefs or infographics. Activities of Community of Practice including on-line content sharing and interaction, and off-line activities (e.g. expert meetings, lectures, presentations and workshops).	31/12/2019	Science for Policy Briefs
		202000										Bioeconomy knowledge and expertise	Library of knowledge resources including datasets (data catalogue), studies, news, events and term definitions. Syntheses of evidence including thematically or geographically structured dashboards, visualisations, briefs or infographics. Activities of Community of Practice including on-line content sharing and interaction, and off-line activities (e.g. expert meetings, lectures, presentations and workshops).	31/12/2020	Science for Policy Briefs	
569 - BIOECONOMY JRC.D.1	4939 - Economy&BBI Key trends in the EU bioeconomy and bio-based industry	This WPK focusses on the economic features of the Bioeconomy and bio-based industries (BBI) and contributes to the envisaged Monitoring and Assessment of the EC Bioeconomy strategy (see Roadmap 2018 and upcoming Communication). It gathers the HR and specific credits of the institutional and competitive activities related to the economic analysis (AA-34488 BKC support; CON-IA-34680 BioMonitor).	JRC.D.4	1.7.d	RTD	JRC,RTD,RTD,RTD	AGRI CLIMA DEVCO ENER ENV GROW MARE MOVE SG		01/01/2017 31/12/2020	CON-AA,CON-AA,CON-IA,INS-RS		3	Combining the biomass flow approach with classical economic indicators to assess the performance of the EU bioeconomy sectors	Infosheets and analysis on the different sectors composing the bioeconomy will be compiled. These infosheets will build on the work undertaken in 2016 and 2017 on the quantification of the biomass produced and used in the different sectors of the bioeconomy (Sankey diagram resulting from the JRC Biomass assessment study) and on the quantification of sectorial socio-economic indicators (like jobs, turnover, value added, labour productivity). Transversal indicators as the value added produced by tonne of biomass manufactured will help addressing concepts like the resource efficiency within the EU bioeconomy. Indicators will be made available at Member state level in a dedicated webpage and through scientific publications.	31/12/2019	Article contribution to periodicals or to conference proceedings listed in SCOPUS
		4										New socio-economic indicators of the EU Bioeconomy with focus on the bio-based industry	This deliverable improves the knowledge on the manufacturing sectors (manufacturing of food, wood, pulp and paper, chemicals, pharmaceutical, etc.). In particular bio-based chemicals will be further investigated. The pilot indicators jobs and turnover in the bioeconomy will be complemented with new indicators derived from EUROSTAT – Prodcom (volume and value of bio-based production, including bio-based chemicals and plastics) and from EUROSTAT – Structural business statistics (number of enterprises, investments, wages and salaries, etc.). Data will be provided through infosheets and scientific publications.	31/12/2019	Article contribution to periodicals or to conference proceedings listed in SCOPUS	
569 - BIOECONOMY JRC.D.1	4967 - EnvImpact Assessment of Environmental Impacts	The EU Bioeconomy state-of-the-art and development perspective will be analysed in comparison This workpackage aims at making an assessment of the environmental and time-dependent climate impacts of the use of biomass for energy and other purposes, including industrial ones, based on a life-cycle perspective in the context of the JRC BIOMASS mandate. The analysis will also include assessing alternative uses of biomass.	JRC.C.2	1.7.d	RTD	JRC	AGRI CLIMA DEVCO ENER		01/01/2017 31/12/2020	INS-RS	ENVIMPA CT1	Assessment outputs	Contribute to the consolidated project-level report in WPK2300 namely with analysis of biomass environmental impacts in baseline and alternative scenarios. Contribute as relevant to the activities relevant to/ and the deliverables produced in the context of WPK 7529 dedicated to the Monitoring Framework of the EU Bioeconomy	31/12/2019	Science for Policy reports	
569 - BIOECONOMY JRC.D.1	5070 - WasteRes Waste assessment and residues	The work package "waste assessment and residues" aims at supporting the assessment of availability of bio waste in the EU, including possible options for their valorisation, both substituting virgin raw materials and for producing energy. The basic concept is the so called "industrial symbiosis" principle for which a waste/by-product of a production stream could become an input for another production stream. The work package will contribute to the BIOMASS mandate and the focus will be mainly on food waste, assessing the technological options available for the use thereof. The WPK is complemented with an AA supporting DG SANTE activities regarding food waste quantification. Moreover, specifically for DG SANTE the possible food waste prevention actions and their associated benefits and impacts will be evaluated with a life cycle based approach along supply chain of food products.	JRC.D.1	1.7.d	RTD	JRC,SAN TE	AGRI ENER ESTAT GROW SANTE SG	EEA - European Environment Agency	01/01/2017 31/12/2020	CON-AA,INS-RS		20191	Assessment of prevention actions	Report for the AA PreventFoodWaste including: the assessment of prevention actions (A), calculator (B) and best practices for food waste prevention (C). The activities will cover: A) Definition of indicators to assess efficacy and effectiveness of food waste prevention actions implemented by key players e.g. MSs, regional authorities, municipalities, non-profit organisations, farmers and private companies. B)Development of a template for reporting on FW prevention activities. . It will be coordinated and linked with other existing tools as appropriate (e.g. the REFRESH Community of Experts) in order to facilitate and streamline its use and to avoid confusion for the final users. C)Identifying best practices for FW prevention, informed by an appropriate evidence base, in order to facilitate their uptake and replication	28/02/2019	Technical Reports
												20192	Review of studies on Food waste	Meta-analysis of existing studies on FW accounting in selected Member States (MS) to analyse the FW accounting approaches employed by each country and the comparability of these studies. The studies can be either policy-based studies realized by the governments or research carried out by non-governmental / scientific institutions. The analysis will assess, for example, if any of the existing guidelines for FW accounting (Fusions or FLW Protocol) was followed, the definition of FW used, scope and system boundaries, main methodological assumptions and methods used to collect data, use of modelling for estimating food waste flows etc. Existing data gaps and needs will be identified and presented	28/05/2019	Technical Reports
												20193	Guidelines to data filling on Food Waste	Support to the development of guidelines for data gap filling on Food Waste accounting. Building on the information gathered from the meta-analysis performed in task 6 and considering the methodology under development by DG SANTE, which should be adopted by the Commission, the aim of this task is to identify data gaps (relatively to what is required in the established methodology) and provide guidelines on how the data gaps could be filled in, to improve data coverage and comparability across EU. Moreover, JRC in collaboration with DG SANTE will analyse reporting to SDG 12.3 by global players and compare it with the EU data, namely experience developed by MS. Based on identified discrepancies, recommendations will be provided to improve mutual comparability.	31/12/2019	Technical Reports
												20194	Scenarios on industrial food waste valorisation	The assessment of options related to industrial food waste to be used as resources will be reviewed.	31/12/2019	Technical Reports
												20201	Integrated assessment of the valorisation pathways of biowaste	Building on the accounting of biowaste (food waste and others) and on the review of available valorisation pathways, a method for prospective LCA will be proposed, to support ecoinnovation of processes and materials.	31/12/2020	Technical Reports
												20202	Modelling of difficult flows in Food Waste	Support to the development of guidelines for modelling flows which are difficult to be identified, such as liquid waste	31/12/2020	Technical Reports

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<p>1.7.e R&I in Cities - Collect, structure and make accessible data and information on Urban Research and Innovation from different sources; bring together the knowledge and expertise needed to assess the impact of urban research and innovation projects and activities; develop and make available forward-looking tools and results of foresight exercises; moderate the development of a Multi-level Thirdspace for Systemic Urban Research and Innovation (EU Policy Lab with DG RTD); expand the Community of Practice on Cities. This work will be closely linked with work of the Knowledge Centre for Territorial Policies and with the Urban Data platform. It also has links with work described in Sections 1.2 (education, culture, youth and sport), 1.3 (environment), 1.5 (health and food safety), 1.6 (regional policy), 1.8 (transport), 1.9 (employment, social affairs, skills and labour mobility), 3.1 (climate action), 3.2 (energy), 4.1 (industrial base), 8.1 (migration), 9.2 (international) and 10.2.</p>															
<p>1.8. Transport</p>															
<p>1.8.a Transport innovation - support the strategic transport innovation agenda (STRIA) on cooperative, connected and automated transport, transport electrification, vehicle design and manufacturing, low-emission alternative energy for transport, network and traffic management systems, smart mobility and services and transport infrastructure; develop the transport innovation and monitoring information system (TRIMIS); assess the status of new transport technologies and their possible future implementation. This key orientation is linked to key orientations 4.1.f and 3.1.1.d.</p>															
241 - KM-EnU JRC.C.7	3943 - TRIMIS Transport Research and Innovation Monitoring and Information System	TRIMIS is the analytical support tool for the establishment and implementation of the European Union's Strategic Transport Research and Innovation Agenda (STRIA), and the Commission's instrument for mapping technology trends and research and innovation capacities in the transport field.	JRC.C.4	1.8.a	MOVE	MOVE	RTD		16/12/2016 31/12/2020	CON-AA	11	TRIMIS portal and transport R&I database	The TRIMIS portal was launched in September 2017. It needs to be continuously updated with new functionalities and visual elements to ensure that it continues to meet stakeholder expectations and provides added value. The TRIMIS database of projects and programmes, transport technologies and innovations was developed for v1 of the portal released in 2017 and was further developed in 2018. It will be further updated by implementing an improved structure, adding new projects/programmes and linking the database to existing transport R&I repositories.	31/12/2019	Sci information systems and databases
		12									Monitoring of transport R&I performance and STRIA roadmap objectives, identifying future transport technologies	TRIMIS keeps track of developments in the field of transport and identifies relevant new technologies. It also provides support to the monitoring and updating of R&I objectives in STRIA roadmaps. To perform this task, an assessment will be carried out based on the transport R&I database (including progress monitoring of R&I projects) and a Horizon scanning exercise. The analysis will be based on an inventory of Future and Emerging Transport Technologies. STRIA roadmap Information Sheets will be updated, and progress reports based on STRIA objectives and agreed Key Performance Indicators (KPIs) will be developed, including an overall Transport R&I Scoreboard.	31/12/2019	Science for Policy reports	
		13									Monitoring of transport R&D investments, financial and human resources	This deliverable provides for the continuous monitoring of transport R&D investments, financial and human resources and socio-economic aspects. Capacity maps addressing all STRIA roadmaps will be created, as well as specific country profiles for all Member States. Estimates of the current corporate and public research and development (R&D) investments in transport technologies in the EU will also be reported.	31/12/2019	Science for Policy reports	
		14									Communication and stakeholders engagement	The aim of this deliverable is to keep stakeholders, who use and contribute with information to TRIMIS closely involved in the process, through implementing the TRIMIS digital engagement strategy. A stakeholders network has been developed and is continuously expanded. A monthly TRIMIS Newsletter and a bi-monthly TRIMIS research Digest will be published. TRIMIS will be promoted at major transport stakeholder events. TRIMIS will be promoted on social media, including LinkedIn and Twitter. Usage and stakeholder satisfaction will be monitored.	31/12/2019	Technical Reports	
<p>1.8.b Alternative fuels - monitor the deployment and uptake of alternative fuels (electricity, hydrogen, natural gas, LPG and biofuels) in the transport sector by maintaining and expanding the knowledge and data base on alternative fuel production capacity in Europe; perform studies on alternative fuels demand scenario reflecting the evolving EU regulatory framework; carry out pre-normative testing and help to develop standards for implementing the alternative fuels infrastructure under the Alternative Fuels Infrastructures Directive; support the follow-up of the action plan for alternative fuels infrastructure with the broadest use of alternative fuels and related provisions in Directive 2014/94/EU on the deployment of alternative fuels infrastructure; perform modelling of electromobility including the best placement for charging infrastructure and support for electromobility standardisation through pre-normative research. This key orientation is linked to key orientation 3.1.1.d.</p>															
209 - LoCarMo JRC.C.4	736 - AFI Alternative fuels infrastructure scale up	The Alternative fuels infrastructure scale up WPK performs comprehensive multidisciplinary scenario analyses of technological, market, behavioural aspects and policy options for smart mobility solutions with focus on 'scaling up the use of low-emission alternative energy for transport', an action from the European Strategy for Low-Emission Mobility [COM(2016)244]. The activities in this work-package primarily support the implementation of the Directive 2014/94/EU on the deployment of alternative fuels infrastructure (AFI) and the related Action Plan.	JRC.C.4	1.8.b	MOVE	JRC,MO VE	CLIMA ENER EPSC GROW	EEO - European Electro-mobility Observatory	01/01/2014 30/06/2021	CON-AA,INS- RS	17	Support Activities Assessment of National Policy Framework	Supporting activities, definition of guidance for member state NPFs implementation, study and inform best practices	31/12/2019	Science for Policy reports
											18	Support Activities Assessment of National Policy Framework	Supporting activities, definition of guidance for member state NPFs implementation, study and inform best practices	31/12/2020	Science-for-policy reports
167 - EST JRC.C.1	6780 - LiBforSecUse Quality assessment of electric vehicle Li-ion	Li-ion batteries are still usable after first use in electric vehicles (EV), e.g. as low cost energy storage media for buildings and grids. There is a need to develop an efficient method and the metrological infrastructure to reliably measure their residual capacity. Feasibility to estimate the	JRC.C.1	1.8.b	MOVE RTD	RTD	ENER GROW RTD	- National Institute of Chemistry - Slovenia - Czech Metrology Institute	01/09/2018 31/08/2021	CON-IA	20	Scientific publications and outreach activity 2019	This generic aggregate deliverable includes interim reports, peer-reviewed scientific publications, presentations, conference proceedings, participation to workshops etc.	31/12/2019	Journal contributions (Clarivate)
											D2	Reports on JRC experimental testing (recurring yearly)	The annual contribution is spelled out in specific deliverables on JRC experimental testing executed according to project WP	31/08/2021	Technical Reports
<p>1.8.c Transport policy analysis and tools for citizen's awareness and education - perform socioeconomic analyses of the transport sector, using transport models, quantitative methodologies, data, scenarios and technology watch; develop congestion indicators; contribute to harmonisation of transport data with spatial and environmental information.</p>															
141 - TEM JRC.C.6	971 - TSEA Transport sector economic analysis	TSEA develops and applies quantitative tools, methodologies and models to analyse economic, societal and environmental issues related to transport markets and networks. The main objective of the WP is to collect, generate, process and assess evidence that can be used as input to the policy process, at European or global level and at a national, regional or local level. The data or estimates processed allow TSEA to provide three types of quantitative analyses required in the policy process of the European Commission: * Evidence based analysis of the operational characteristics and level of service of transport infrastructure, markets and services: periodic monitoring or ad-hoc measurement of police relevant variables that allow policy makers to evaluate the actual situation, identify problem areas or measure progress towards a policy objective. * Estimation of trends and expected future levels of transport related indicators: combination of model simulations with specific sectoral studies to provide a quantitative framework for the future outlook related to transport policy, as well as on the factors that affect the expected trends. Assessment of the impact of planned policy initiatives or changes in the policy context. Aviation is the fastest growing transport mode globally: the UN ICAO General Assembly adopted the CORSIA (Carbon Offsetting and Reduction Scheme for International Aviation) in October 2016 for deployment as of 2020. The relevant SARP (Standard And Recommended Practices) will be put in place by ICAO in 2019 with offsetting beginning as of 2021. Drop-in liquid alternative fuels are a key contributor of the CORSIA scheme to reduce or offset international aviation emissions. Emissions savings take place in the Well-to-Tank part compared	JRC.C.6	1.8.c	MOVE	JRC	CLIMA REGIO	OECD - Organisation for Economic Co-operation and Development (OECD) UN ECE - UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE	01/01/2016 31/12/2020	INS-RS	1	Policy support document	Science for Policy report on issues relevant to transport	31/12/2019	Science for Policy reports
195 - ALFA JRC.C.2	3565 - AAF Alternative Aviation Fuels		JRC.C.2	1.8.c	MOVE	JRC	CLIMA ENER	- MASSACHUSETTS INSTITUTE OF TECHNOLOGY - INSTITUT FRANCAIS DU PETROLE IASA - International Institute for Applied Systems Analysis	01/01/2019 31/12/2020	INS-RS					
141 - TEM JRC.C.6	6417 - TRIMODE 2 Application of European	Extension of AA with RTD on TRENTAMO/TRIMODE (ending in 2018). Content of extension currently under discussion.	JRC.C.6	1.8.c	MOVE	RTD	REGIO		19/12/2018 18/12/2021	CON-AA	1	Annual report	Technical report as foreseen in Technical Specifications	31/12/2019	Technical Reports
7534 - C2ART JRC.C.4	7222 - SIMOD Societal Implications of Mobility Disruption Scenarios	SIMOD aims at strengthening the JRC capacities to support the social dimension of impact assessments dealing with European transport strategies. SIMOD will be based on robust science, cross-cutting and combining social sciences, economics and engineering, with staff from 3 units from Directorates B and C. A first research line of SIMOD will analyse the job impact and employment intensity of all segments of the transport sector (manufacturing, maintenance services, as well as transport services) with a bottom-up data driven assessment approach. It will combine various statistical resources from Eurostat with other data (including business data and big data) to derive a detailed and complete picture of the EU transport sector with Member State detail. The bottom-up approach will also	JRC.C.4	1.8.c	GROW MOVE	JRC,JRC	CLIMA CNECT EAC EMPL EPSC GROW RTD SG		01/01/2018 31/12/2020	INS- E&IA,INS-RS	1	Updated JRC-GEM-E3 model	Establish a bottom-up methodology to analyse job impacts and job shifts in the transport sector; extend the JRC-GEM-E3 model with a much better representation of the transport sector (both technologies and in employment)	30/06/2019	Scientific information systems and databases
											2	Mobility Disruption Scenarios	Identify yet realistic (possibly disruptive) scenarios for a transition towards highly automated and electrified road transport by or beyond 2050. Stakeholder input will be sought via a call for evidence workshop	28/02/2019	Science-for-policy reports
											3	Economic scenarios and adaptation strategies	Explore policy options and strategies for enhancing positive job impacts and mitigating negative job impacts caused by a smart mobility revolution combining the various developed and improved tools in SIMOD with a qualitative framing of possible barriers and other social dimensions.	31/12/2019	Science-for-policy reports
7534 - C2ART JRC.C.4	7305 - VEST-App Vehicle Simulation for Traffic Applications	The objective of the current Work-Package is the development of an Application Program Interface (API) for the CO2MPAS vehicle simulation model to allow its seamless integration within a commercial traffic simulation software. The proposal is motivated by the limited capability of	JRC.C.4	1.8.c	GROW	JRC	CLIMA MOVE		01/02/2018 31/01/2019	INS-PC	1	VestApp Final Report	The final report will describe the work carried out, its scientific value, the business model for a possible market exploitation of the application and the description of the software developed	31/01/2019	JRC technical reports
142 - CESE JRC.C.6	7962 - MOD-MOVE 2018 Representation of	This AA will support the refinement, further development, testing and use of the POTEnCIA model, focusing on the representation of transport policies. Furthermore, it will provide analyses at EU and	JRC.C.6	1.8.c	MOVE	MOVE	CLIMA ENER		01/01/2019 31/12/2020	CON-AA	2020D01	Final report	Final Report as established in the technical specifications of the Administrative Arrangement	31/12/2020	Science for Policy reports

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1.8.d Intelligent transport systems and electronic tools - provide technical support to implement the 'smart tachograph', in particular to prepare new technical specifications; support the development of cooperative intelligent transport systems and connected and automated vehicles and contribute to anticipate their implications for transport, economy, and society.															
328 - SPRINT JRC.E.3	565 - C-ITS Cooperative Intelligent Transport Systems and vehicle cybersecurity	This WP offers a direct support to the DG MOVE unit in charge of Intelligent Transport Systems (MOVE.DDG1.B.4:Sustainable & Intelligent Transport) for the aspects related to the cyber security of the vehicles and in particular of cooperative and autonomous vehicles seen as cyber-physical systems. Various studies (both funded by EC and by industry) have highlighted the need to investigate and mitigate security risks in autonomous vehicles to support an European future regulation on CAM (Cooperative and Automated Mobility https://ec.europa.eu/digital-single-market/en/connected-and-automated-mobility-europe). In addition, this work package can also support DG GROW on the security and type approval processes of autonomous vehicles and DG CNECT on Smart Transportation applications. This WPK will be developed in parallel with WPK 6281 (EU CCMS) has the security of the C-ITS is linked to the cybersecurity of the vehicles. Starting from the preliminary work done in the same WPK in 2018, in 2019, this WPK will investigate more in details the main security risks identified in the previous (2018) deliverable of this WPK. In addition, the following aspects will be investigated in this WPK and the following activities	JRC.E.3	1.8.d	MOVE	JRC	CNECT ENER GROW	ACEA - European Automobile Manufacturers Association EP - European Parliament Tech Serv - Member States and their Technical Services/type approval authorities	01/01/2014 31/12/2020	INS-RS	5652	Cybersecurity of Vehicles	Autonomous and automated vehicles are a promise for a safer, cleaner and more efficient traffic. It supposes the implementation of many intelligence and complex digital systems, in particular within the IT networks of the vehicles themselves (sensors, distributed processing units, learning systems, intra-vehicle systems, etc). Any dis-functioning (lack of accuracy, loss of data or control, tampering), resulting either from failures or from attacks can create safety hazards. As a consequence, the security of the intra-vehicle systems is becoming more and more important. This deliverable will investigate and assess the exposure of these sensitive systems to possible disruptions, assessing the impacts, and will recommend mitigation measures. It will address threats to any kind of the vehicle features: safety, security, environmental performances, data protection and privacy. This deliverable will also include the results of experimental studies. The aim of this report is to design and describe a Cyberphysical Engine to address cybersecurity threats in automated vehicles. The deliverable is both a system and a technical report describing such system. The concept is to correlated data from the different sensors in a automated vehicle to address security threats or malfunction, which impact the availability of the autonomous vehicle functions.	16/12/2019	JRC technical reports
328 - SPRINT JRC.E.3	3528 - SIDT Secured and Interoperable Digital Tachographs	New smart tachographs deserve sound interoperability certification scheme, smart and secured positioning systems, and reliable communications of parameters (tachograph status or weights) to enforcers. The techniques and solutions developed and adopted in this context can also be transferred to other transport regulated applications, like the vehicles weight monitoring, in relation with the Directive (EU) 2015/719 on Weight & Dimensions. This WP will technically support the implementation of these new requirements, in close collaboration with DG MOVE and smart tachographs final users. Specific research activities will be conducted in collaboration with the European GNSS Agency (GSA) to promote the use of EGNOS/Galileo.	JRC.E.3	1.8.d	MOVE	JRC	CNECT ENER GROW	ACEA - European Automobile Manufacturers Association GSA - European GNSS Agency MS EU - Member states EU UN ECE - UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE	01/01/2016 30/12/2020	INS-RS	SOCREG	A new approach for enforcing professional drivers Social Regulation 561/2006	Tachographs, Digital Tachographs, Smart Tachographs are trusted and secure mandatory recording equipment, to enforce Social Regulation 561/2006 rules, deployed already in more than 50 countries that provides law enforcers with reliable and undisputable data about driving time and rest periods of heavy vehicle drivers. These tachographs, though considered robust and secured, are constantly subject to brute attacks, consisting in tampering peripherals sensors or devices in order to tamper and fake the records. That fraudulent activity is difficult to monitor and mitigate, as the possible annual gains for the rogue companies are 10 time higher the most severe punishment through the foreseen fines. Something needs to change, by either increasing the punishments, or making the control of the drivers activity less exposed to attacks. This deliverable intends to study, design, anticipate and eventually propose a change in paradigm to closely monitor professional drivers future activities.	20/12/2019	Science-for-policy reports
328 - SPRINT JRC.E.3	6280 - SmartDT2019 Smart Tachograph Implementation 2019 - 2022	Support to DG MOVE, in accordance with the relevant AA (MOVE/C1/2018-xxx JRC Contract nr. 35043-2018 NFP), in the implementation of the new tachograph regulation 165/2014 following the adoption of the Implementing Acts in March 2016 (Reg. (EU) 2016/799) and its amendment in February 2018 (Reg. (EU) 2018/502). In particular support to the timely implementation of the provisions in the new technical specifications of the forthcoming smart tachographs. It also includes the continuation of JRC services to EU Member States, non-EU AETR Countries and Industry, such as the European Root Certification Authority (ERCA) and the single EU Interoperability test (IOT) certification laboratory, and the specific efforts to prepare for the same services for the implementation of new Smart Tachographs, to deployed in the field from June 2019 onwards. The JRC will continue to support DG MOVE as further amendments to the Smart Tachograph technical specifications will be required overtime in order to solve technical issues, adapt to legal changes or add new functionalities.	JRC.E.3	1.8.d	MOVE	MOVE	GROW	ACEA - European Automobile Manufacturers Association GSA - European GNSS Agency MS EU - Member states EU Tech Serv - Member States and their Technical Services/type approval authorities UN ECE - UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE	01/01/2019 31/12/2022	CON-AA	2019STAA DGMOVE	2019 Smart Tachograph AA Annual Report	Report on the support and maintenance of the ERCA operations. This includes: • MS Policy review and audit monitoring • Root key maintenance operations • Key certification operations and distribution • Security management activities • Configuration Management • Support and Maintenance of the JRC DT web site • Digital Tachograph Help Desk • Testing: interoperability tests, interoperability certifications • Support and Monitoring of the field tests operations.	31/12/2019	Technical Reports
328 - SPRINT JRC.E.3	6280 - SmartDT2019 Smart Tachograph Implementation 2019 - 2022	Support to DG MOVE, in accordance with the relevant AA (MOVE/C1/2018-xxx JRC Contract nr. 35043-2018 NFP), in the implementation of the new tachograph regulation 165/2014 following the adoption of the Implementing Acts in March 2016 (Reg. (EU) 2016/799) and its amendment in February 2018 (Reg. (EU) 2018/502). In particular support to the timely implementation of the provisions in the new technical specifications of the forthcoming smart tachographs. It also includes the continuation of JRC services to EU Member States, non-EU AETR Countries and Industry, such as the European Root Certification Authority (ERCA) and the single EU Interoperability test (IOT) certification laboratory, and the specific efforts to prepare for the same services for the implementation of new Smart Tachographs, to deployed in the field from June 2019 onwards. The JRC will continue to support DG MOVE as further amendments to the Smart Tachograph technical specifications will be required overtime in order to solve technical issues, adapt to legal changes or add new functionalities.	JRC.E.3	1.8.d	MOVE	MOVE	GROW	ACEA - European Automobile Manufacturers Association GSA - European GNSS Agency MS EU - Member states EU Tech Serv - Member States and their Technical Services/type approval authorities UN ECE - UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE	01/01/2019 31/12/2022	CON-AA	2019STTR DGMOVE	2019 Technical Report for DG MOVE	2019 technical report for DG MOVE regarding the • Operation and co-existence ERCA / ERCA Gen 2 infrastructures • Implementation of the new JRC EC ERCA policy • on-going review of new MS security policies • Continuation of ERCA/IOT services for GEN1/GEN2 tachographs. Revision of the Smart Tachograph technical specifications to include border crossing registration.	15/12/2019	JRC technical reports
328 - SPRINT JRC.E.3	6280 - SmartDT2019 Smart Tachograph Implementation 2019 - 2022	Support to DG MOVE, in accordance with the relevant AA (MOVE/C1/2018-xxx JRC Contract nr. 35043-2018 NFP), in the implementation of the new tachograph regulation 165/2014 following the adoption of the Implementing Acts in March 2016 (Reg. (EU) 2016/799) and its amendment in February 2018 (Reg. (EU) 2018/502). In particular support to the timely implementation of the provisions in the new technical specifications of the forthcoming smart tachographs. It also includes the continuation of JRC services to EU Member States, non-EU AETR Countries and Industry, such as the European Root Certification Authority (ERCA) and the single EU Interoperability test (IOT) certification laboratory, and the specific efforts to prepare for the same services for the implementation of new Smart Tachographs, to deployed in the field from June 2019 onwards. The JRC will continue to support DG MOVE as further amendments to the Smart Tachograph technical specifications will be required overtime in order to solve technical issues, adapt to legal changes or add new functionalities.	JRC.E.3	1.8.d	MOVE	MOVE	GROW	ACEA - European Automobile Manufacturers Association GSA - European GNSS Agency MS EU - Member states EU Tech Serv - Member States and their Technical Services/type approval authorities UN ECE - UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE	01/01/2019 31/12/2022	CON-AA	2020STAA DGMOVE	2020 Smart Tachograph AA Annual Report	Report on the support and maintenance of the ERCA operations. This includes: • MS Policy review and audit monitoring • Root key maintenance operations • Key certification operations and distribution • Security management activities • Configuration Management • Support and Maintenance of the JRC DT web site • Digital Tachograph Help Desk • Testing: interoperability tests, interoperability certifications • Support and Monitoring of the field tests operations.	31/12/2020	Technical Reports
328 - SPRINT JRC.E.3	6280 - SmartDT2019 Smart Tachograph Implementation 2019 - 2022	Support to DG MOVE, in accordance with the relevant AA (MOVE/C1/2018-xxx JRC Contract nr. 35043-2018 NFP), in the implementation of the new tachograph regulation 165/2014 following the adoption of the Implementing Acts in March 2016 (Reg. (EU) 2016/799) and its amendment in February 2018 (Reg. (EU) 2018/502). In particular support to the timely implementation of the provisions in the new technical specifications of the forthcoming smart tachographs. It also includes the continuation of JRC services to EU Member States, non-EU AETR Countries and Industry, such as the European Root Certification Authority (ERCA) and the single EU Interoperability test (IOT) certification laboratory, and the specific efforts to prepare for the same services for the implementation of new Smart Tachographs, to deployed in the field from June 2019 onwards. The JRC will continue to support DG MOVE as further amendments to the Smart Tachograph technical specifications will be required overtime in order to solve technical issues, adapt to legal changes or add new functionalities.	JRC.E.3	1.8.d	MOVE	MOVE	GROW	ACEA - European Automobile Manufacturers Association GSA - European GNSS Agency MS EU - Member states EU Tech Serv - Member States and their Technical Services/type approval authorities UN ECE - UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE	01/01/2019 31/12/2022	CON-AA	2020STTR DGMOVE	2019 Technical Report for DG MOVE	2019 technical report for DG MOVE regarding the • Operation and co-existence ERCA / ERCA Gen 2 infrastructures • Implementation of the new JRC EC ERCA policy • on-going review of new MS security policies • Continuation of ERCA/IOT services for GEN1/GEN2 tachographs. Revision of the Smart Tachograph technical specifications to include border crossing registration.	31/12/2020	Technical Reports
328 - SPRINT JRC.E.3	6281 - EU CCMS European Union Cooperative Intelligent Transport Systems Security Credential Management System - Phase I	This WPK implements the EU CCMS pilot project based on an Administrative Arrangement with DG MOVE.	JRC.E.3	1.8.d	MOVE	MOVE	CNECT DIGIT	ACEA - European Automobile Manufacturers Association MS EU - Member states EU Tech Serv - Member States and their Technical Services/type approval authorities	01/01/2018 31/12/2021	CON-AA	EUCCMSC A	EU-CCMS Certification Authority	EU-CCMS Certification Authority	29/02/2020	Technical systems
328 - SPRINT JRC.E.3	6281 - EU CCMS European Union Cooperative Intelligent Transport Systems Security Credential Management System - Phase I	This WPK implements the EU CCMS pilot project based on an Administrative Arrangement with DG MOVE.	JRC.E.3	1.8.d	MOVE	MOVE	CNECT DIGIT	ACEA - European Automobile Manufacturers Association MS EU - Member states EU Tech Serv - Member States and their Technical Services/type approval authorities	01/01/2018 31/12/2021	CON-AA	EUCCMSC POCWEB2	EU CCMS CPOC WEB SYSTEM Version 2	This is the second version of the EU CCMS CPOC WEB SYSTEM	29/03/2020	Technical systems
328 - SPRINT JRC.E.3	6281 - EU CCMS European Union Cooperative Intelligent Transport Systems Security Credential Management System - Phase I	This WPK implements the EU CCMS pilot project based on an Administrative Arrangement with DG MOVE.	JRC.E.3	1.8.d	MOVE	MOVE	CNECT DIGIT	ACEA - European Automobile Manufacturers Association MS EU - Member states EU Tech Serv - Member States and their Technical Services/type approval authorities	01/01/2018 31/12/2021	CON-AA	EUCCMSC	EU CCMS Web site	EU CCMS web site	30/04/2019	Technical
328 - SPRINT JRC.E.3	6281 - EU CCMS European Union Cooperative Intelligent Transport Systems Security Credential Management System - Phase I	This WPK implements the EU CCMS pilot project based on an Administrative Arrangement with DG MOVE.	JRC.E.3	1.8.d	MOVE	MOVE	CNECT DIGIT	ACEA - European Automobile Manufacturers Association MS EU - Member states EU Tech Serv - Member States and their Technical Services/type approval authorities	01/01/2018 31/12/2021	CON-AA	EUCCMSP R	Progress Report on the status of the EU CCMS	Progress report on the status of the EU CCMS.	31/05/2019	Technical Reports
328 - SPRINT JRC.E.3	6281 - EU CCMS European Union Cooperative Intelligent Transport Systems Security Credential Management System - Phase I	This WPK implements the EU CCMS pilot project based on an Administrative Arrangement with DG MOVE.	JRC.E.3	1.8.d	MOVE	MOVE	CNECT DIGIT	ACEA - European Automobile Manufacturers Association MS EU - Member states EU Tech Serv - Member States and their Technical Services/type approval authorities	01/01/2018 31/12/2021	CON-AA	EUCCMST LM	TLM server system	This is the Trust List Manager server system provided by an external contractor.	30/04/2019	Technical systems
328 - SPRINT JRC.E.3	6422 - DITILAB 2018 2 Digital Tachograph Interoperability Certification 2018 + 2019	In the context of the JRC support to the "Digital Tachograph (DT) legislation", the JRC has been appointed as the single EU laboratory for Interoperability Certification (IC). IC is required for type approval of all new DT cards or Vehicle Units produced by the DT manufacturers and card personalisers. The JRC provides these industries with testing and certification services. As in 2018, the laboratory will start certifying Smart Tachographs according to the new regulation EU 799/2016 in addition to the current Digital Tachographs, the workload is expected to increase significantly compare to the previous years. This work package covers all TPWs for interoperability certifications up to 31/12/2019	JRC.E.3	1.8.d	MOVE	n/a		ACEA - European Automobile Manufacturers Association MS EU - Member states EU UN ECE - UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE	01/01/2018 30/06/2020	CON-TW, CON-TW	642202	Annual report 2018 of laboratory activities	The annual report will summarize the activity of the laboratory during the year 2018. After each certification testing a certification report will be emitted. The annual report will do a synthesis of these activities and of the development of the laboratory. This report is the consolidated version of the preliminary report, where not all measurements may be fully reported at that time and the relative products certified.	28/06/2019	JRC technical reports
328 - SPRINT JRC.E.3	6422 - DITILAB 2018 2 Digital Tachograph Interoperability Certification 2018 + 2019	In the context of the JRC support to the "Digital Tachograph (DT) legislation", the JRC has been appointed as the single EU laboratory for Interoperability Certification (IC). IC is required for type approval of all new DT cards or Vehicle Units produced by the DT manufacturers and card personalisers. The JRC provides these industries with testing and certification services. As in 2018, the laboratory will start certifying Smart Tachographs according to the new regulation EU 799/2016 in addition to the current Digital Tachographs, the workload is expected to increase significantly compare to the previous years. This work package covers all TPWs for interoperability certifications up to 31/12/2019	JRC.E.3	1.8.d	MOVE	n/a		ACEA - European Automobile Manufacturers Association MS EU - Member states EU UN ECE - UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE	01/01/2018 30/06/2020	CON-TW, CON-TW	642203	Annual report 2019 of laboratory activities	The annual report will summarize the activity of the laboratory during the year 2019. After each certification testing a certification report will be emitted. The annual report will do a synthesis of these activities and of the development of the laboratory. This report is the consolidated version of the preliminary report, where not all measurements may be fully reported at that time and the relative products certified.	30/06/2020	Technical Reports
7534 - C2ART JRC.C.4	6442 - C2ART-Impact Assessing the impacts of connected, coordinated and automated vehicles on the road transport system	The WPK assesses the impact of a Cooperative, Connected and Automated Mobility on road transport. This requires the analysis of transport supply and demand systems. For the supply, it will be crucial to understand how the capacity of the transport system will be affected by the new technologies introduced both at vehicle and at infrastructure level. For the demand, it will require the analysis of users' response to the new technologies and the enabled new mobility paradigms (e.g. the concept of mobility as a service, MAAS) in order to be able to understand how the demand for personal mobility will evolve. The modelling platform developed during the previous years will be further extended and improved to better model travel demand and new mobility paradigms, to explicitly model the data communication process and the effect of possible related disruptions, to model the effect of the new technologies on traffic safety and to model localized or distributed innovative traffic	JRC.C.4	1.8.d	MOVE	JRC, JRC	CLIMA CNECT GROW RTD	- TECHNION ISRAEL INSTITUTE OF TECHNOLOGY EUCAR - European Council for Automotive R&D (EUCAR)	01/01/2018 31/12/2020	INS-E&IA, INS-UR	1	Assessing the impacts of connected and automated mobility	The report will summarize the main outcomes of the activities carried out to assess the impact of connected and automated mobility on society, environment and economy.	30/06/2019	Science-for-policy reports
7534 - C2ART JRC.C.4	6442 - C2ART-Impact Assessing the impacts of connected, coordinated and automated vehicles on the road transport system	The WPK assesses the impact of a Cooperative, Connected and Automated Mobility on road transport. This requires the analysis of transport supply and demand systems. For the supply, it will be crucial to understand how the capacity of the transport system will be affected by the new technologies introduced both at vehicle and at infrastructure level. For the demand, it will require the analysis of users' response to the new technologies and the enabled new mobility paradigms (e.g. the concept of mobility as a service, MAAS) in order to be able to understand how the demand for personal mobility will evolve. The modelling platform developed during the previous years will be further extended and improved to better model travel demand and new mobility paradigms, to explicitly model the data communication process and the effect of possible related disruptions, to model the effect of the new technologies on traffic safety and to model localized or distributed innovative traffic	JRC.C.4	1.8.d	MOVE	JRC, JRC	CLIMA CNECT GROW RTD	- TECHNION ISRAEL INSTITUTE OF TECHNOLOGY EUCAR - European Council for Automotive R&D (EUCAR)	01/01/2018 31/12/2020	INS-E&IA, INS-UR	2	Survey on Users' acceptance of Connected and Automated Vehicle Technologies	The objective is to launch a Eurobarometer survey in collaboration with other policy DGs to collect a wide range of observations in terms of public acceptability of automation and communication technologies in the road transportation sector. Results of the survey will be a reference for future studies on the uptake of Connected and Automated Vehicles.	31/05/2020	Science for Policy reports
7534 - C2ART JRC.C.4	6442 - C2ART-Impact Assessing the impacts of connected, coordinated and automated vehicles on the road transport system	The WPK assesses the impact of a Cooperative, Connected and Automated Mobility on road transport. This requires the analysis of transport supply and demand systems. For the supply, it will be crucial to understand how the capacity of the transport system will be affected by the new technologies introduced both at vehicle and at infrastructure level. For the demand, it will require the analysis of users' response to the new technologies and the enabled new mobility paradigms (e.g. the concept of mobility as a service, MAAS) in order to be able to understand how the demand for personal mobility will evolve. The modelling platform developed during the previous years will be further extended and improved to better model travel demand and new mobility paradigms, to explicitly model the data communication process and the effect of possible related disruptions, to model the effect of the new technologies on traffic safety and to model localized or distributed innovative traffic	JRC.C.4	1.8.d	MOVE	JRC, JRC	CLIMA CNECT GROW RTD	- TECHNION ISRAEL INSTITUTE OF TECHNOLOGY EUCAR - European Council for Automotive R&D (EUCAR)	01/01/2018 31/12/2020	INS-E&IA, INS-UR	3	Scientific outcomes and outreach activities	The deliverable represents a collection of scientific outputs produced during the project concerning in particular the impact of connected and automated mobility on road transport efficiency.	31/12/2020	Journal contributions (Clarivate)
7534 - C2ART JRC.C.4	7304 - RideChain Blockchain Technology for Innovative and	This work package (RideChain) aims to investigate the feasibility of an integrated, decentralized, transparent and secure transport-service pricing and service-allocation platform. The system will use high accuracy transparent pricing models and blockchain-technology-based smart-contracts to	JRC.C.4	1.8.d	MOVE	JRC	CLIMA GROW		21/02/2018 20/02/2019	INS-PC	RideChain 7304	RideChain Final Report	The final report will describe the work carried out, its scientific value, the business model for a possible market exploitation of the application, the validity of the concept and a description of possible synergies with other relevant activities.	20/02/2019	JRC technical reports

JRC 2019 - 2020 DETAILED WORK PLAN

Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
1.8.e Safety and security - develop tools and databases on EU-wide multimodal accidents and incidents (including a specific database for alternative fuels incidents) and data visualisation and exploration tools for transport safety analysis, including for aviation safety and transport infrastructure; carry out performance testing and analysis of aviation security technologies.															
194 - TDSS JRC.E.5	618 - AVSEC Transport Security	This work package focus on the detection of bulk threats, mainly for aviation security. Since 2002, the Commission has established common rules in the field of civil aviation security aimed at protecting persons and goods from unlawful interference with civil aircraft, which includes technical requirements for security screening equipment. Current legislation is Regulation 2015/1998. JRC will contribute to the implementation of technical elements in the 'Rolling programme for cooperation in aviation security' between DG MOVE and the European Civil Aviation Conference (ECAC), as well as in the 'Aviation Security Technology Roadmap', with a strong focus on aspects of measurement quality and performance testing of equipment, including explosives detection systems, explosives trace detection, liquid explosives detection systems and security scanners. JRC will support the development and adoption of harmonised test methods and test materials, for	JRC.E.5	1.8.e	MOVE	JRC	HOME	ECAC - European Civil Aviation Conference MS Border Sec - MS Border and other Security Authorities Tech Serv - Member States and their Technical Services/type approval authorities	01/01/2016 31/12/2020	INS-RS	201901	Technical support to EU aviation security policies	Scientific & technical support for harmonised implementation of current (and future) aviation security policies, in the frame of Reg. 2015/1998 and the EC-ECAC rolling programme, including technical reports on screening equipment (hold baggage, cabin baggage, liquids, persons), processes and performance testing aspects.	31/12/2019	Technical Reports
											202002	Potential application of aviation screening technology to other transport modes, defence and soft targets	Research the application of aviation screening and detection technologies and methodologies to other modes of transport, protection of buildings and soft targets, defence, potentially with technical coordination of trials of promising new technologies.	31/12/2020	Technical Reports
4973 - BOSS JRC.E.5	6240 - ECCAIRS 20 European Coordination Centre for Accident and Incident Reporting Systems 20	This work-package ensures that during 2019 the four services provided by the JRC in the context of Regulation 376/2014 and Regulation 996/2010 (ECR-ECCAIRS, ECR-SRIS, WWW.AVIATIONREPORTING.EU and the ECCAIRS Community Portal) will remain operational. In the first half of 2019 the preparation for transferring these operational services to the European Aviation Safety Agency (EASA) will be finalised. The actual transfer to EASA, and after that stopping of these services in the JRC will take place during the 2nd half of 2019. This Work Package will ensure operational continuity during 2019 and a controlled closure of these	JRC.E.5	1.8.e	MOVE	MOVE		Avi Acc Invest EU - EU Aviation Accident Investigation Bureau's Civ Avi Aut EU - EU Civil Aviation Authorities EASA - European Aviation Safety Agency (EASA) ICAO - International Civil Aviation Organization (ICAO)	31/12/2018 31/12/2019	CON-AA	1	Operational services	The operation of four aviation safety related services for DG MOVE during 2018 and 2019. The services are: the European Central Repository for occurrences (ECR-ECCAIRS), the European Central Repository for Safety Recommendations (ECR-SRIS), The European Aviation Safety Reporting Portal (WWW.AVIATIONREPORTING.EU) and the ECCAIRS collaborative portal (eccairsportal.jrc.ec.europa.eu).	31/12/2019	Scientific information systems and databases
											2	Transfer of services outside JRC	The agreed set of operational services are successfully transferred, likely to the European Aviation Safety Agency. For each service, the operational environment, the datasets involved, the technical documentation and the specific expert knowledge will be prepared and handed over. In addition, this deliverable comprises starting up the services at the new premises, running the services in parallel for an agreed period and stopping the services in the JRC.	31/12/2019	Datasets
1.9. Employment, social affairs, skills and labour mobility															
1.9.a Monitoring and evaluation of employment and social policy - provide high-quality monitoring, benchmarking, impact assessment and evaluation support for employment and social-policy-related measures, notably through three Competence Centres referred to in Section 10.1.															
5090 - Employment & Skills JRC.B.4	7830 - VAST Towards the development of analytical and monitoring frameworks for VET, adult learning, skills & tasks	Fostering the development of competences is one of the aims of the vision towards a European Education Area that would be able "to harness the full potential of education and culture as drivers for jobs, social fairness, active citizenship as well as means to experience European identity in all its diversity". There is a need to support Europeans to acquire the skills and competences needed for personal fulfilment, health, employability and social inclusion. The work covered in this agreement will contribute to the European Commission's reflections on the future of policy cooperation in the field of education and training in the next multi-annual financial framework covering the period 2020-2027. In particular, the work carried out in this agreement is expected to provide input the Commission's policy proposals, that shall be developed during second half of 2018 and the beginning of 2019 and to be adopted by the Commission in May, 2019. The overall aim of this project is to contribute to the development of the evidence base, data collection and analysis infrastructure, indicators, assessment tools that will enable an enhanced monitoring of the supply and demand of Adult Skills and their (mis)match, as well as the implementation of Adult Learning and Vocational Education and Training policies in the European Union to develop those skills. The project is structured in the following tasks or work packages:	JRC.B.4	1.9.a	EMPL	EMPL	EAC		22/05/2018 30/11/2019	CON-AA	1	Statistical analysis of work-based learning in VET (WBL) across the EU: how to better exploit available data	Report	31/05/2019	Science for Policy reports
											3	Assessment of the existing ET2020 benchmark for Adult Learning: scenarios for reference values and review of the adult learning monitoring framework	Report	31/07/2019	Science for Policy reports
											4	Measuring task contents, methods and tools of work	Report	30/11/2019	Science for Policy reports
											5	Selfie for Work-Based Learning in VET	Feasibility study	29/03/2019	Technical Reports
147 - REMO JRC.B.3	7842 - RHOMOLO - EMPL	Contacts with DG EMPL have shown the potential for RHOMOLO to be used for the impact assessment of EMPL-related activities in the context of the ESF.	JRC.B.3	1.9.a	EMPL	EMPL	SG		01/01/2019 31/12/2019	CON-AA	1	ESF Evaluation based on Rhomolo Model	We will provide one or more reports with the results of our collaboration with DG EMPL for the quantitative evaluation of ESF and other EMPL-related policies	31/12/2019	Technical Reports
1.9.b Fairness and inequality - produce and share, in a multi-annual research project and community of practice, insights and analysis on what makes a society fair, thus building a wider evidence base that can enhance EU policy in this priority area (the importance of the fairness agenda being reflected by the adoption of the European Pillar of Social Rights, see also key orientation 5.1.a); measure and analyse poverty.															
7512 - FAIRNESS JRC.I.1	8263 - Generational poverty Generational poverty	A substantial improvement of economic conditions and equal opportunities in accessing education, employment and services are indispensable to break the cycle of poverty. However, empirical evidence shows that even in presence of opportunities and economic support, the cycle of poverty and exclusion may be hard to break when in place for several generations. This may be exemplified in the slow pace of socio-economic mobility for some minorities who have endured exclusion and poverty for centuries, such as for instance the Roma in Europe. A vast production of scientific literature addresses the broad socio-economic determinants and drivers of poverty. However, little research exists on how the experience of scarcity and exclusion over many generations influence identity and self-representation, and therefore attitudes, expectations, and family or group norms – and how in turn these may affect the likelihood of overcoming poverty and exclusion. So far, literature on the topic mainly related to the concept of "culture of poverty" (Oscar Lewis) and "oppositional culture" (John Ogbu). It raised ideological controversies around the concept of cultural norms, and such debate proved of little help to define	JRC	1.9.b	EMPL	JRC	EAC JUST		01/01/2019 31/12/2020	INS-RS	201901	Literature review on determinants of aspirations and attitudes in groups in generational poverty	The report will summarize literature focusing on the impact of poverty experienced for many generations on the development of attitudes, expectations and aspirations.	31/12/2019	Science for Policy reports
											20201	Addressing generational poverty through behavioural insight	The report will analyse what behavioural insight teaches about mechanisms to overcome generational exclusion (in a context of real access to economic opportunities). It will draw conclusions that may be of use to ongoing work on social inclusion for very marginalised communities, such as the Roma.	31/12/2020	Science for Policy reports
											20202	Policy debate on findings	The findings of the project will be discussed with policy DGs and relevant stakeholders through a Policy lab exercise. This will allow understanding how to best use them within Commission policies and in Member States.	31/12/2020	Training
1.9.c Future of skills and work - analyse how skills are distributed and evolve and their links with employment potential, the changing nature of work and welfare systems and new forms of employment, social innovation and the collaborative economy (see also key orientation 4.2.a).															
153 - DT&AI JRC.B.6	5092 - Changing Nature Work Changing Nature of Work	The impact of the Digital Transformation (DT) has been widely acknowledged and studied in the last decade. While DT is recognised as an essential driver of growth, there is no consensus as to the distribution of productivity gains nor the size of the impact on employment. New forms of work organisation and tasks distribution across the workforce emerge, but job creation following the technological progress is not expected to be enough to off-set the initial job destruction due to new labour-saving technology, giving rise to a routinisation hypothesis and its polarisation effects. Moreover, as a result of the Industry 4.0 initiatives the total effects of robotisation widespread adoption would need to be estimated. JRC/B4 will contribute to the JRC-wide DT project, through focusing on the impacts on Employment and skills. The project 5090 (Employment&Skills) researches the area of skills and their relation to employment and employability with emphasis on	JRC.B.4	1.9.c	EMPL	JRC	CNECT EAC GROW		01/01/2017 31/12/2020	INS-RS	01	Employment Implications of Digital Transformation: Routinization, job polarization and robotisation in Europe	This deliverable will develop evidence on how digitalization affects the task composition and hence the demand for labour, with a focus on its impacts on employment (including employment transitions of individual workers) and wages. It also discusses the implication for skills (including mismatches) and hence for education and training policies. It will also produce evidence on how robotisation affects the labour market in the EU; an estimate of the impact of robotisation on labour productivity, hours worked, employment and total productivity gains.	29/03/2019	Science for Policy reports
											3	Job quality in the digital age	This deliverable will describe the job quality implications of the digital transformation, with a focus on Collaborative Economy workers (i.e. workers that provide services through labour platforms); it will analyse the conditions of work of such workers and will provide policy recommendation for improving their working conditions.	03/06/2019	Science-for-policy reports
5090 - Employment & Skills JRC.B.4	6400 - LABOURCOMP LabourCOMP	This WPK, in partnership with DG EMPL, consists of further research on the implementation of the two competence frameworks JRC B4 has been developing on behalf of DG EMPL E2 (skills and qualifications unit): the Digital Competence framework for citizens (DigComp) and the Entrepreneurship Competence framework (EntreComp). Both frameworks are being used widely in the MS and beyond. This WPK follows the existing AA CoFradem (WPK 3281) which will run until June 2018. Thus the work is foreseen to continue on developing (1) a self-assessment for both frameworks, (2) user guidelines and (3) a governance model for the frameworks. More research to support further implementation of the frameworks in the MS, and thus contribute to the follow-up of	JRC.B.4	1.9.c	EMPL	EMPL	EAC		01/01/2018 31/12/2019	CON-AA	1	Use and impact of the DigComp framework and its self-assessment.	As a result of the wide take-up of the DigComp framework, including its self-assessment, this report will collect and analyse evidence of its impact and use for employment purposes.	10/06/2019	Science-for-policy reports
											2	Use and impact of the EntreComp framework and its self-assessment.	As a result of the increasing take-up of the EntreComp framework, including its self-assessment, this report will collect and analyse evidence of its impact and use for employment and education purposes.	27/05/2019	Science-for-policy reports
7512 - FAIRNESS JRC.I.1	6435 - Fairness_GVC Global value chains and economic inequality	The debate on economic inequality has become one of the most pertinent political issues of our time, and has also triggered a large amount of new empirical and theoretical research. Against this backdrop, this work package addresses a specific empirical question related to the impact of	JRC.B.5	1.9.c	EMPL JRC	JRC	ECFIN GROW JRC		01/01/2018 31/12/2019	INS-UR	1	The emergence of global value chains and economic inequality	Report analysing the impact of global value chains on economic inequality, in particular wage inequality.	31/12/2019	Science-for-policy reports
5090 - Employment & Skills JRC.B.4	7865 - TransSocial4JRC Employment and Skills - Contribution to transversal projects	As a result of many challenges facing European society and economy, JRC has created multidisciplinary research project teams with the aim to deliver on transversal policy issues. This WPK consists of the contributions from the Employment and Skills are of B4 to different JRC transversal projects:	JRC.B.4	1.9.c	EMPL	n/a	EAC ECFIN HOME		01/06/2018 31/12/2020	INS-RS	4	The role of educational institution in fostering inclusion and resilience in the EU	Education systems plays an important role in shaping the economic and social well-being of the members of the community. The deliverable will describe the role of education in the process of fostering more inclusion societies for the future that are also resilient to (external) economic shock. (i.e. de-industrialization vs. reindustrialization, industry 4.0 vs. servitization, offshoring, digitalization), to immigration challenges and the need for upskilling and re-skilling of the population.	01/03/2019	Science for Policy reports

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5090 - Employment & Skills JRC.B.4	8043 - LaborCompetenceAdult Competence Frameworks, Labour Markets and Adult Learning	<p>Competence Frameworks Labour Markets and Adult Learning</p> <p>This WPK, in partnership with DG EMPL, consists in further providing research to the implementation of the two competence frameworks JRC B4 has been developing on behalf of DG EMPL E2 (skills and qualifications unit): (i) the Digital Competence framework for citizens (DigComp) and (ii) the Entrepreneurship Competence framework (EntreComp).</p> <p>Both frameworks are being used widely in the Member States and beyond.</p> <p>This WPK follows the existing AA LabourComp (WPK 6400) which will run until December 2019. Thus the work is foreseen to continue on further developing the governance model for both the frameworks and thus contribute to the follow-up of the 2016 Skill Communication, tackling skills mismatches in Europe. In addition, further research will be undertaken in partnership with EMPL/E3 towards: (i) how to build on the Digcomp and the EntreComp frameworks in the implementation of the Up-skilling Pathways communication; (ii) foundations for a work-based learning benchmark in formal VET; and (iii) further support in Adult Training and Learning. Further work in the area of labour market platforms and research in support of addressing challenges of digitalisation implications of Labour markets and more specifically in relation to the quality of offered jobs is likely and could be further negotiated with EMPL/E1.</p>	JRC.B.4	1.9.c	EMPL	EMPL	EAC		01/01/2020 30/06/2021	CON-AA	n/a	n/a	n/a	n/a	n/a
2. A connected digital single market															
2.1. Digital economy and society															
2.1.a Impact of digital technology and transformation on society - provide evidence on the development of Digital Transformation and AI in the European economy and society; observe current developments and explore future developments and their impacts, including the development of an AI index, in order to inform and guide future EU policies; assess related economic models on growth, jobs and consumer welfare in the EU; measure the economic impact of policy initiatives in the European Data Economy; investigate digitally-enabled innovation and entrepreneurship; analyse the deployment of digital transformations in human societies and its impact on governance, public services, resilience of social structures and human-machine interactions; support the pan-European network of digital innovation hubs; develop a methodology to monitor EU data flows and their value creation for the EU economy based on an econometric model factoring in social and innovation dimensions; assist in developing a policy framework for data sharing in business-to-business and business-to-government situations, including economic analysis of data as an economy resource and competition element of the data economy.															
153 - DT&AI JRC.B.6	2044 - PREDICT PREDICT - Prospective Insights in ICT R&D and DT	<p>PREDICT is based on a long-lasting collaborative project between DG CNECT and the JRC to provide an analysis of the EU ICT sector and its R&D investments, currently evolving in monitoring and measuring Digital Transformation aspects. Its main output, the PREDICT dataset reflected in its accompanying analytical reports, is a permanent monitoring tool of ICT sector and ICT sector R&D macro-economic data since 2006, assessing the impact of related policies from the Lisbon Strategy to the current one.</p> <p>The project will provide support to the policies of CONNECT in three areas: •Innovation with the focus on the role of public funding in financing R&D, innovation and entrepreneurship, notably building on the Innovation Radar (IR) under H2020; •Start-ups and scale-ups – providing support to Start-up Europe; and •Standardisation and IPR policy aims under the Digital Single Market priorities.</p>	JRC.B.6	2.1.a	CNECT	CNECT, CNECT, JRC	ESTAT RTD	OECD - Organisation for Economic Co-operation and Development (OECD)	01/03/2016 28/02/2022	CON-AA, CON-AA, INS-RS	30324	TES result overview	Set of graphs and results addressing one of the targeted Techno Economic Segments	15/12/2019	Science for Policy reports
153 - DT&AI JRC.B.6	3285 - RISES Research on Innovation, Startup Europe and Standardisation – RISES	<p>Innovation - building on the IR</p> <p>The European Commission's Framework Programme (FP) constitutes an important share in R&D expenditures in Europe. According to the Innovation Radar, a number of FP projects produce</p>	JRC.B.6	2.1.a	CNECT	CNECT	GROW RTD		02/01/2017 31/12/2019	CON-AA	6	PREDICT Key Facts report 2018	Yearly set of graphs on Key facts on ICT R&D and ICT Industry	28/02/2019	Science-for-policy reports
153 - DT&AI JRC.B.6	3786 - D-Gov Digital Government	<p>The Digital Europe Programme (COM(2018)321), dedicated to the digital transformation of public services and business, by boosting investments in High Performance Computing and data, Artificial Intelligence (AI), cybersecurity and digital skills, is crucial for shaping a future competitive Europe. It builds on the ISA² Programme (Interoperability solutions for European public administrations, businesses and citizens) and will support projects making best use of digital capacities and technologies in areas of public interest.</p> <p>The vision of the eGov Action Plan and the European Interoperability Framework, also outlined in the COMs Building the Data Economy and AI for Europe, is confirmed by Member States in the Tallinn Declaration, and builds on work in eGov to advance the agenda of ICT-enabled public sector modernisation across EU.</p> <p>In this context, the Wpk aims to pave the way from eGov to Digital Government, setting the foundations for building trust between citizens and public sector in the digital era, and supporting policy DGs to design actions ensuring coherence and synergy of interventions under different EC funds (DEP, ISA, Cohesion funds).</p> <p>It addresses 3 interrelated themes: 1-Explore the potential of open data reuse to increase public administration transparency, accountability and efficiency, focusing on data analytics and computational modelling for enhancing collaborative governance models and participatory policy-making to help monitor the implementation of the user-centric principles of the Tallinn Declaration, in line with the proposal for the revision of the PSI Directive.</p> <p>2-Investigate the role of disruptive technologies and social innovation to re-design public service delivery and governance mechanisms. This will address drivers and bottlenecks for the full use and development of EU's potential to deliver high quality digital public services, enabled by AI, distributed ledgers and other technologies, relevant to the Digital Innovation Hubs and the relationships within local digital social innovation ecosystems.</p> <p>3-Assess the framework conditions and potential impacts of cross-border interoperability in selected economic sectors where the PAs at different governance levels play a key orchestrating role, building on previous work on APIs in the public sector, INSPIRE Directive and Location Interoperability.</p> <p>The Wpk is combined with the ELISE Action of ISA² Programme and implemented with relevant EC services and international organisations.</p>	JRC.B.6	2.1.a	CNECT	JRC	CNECT DIGIT	CC EU - Candidate Countries EU MS EU - Member states EU	01/01/2018 31/12/2021	INS-RS	201901	State of the art on Digital Government Transformation in the EU	This report will include a systematic review of relevant literature and an analysis of related policy initiatives and practices within the field of public sector innovation and modernisation of public administrations. Given the urgency to assess the rapid uptake of technologies such as Artificial Intelligence (AI) and new computing and communication paradigms, priority will be given to develop an overview of AI use in government across all economic sectors – in collaboration with DG CNECT. The work will gather information on all EU Member States' national initiatives on AI, including on how national administrations are using and plan to use predictive analytics and next generation computational modelling, to enable real-time informed policy-making at different governance levels.	30/06/2019	Science for Policy reports
											202001	Report on Shaping Digital Europe beyond 2030	This report will address the transformation of government in a data-driven society. It will provide the results of case studies and experiments illustrating the possible impacts of Digital Government Transformation in different contexts and in different phases of the policy-cycle, as well as the potential impacts of cross-border interoperability in selected economic sectors (e.g environment, transport, energy, employment, health and social services) at different governance levels. This deliverable will also outline a roadmap for public administrations and providers of public services on how to use selected disruptive technologies to optimise their operation, as well as a set of actionable research and policy recommendations for the implementation of Digital Government Transformation in the EU beyond 2030.	30/11/2020	Science for Policy reports
											202101	Digital transformation of government – from challenge to opportunity	This report will make a synthesis of the findings achieved through the Wpk with reviews, landscape analysis and practical applications and services, and will present an understanding of the impacts of digital transformation on the role of government as a provider or regulator of digital services for businesses and citizens. The report will contain recommendations on policy interventions and practical guidelines and will make reference to best practices that might improve, facilitate or drive the existing evolving processes within governments, and between governments, citizens and businesses.	15/12/2021	Science-for-policy reports
											21	ELISE Common data services for Digital Government - TO BE DELETED	This deliverable will involve the outcome of the first series of developments of the EU Gazetteer foreseen in the ELISE Action, following the feasibility study 201703, including delivery of prototype services and early adopter feedback. This deliverable will also involve a feasibility study for a second common data service such as an EU open mapping service, including barriers and benefits arising from open data sources. Part of the deliverable will also look at the concrete impacts that the availability of such EU service could bring to the Public Administrations, in terms of digital transformations.	30/11/2019	JRC technical reports
											22	Testing the digital transformation framework on new governmental services - TO BE DELETED	Given the broader scope of the digital transformation framework being developed under WPK 6457, this deliverable will apply and test it in the context of digital government, in selected countries for selected topics, e.g. government-to-government interactions, innovative relations with citizens and businesses, new collaborative paradigms between public and private parties. Testing the framework means assessing if the introduction of new digital services and solutions in European PAs will have an influence on the level of their digital transformation. Use cases will be drawn from public services delivered in various domains, preferably in a cross-border setting, and will initially cover the emerging impacts within ELISE's timeframe.	15/12/2020	JRC technical reports
153 - DT&AI JRC.B.6	5800 - HUMAIN Digital Transformation – Human behaviour and machine intelligence (HUMAIN)	<p>The HUMAIN project aims to provide a multidisciplinary understanding of the state of the art and future evolution of machine intelligence and its potential impact on human behaviour, with a particular focus on cognitive capabilities and decision making. It has three main goals: (1) Provide a scientific understanding of machine and human intelligence. Here we study and contrast human cognitive tasks, computational tasks and job tasks as linked to skills and occupations, with a special focus on autonomy and generality. We also research on the comparative evaluation/benchmarking of artificial intelligence systems in terms of accuracy, fairness, transparency and accountability.</p> <p>(2) Analyse the impact of algorithms on humans, with a focus on cognitive and socio-emotional development and decision making. Regarding cognitive and socio-emotional development, we carry out a longitudinal study on human to robot interaction (HRI), starting with children (1st year of the project). We focus on HRI in performing a set of varied cognitive and social tasks, including creativity and empathy. In terms of decision making, we research on how to "explain" algorithmic decisions to humans for an informed decision, with a focus on deep learning methods. We perform our research in different contexts where algorithms support humans in their decisions: data-driven</p>	JRC.A.5	2.1.a	CNECT	JRC	COMM COMP GROW	digitalglobe - Digital Globe	01/10/2017 30/09/2020	INS-CAS	2	HUMAIN scientific publications	HUMAIN will generate scientific publications in impact academic conferences and journals.	27/12/2019	Article contribution to periodicals or to conference proceedings listed in the Thomson-Reuters' Science Citation Index Expanded (SCI-e) or Social Science Citation Index (SSCI)

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153 - DT&AI JRC.B.6	5801 - CAS4-DIGITRANSSCOPE Digital Transformation & Governance of Human Societies	The ongoing developments in the field of the digital transformation are being accompanied by a new agglomeration of business control, a potential loss of control by governments (particularly relating to regulation) and citizens (in areas such as personal control over privacy, health and well-being). In this project we will address a series of future challenges through a programme of research and workshops that explore each of the challenges, help to refine them or identify new ones, and then move towards a synthesis phase in year three to focus on policy recommendations. The project addresses the following key questions: Contemporary society is rapidly changing. The emergence of social inequalities, migration, and the use of new technologies to communicate and access information, deeply affect both the political participation of European citizens and the relationship between citizens, business and governments which are key pillars for an inclusive, prosperous and united European Union. The evolving complexity of European society needs to be taken into account and analysed in order to identify adequate future government models.	JRC.B.6	2.1.a	CNECT	JRC	CNECT COMM GROW JUST		01/01/2018 31/12/2020	INS-CAS	201901	Education and skill in massively interconnected societies	The report analyses the results of expert consultation on the key policy and societal challenges of massively interconnected societies where the Internet of Things gives agency to many new participants in our daily lives. This raises also opportunities and challenges for new forms of education and skills needed to live in sustainable and inclusive society.	20/12/2019	JRC technical reports
											202001	New modes of Governance in Digitally transformed Societies	Final report bringing together the several research strands of the project and addressing the possible new modes of governance in European digitally transformed societies delivering human-centred inclusive development.	20/12/2020	Science-for-policy reports
153 - DT&AI JRC.B.6	5861 - FUTURGOV Future of Government in an open Government setting	Contemporary society is rapidly changing. The emergence of social inequalities, migration, and the use of new technologies to communicate and access information, deeply affect both the political participation of European citizens and the relationship between citizens, business and governments which are key pillars for an inclusive, prosperous and united European Union. The evolving complexity of European society needs to be taken into account and analysed in order to identify adequate future government models.	JRC.I.2	2.1.a	CNECT	CNECT	EPSC HOME JUST SG		01/01/2017 30/04/2019	CON-AA	2018001	Future of Government in an open Government setting	The final report will describe the results of the work undertaken: It will describe the ongoing and future transformation in the relationship between various parts of the society and the emergence of new actors and forms of interactions, and the results of the case studies. It will also include an analysis of resulting possible threats and opportunities at European level and links to relevant EU policies (including the various governance models to consider and with specific attention to the open government EU policies). Policy recommendations and possible roadmap for future actions will be provided.	31/03/2019	Science-for-policy reports
7596 - Resilience4EU JRC.B.1	6433 - DIGIRES Resilience and the challenge of the digital transformation	Digitalization is affecting society in many ways. On the one hand, digital technologies in general, and artificial intelligence in particular, allow for potential improvement in productivity and growth (ICT adoption is as important as ICT production), on the other one, due to their labour substitution profile, can lead to a change in the level and in the composition of the demand for labour. They also influence the dynamics of social networks, and can revolutionize many aspects of retail trade and other services. The objective of this work package is to go through the dashboard steps (as detailed in the project description) for the challenge of the digital transformation as a disturbance. It means identifying the sub-types of corresponding shocks and stresses, working on the catalogue of shock episodes, finding the system variables that are affected directly or indirectly by the shock, developing the appropriate resilience indicators within the system view (including assets, outcomes and the engine), and eventually finding the related resilience characteristics. The main work-package specific challenge is to identify and quantify the various specific changes stress elements that emerging new technologies evoke in the world of labour, retail and general services, and through the sharing economy. It affects firms, employees, the number and the type of jobs, public administration, the education system, individual and community-level sentiment, changes in actual and perceived quality of life, and the social fabric in general. The Artificial Intelligence Index can serve as a good starting point for measuring the intensity and penetration of artificial intelligence, a key ingredient of the digital transformation. The main thematic units are B4 (education, human capital and the changing nature of work), B6 (digital economy), B7 (changing nature of work) and E3 (digital security). The two Center for Advanced Studies projects related to the Digital Transformation are also involved (A5). Units B3, I1 and B1 contribute in a horizontal way. Policy DGs are involved through Resil.net. The activities of the WP would contribute to the main deliverable of the project, listed in the Community of Practice (6434) WP. Sub-deliverables would be policy and scientific reports, and the associated knowledge management and synthesis activities. The WP cooperates closely with the transversal project on digital transformation and artificial intelligence (led by B6).	JRC.B.1	2.1.a	CNECT	JRC	EAC ECFIN EMPL EPSC ESTAT FISMA GROW REGIO RTD SG	OECD - Organisation for Economic Co-operation and Development (OECD)	01/01/2018 31/12/2020	INS-UR	n/a	n/a	n/a	n/a	n/a
153 - DT&AI JRC.B.6	6455 - APIs4Gov Digital Government APIs. The road to value-added Open API-driven services	With the aim of realising digital government in pursuing an open government approach, there is increasing interest in moving towards open data and re-usable, modular services, which can be assembled using their interfaces (APIs) to facilitate the creation of new services. In addition, combining available data with other (big) data sets can have a great potential for providing new and innovative services.	JRC.B.6	2.1.a	CNECT	CNECT			01/01/2018 31/12/2019	CON-AA	201901	Final report - Digital Government APIs. The road to value-added Open API-driven services	Final report on the potential socio-economic impacts of data-driven public services and the barriers and key enablers (legal, technical, etc.) for providing them. The report will also identify how (big) data from other sources and data analytics can be used through APIs by European public administrations to create new, dynamic, real time services and what challenges exist (e.g., legally and technically). Finally, the report will provide best practices and recommendations for digital government APIs.	31/10/2019	JRC technical reports
153 - DT&AI JRC.B.6	6457 - DT & AI Observatory Digital Transformation and Artificial Intelligence Observatory	The DT&AI Observatory aims to monitor and assess the impact of Digital Transformation (DT) and Artificial Intelligence (AI) in the European economy and society. Digital transformation is happening at increasing speed and it will affect almost all European policies. Hence the importance and relevance for JRC to observe current developments and explore future developments and their impacts, in order to inform and guide future EU policies. DT and AI is expected to be a strategic policy area for the next Commission. Importance of DT for Europe's future was recognised by the Commission in its May 2018 multi-annual budget proposal for the European Union for 2021-2027, by including an almost 9 fold increase of investments in DT and networks to reach € 12 billion and a new Digital Europe programme in order to bridge the current digital investment gap. In April 2018, the Commission published a Communication on "Artificial Intelligence for Europe" presenting its strategy on AI. Delivering on the strategy adopted in April, the Commission presented in December 2018 a coordinated plan prepared with Member States to foster the	JRC.B.6	2.1.a	CNECT	CNECT, JRC	EMPL GROW JUST TRADE	- Organisation for Economic Cooperation and Development	01/01/2019 31/12/2020	CON-AA, INS-RS	AIWatch2019	AI Watch Knowledge Service 2019	Annual report on the AI Watch knowledge service, reporting on 2019 activities included in the AI Watch AA with DG CNECT (such as: overview, development and analysis of the AI landscape in Europe, methodologies to assess evolution of AI technologies and uptake, overview of national initiatives on AI, methodologies to analyse use and impact of AI in public services, etc.), and on related 2019 JRC institutional activities on DT and AI socio-economic impact (such as societal and ethical implications, education and skills, economic impact, data ecosystem, etc.) and on digital technologies impact assessment (e.g. Blockchain, etc.).	31/12/2019	Science for Policy reports
											AIWatch2020	AI Watch Knowledge Service 2020	Annual report on the AI Watch knowledge service, reporting on 2020 activities included in the AI Watch AA with DG CNECT (such as: updated overview and analysis of the AI landscape in Europe, information and analysis of evolution of AI technologies and uptake, updated overview of national initiatives on AI, analysis of use and impact of AI in public services, etc.), and on related 2020 JRC institutional activities on DT and AI socio-economic impact (such as societal and ethical implications, education and skills, economic impact, data ecosystem, etc.) and on digital technologies impact assessment.	31/12/2020	Science for Policy reports
153 - DT&AI JRC.B.6	7863 - SPADE Support for Platforms and Data Economy	The Digital Single Market (DSM) policy, started in 2015, launched a series of policy initiatives that focused on cross-border trade and geo-blocking in e-commerce platforms (2016), copyright and regulatory issues in media platforms (2016), consumer rights and privacy protection (2017) and, more recently, it proposed Regulation on fairness and transparency in B2B relations in platforms (2018). The aim of the DSM is to eliminate cross-border trade costs within the EU and move from 28 national markets to a single market for digital services. The potential economic benefits from overcoming the barriers that cause geographical market segmentation in the EU DSM are expected to be large. At the same time the DSM policy seeks to adapt the regulatory environment to new digital service technologies. The digital transformation of services industries has been marked by the fast rise of platforms or multi-sided digital markets. As part of its contributions to the DSM policy package, the EDSM2 project has studied a wide variety of platforms and related policy issues including e-commerce platforms: audio-visual, social and news media platforms and online labour markets. Current research focuses on IoT data platforms, e-commerce marketplaces, hotel bookings, search engines, media and advertising platforms. Altogether, the EDSM2 research programme contributed research in support of 8 out of the 12 DSM policy targets outlined by the Commission in May 2015. The DSM policy agenda launched in May 2015 is now reaching completion. With the transition from the current to a new College of the European Commission in 2019, it is time to start looking into new policy measures to be implemented in the coming years. While concrete new policies measures still remain to be identified the contours of a number of digital services issues that will be on the table of the next College can already be identified. The deep economic transformation triggered by large online platforms and a profusion of digital data will remain on the policy agenda for the foreseeable future. The objective of SPADE is to continue JRC research support for the identification of EU policy initiatives in relation to digital technologies and fill the empirical evidence gaps where needed, in particular with regard to online platforms and digital data. The six deliverables under this project address these issues.	JRC.B.6	2.1.a	CNECT	CNECT	COMP EAC GROW JUST RTD		01/01/2019 31/12/2020	CON-AA	1	E-commerce and platforms	What's the role of platforms in e-commerce? In the EDSM II AA we already produced a report studying the role of Online Travel Agencies (OTAs) on the hospitality industry in Europe. A similar approach can be carried out to analyse the impact of e-commerce marketplaces in the retail industry in Europe, using similar data and methodologies from past studies. Alternatively, we could expand the analysis of the hospitality industry to study the effects that the change in regulation that forced OTAs to move from rigid to narrow price parity clauses (typified as an unfair commercial practice) may have had in terms of welfare for consumers, booking intermediaries (not only OTAs), and hotels.	30/09/2019	Science for Policy reports
											2	Welfare effects of algorithmic pricing by online platforms	The rise of e-commerce has unlocked practical applications for algorithmic pricing (also called dynamic pricing algorithms), where sellers set prices using computer algorithms. Travel websites and large, well known e-retailers have already adopted algorithmic pricing strategies, but the tools and techniques are now available to small-scale sellers as well. Algorithmic pricing can make merchants more competitive and potentially increase revenue, but it also creates new challenges. For instance, poorly implemented pricing algorithms can interact in unexpected ways and even produce unexpected results, especially in complex environments populated by other algorithms.	30/09/2020	Science for Policy reports
											3	Economic impact of removing geo-blocking restrictions on non-audio-visual	Cross-country price discrimination is a common strategy for multinational firms, and it is one of particular importance for firms with high fixed and low marginal costs, such as media products. In music streaming, Spotify offers its catalogue at different prices in different countries. Removing geo-blocking would undermine Spotify's ability to engage in differential pricing across countries, potentially leading to a partial or full price convergence. How would such policy affect Spotify and its consumers? Data limitations importantly restrict our ability to perform such studies, but Spotify fortunately makes some data available about its prices in different locations. Relying on additional and available data would allow studying the impact of removing geo-blocking on the music streaming market.	30/04/2019	Science for Policy reports
											4	Trends and evolution of cross-border e-commerce in the EU	As part of the DSM policy package several policy instruments were put in place to reduce cross-border trade costs for online transactions, including the parcel Delivery and Geo-Blocking Regulations and other consumer-oriented measures. It is time now to re-assess (a) the impact of these measures to see if they had a tangible impact on cross-border trade and trade patterns and (b) the rapid evolution of online trade patterns over the last couple of years, in particular with regard to the market share of large online platforms, including social media, search and other sources of online referral. For this purpose, new data on online trade patterns and cross-border transactions will be compiled for the period 2018-2020 and analysed with the help of economic models, and compared with the findings from earlier studies.	30/04/2020	Science for Policy reports
											5	Economics of ownership, access and trade in digital data: an update	JRC B6 produced a first general study on data economics in 2017, against the background of the "Building the data economy" Communication. This should be updated with the latest research findings and an exploration of more concrete policy lines that could be considered by the next Commission. The new policy agenda will start to emerge in 2019 and will become gradually more concrete in the following years. It is very likely that the economic implications of data access questions in internet-of-things, artificial intelligence applications, privacy and personal data, industrial data, among others, will be high on the policy agenda.	31/12/2019	Science for Policy reports

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
											6	Free flow of data: economic impact	The Commission has proposed a new Regulation that seeks to take away obstacles to cross-border transfers of data and enable the free flow of data in the DSM. In order to monitor the implementation of this Regulation cross-border data flows need to be tracked. The purpose of this deliverable is to explore data sources on IP data flows at the syntactic and semantic level, study these data flow patterns and design & apply a methodology to detect changes in these patterns. The study will explore all these approaches with a view to construct a model of cross-border data flows in the EU. One of the support studies for the Free Flow of Data initiative suggests that taking away obstacles to data mobility is expected to generate an additional growth of up to 4% GDP by 2020 (Deloitte). This deliverable aims at providing an estimate of the economic impact of the initiative and, hopefully, to be able to disentangle its main sectoral components..	31/12/2020	Science for Policy reports
346 - GALILEO JRC.E.2	8243 - EMSLTPW EMSLTPW (Third party work contracts with EMSL),	Third Party Work conducted at the EMSL premises. More precisely, antenna measurements and GNSS receiver testing activities requested by third parties out of the scope of any H2020 and Galileo Fundamental Elements Programmes. The acceptance the TPW requests is subject to the availability of the laboratories and required technical staff, noting that the highest priority will be given to the testing activities planned under the institutional budget and also in the frame of the administrative arrangements with the Satellite Navigation Directorate in GROW and the European GNSS Agency.	JRC.E.2	2.1.a	CNECT	n/a			01/01/2019 31/12/2020	CON-TW	n/a	n/a	n/a	n/a	n/a

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2.1.b Modern telecommunications - develop IT tools and methodologies to analyse the radio spectrum inventory and support spectrum management; perform technical tests and analyses of the integration of 5G technologies and 5G vertical markets; investigate the potential of quantum cryptographic keys for 5G and satellite telecommunications; study the impact of quantum technologies on wireless protocols like 5G.															
332 - CORSA JRC.E.2	4833 - 5G-Testbed JRC 5G Testbed	5G mobile communications are a key enabler for a Digital Europe. Future communications needs of 'vertical markets' (smart cities, Intelligent Transportation Systems, Industry 4.0, e-Health) require substantial improvements in speed, latency and network capacity compared to what is currently available in 4G networks. By addressing these needs, 5G communications will promote strategic growth through large-scale digitalization not only for human-centric communications, but also between smart objects. Integration and testing of 5G enabling technologies is an essential requirement for supporting future standardization and deployment activities. A proactive role of national authorities and Spectrum harmonization is a key element of the Digital Single Market. Spectrum decisions have a direct long-term impact on not only the fast growing electronic communications sector (DG CNECT) but also the emerging smart infrastructures ("the verticals") such as intelligent transport (DG MOVE), Internet of Things (DG CNECT), Industry 4.0 (DG GROW), Smart Grid (DG ENER) and eHealth (DG SANTE, DG CNECT).	JRC.E.2	2.1.b	CNECT	JRC	GROW MOVE	CEPT - Conference of European Posts and Telecommunications Administrations (CEPT) ETSI - European Telecommunications Standards Institute (ETSI)	01/01/2017 31/12/2020	INS-UR	4	Collaborative Regulatory Pilots on 5G	The EC 5G Action Plan foresees that MSs will deploy experimental testbeds, conduct national pilots and develop 5G network rollout plans within the 2020-2025 timeframe. There are currently 3 distinct use cases of 5G communications that set them apart from existing 4G systems: enhanced mobile broadband, ultra-reliable low-latency communications and massive machine-type communications. Key application domains (verticals) identified for these use cases include public safety, connected cars, enhanced multimedia experiences (e.g., virtual reality), Internet of Things (IoT), etc. This deliverable will focus on the collaboration with national spectrum regulators and RTD actors in MSs on one or more pilots, as well as on linking the JRC 5G testbed to these efforts in order to integrate it at the European level. The goal of these pilots will be to study the technical and regulatory aspects of 5G enabling technologies in a real-life experimental setup.	31/12/2019	Technical systems
332 - CORSA JRC.E.2	4835 - Spectrum Competence Technical Expertise in Modern Spectrum Management	In the ongoing Telecom Framework review, the Commission is aiming to respond to the EU's digital transformation needs through a modern approach to spectrum management in a timely and efficient manner. Following successful collaboration with JRC on the EU Radio Spectrum Inventory, DG CNECT proposed JRC to act as a technical competence centre for modern spectrum management. This will help the Commission to resolve a variety of technical questions that emerge when evaluating new proposals and initiatives on spectrum sharing and future coordination of spectrum allocation in	JRC.E.2	2.1.b	CNECT	JRC	GROW HOME MOVE	CEPT - Conference of European Posts and Telecommunications Administrations (CEPT) ETSI - European Telecommunications Standards Institute (ETSI) ITU - International Telecommunication Union	01/01/2017 31/12/2020	CON-AA,INS-RS	5	Assessment of 5G Enabling Technologies	Several enabling technologies for 5G are being developed and proposed for adoption by industry and standardization. These include: RF frequency wave forms and air interfaces (e.g. modified OFDM; GFDM; New Radio); massive multiple antenna systems (MIMO) systems. This deliverable will be based on an evaluation of relevant 5G technologies, in the Radio Spectrum Laboratory.	31/12/2019	JRC technical reports
332 - CORSA JRC.E.2	6315 - QT-5G Quantum technologies for future networks	Quantum communication technology holds the promise of preventing eavesdropping even if existing cryptographic protocols (such as RSA and ECC) were broken. It is now available commercially, and some standards exist, but it is still very much an emerging technology, under active development. One of the challenges is finding applications for which it is cost-efficient.	JRC.E.2	2.1.b	CNECT	JRC			01/01/2018 31/12/2020	INS-UR	QT5GD01	Quantum Key Distribution for 5G	This report will examine the question from a standards perspective, based on JRC's own experience in integrating existing commercial QKD equipment with the 5G network prototype being developed within Work package 4833 of the project. On this basis of experimental results, contributions on enhancing the 5G security architecture will be made to the European standardization body ETSI in 2019 and beyond.	31/12/2019	JRC contributions to standards
332 - CORSA JRC.E.2	6380 - RSPP2017-19 Radio Spectrum Policy Programme 2017-19	To provide technical and scientific service to DG CONNECT on the implementation of the Radio Spectrum Policy Programme (RSPP) in support to Digital Single Market objectives. The programme aims to promote more efficient use of the radio spectrum and to identify additional capacity with harmonised spectrum for wireless broadband services and next generation wireless services through the emerging 5G networks. Task 1: Testing, evaluation and impact of licensed and unlicensed spectrum sharing scenarios with focus on the 6 GHz band. Task 2: Using Radio Spectrum Inventory tools (RSI) as a source of data for a geolocation database to support efficient spectrum sharing between RLAN and incumbent users in the 6 GHz band. Task 3: Experimental studies and measurements in mmWave 5G candidate bands for WRC-19 in the context of the EC mandate to CEPT on 5G Spectrum, of December 2016.	JRC.E.2	2.1.b	CNECT	CNECT, CNECT		CEPT - Conference of European Posts and Telecommunications Administrations (CEPT) ETSI - European Telecommunications Standards Institute (ETSI)	22/12/2017 21/12/2021	CON-AA,CON-AA	1	Testing, evaluation and impact of licensed and unlicensed spectrum sharing scenarios	This is considered by DG CNECT as a permanent work item on testing advanced future spectrum sharing scenarios, in both unlicensed and licensed spectrum access modes. The work is relevant for the current discussions on the European Electronic Communications Code (attempts at EU level to harmonise Rights of Use conditions (terms of spectrum licenses)). Any relevant frequency band can be tested. The task is important in the context of spectrum requirements for future 5G networks where needs for sharing with other services and applications can arise. The work package is of relevance to the planned Mandate on RLAN in 6 GHz band (sharing with incumbent services) and is directly linked to work package 2 (using the RSI tools to provide data on the 6 GHz band as input to a geolocation database enabling an effective spectrum sharing with incumbent services).	30/11/2019	JRC technical reports
											2	Using Radio Spectrum Inventory tools (RSI) as a source of data for a geolocation database to support efficient spectrum sharing between RLAN and incumbent users in the 6 GHz band	1) Assessment of data in the RSI currently available in relation to relevant parts of the 6 GHz band (5925-6725 MHz). 2) Subject to relevant outcomes in CEPT to trial a geolocation database concept based on the RSI for WAS/RLAN in 6 GHz, relevant data on the use of 6 GHz band (by FS and FSS stations) will be collected from all EU-28 and uploaded to RSI. 3) Building a geolocation database based on RSI tools which will enable geographical sharing of spectrum by WAS/RLAN with incumbents in 6 GHz band.	30/11/2019	Technical systems
											3	5G spectrum studies through tests and measurements	To carry out timely studies on 5G spectrum in the context of the EC Mandate to CEPT on 5G spectrum to develop harmonised technical conditions for spectrum use in support to the introduction of next-generation (5G) terrestrial wireless systems in the EU. This work is organised under the CEPT team PT1 where JRC will contribute through tests and measurements. Propagation models for 5G frequency bands, in both sub-6 GHz bands and above 6 GHz bands are being defined by ITU study groups SG3. JRC will contribute to the update of existing ITU-R propagation models, specifically the clutter loss model (P-2108) and building entry loss models (P-2109), through experimental work and field measurements in the 26 GHz and 40 GHz bands. Experimental validation of these propagation models is a critical step in ensuring that the harmonised technical conditions determined by the CEPT under the above mandate for 5G spectrum use in the EU will be appropriate in practice.	30/11/2019	Validated methods, Reference methods and measurements
332 - CORSA JRC.E.2	7666 - 5G-DRIVE 5G harmonised Research and trials for serVice Evolution between EU and China	Connected and automated vehicles play a prominent role in the ongoing deliberations on the Future of the Europe [COM(2017) 2025]. In-depth information on actual operations of connected and automated vehicles is needed for analysing the changes in the transport system that these technologies will enable. Advanced wireless connectivity is a key enabler for which next generation mobile network technologies (5G) are being developed for commercial deployment starting in	JRC.E.2	2.1.b	CNECT	CNECT	GROW MOVE		01/01/2019 30/06/2021	CON-IA	11	Final 5G-DRIVE Technical Report	In accordance with the JRC policy on streamlining the number of project outputs, this CORSA workpackage will comprise a single final deliverable acting as a container of the following 5G-DRIVE H2020 deliverables: (1) "Joint architecture, use cases and spectrum plan" (D2.2, scheduled for M8) and (2) "Final report of V2X trials" (D4.4, scheduled for M30).	31/03/2021	Technical Reports

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<p>2.1.c Cybersecurity, privacy and trust - help to build EU resilience to cyber-attacks; provide technical support for the deployment of the EU cybersecurity strategy including on-field research of issues related to the cybersecurity of hyperconnected systems; help to create an adequate security and trust framework for the internet of things (IoT) by supporting the establishment of standards and trust assessment of IoT systems; analyse communication protocols, data protection and privacy issues of the new telecommunication paradigms and online services; support to the certification of security related IT systems and their components such as cloud computing; assess the vulnerability and standardisation of crypto-currencies and distributed ledgers; develop data analysis tools and techniques for dimensioning the connectivity of urban-wide sensor networks; support the creation and management of the first European Atlas on Cyber-Security Research and Development; support the establishment of the European Cybersecurity Industrial, Technology and Research Competence Centre, its objectives and overall organizational set up.</p>																
244 - CSPI JRC.E.3	561 - CyberSec Cyber-Security in mobile environments, IoT and online services	<p>This WP provides support, through scientific research and investigations, to a set of policy packages in the area of cyber-security. More in details, it provides support to the revision of the e-Privacy directive for what concerns art.14(3) (security by design and end to end security of terminal services), art. 5(3) for what concerns the cyber-security of smart-devices, the invasiveness of mobile apps and data leakages and art.(4) for what concerns the security of new application level telecommunication services. The WP also support the implementation of point 3.4 of the DSM strategy (COM(2015)192), reinforcing trust and security in digital services with studies analysing the cybersecurity issues which might be of obstacle to the development of an open and free digital market with particular attention to 1) the cybersecurity challenges introduced by mobile services & applications and the mechanisms to empower the citizen against these threats, 2) the raising threats linked to online user profiling (geoblocking, mobile tracking, mobile and IoT user profiling etc.) and 3) Security of cloud-services.</p> <p>The Workpackage supports the development and implementation of the revision of the Cyber-Security strategy including the policy process for the implementation of the EU Cyber-Security Research and Competence Centre.</p> <p>The activities moves along three area: (a) cyber-security in interconnected environment (online services and cloud), (b) Cyber-Security of smart-devices (included mobile apps and firmware in selected use-cases (e.g. smart-house, Industry 4.0 and eHealth) and (c) cyber-security and Artificial Intelligence . These topics have been co-identified together with the colleagues of This work-package aims at investigating on virtual-currencies and distributed ledger (blockchain) technologies under a cyber-security and architectural perspective to provide first hand support to the DSM strategy (COM(2015) 192 final), the Anti-Money Laundering policy package and future coming policy requests on the subject. Virtual-currencies are the raising stars among the payment schemes of the digital market. Their completely un-regulated and fully distributed nature is subject of increasing concerns within the bank authorities (see EBA opinion EBA/Op/2014/08). On the other end crypto-currencies due to their fully digital and mobile nature can boost the digital single market by contributing at decreasing the traditional ancillary cost of banking operations. At the heart of cryptocurrencies stand the so called "Distributed Ledgers" a new set of distributed system paradigms that have been recently defined as the "disruptive technology" of the XXI century. Several EU Government (UK, Estonia, Latvia, Germany among the others) started to investigate on possible ways to exploit its potential to provide new, cost-efficient, secure and flexible e-services. The recent report of MEP Weizsäcker (2016/2007(IN)) on virtual Currencies and The Digital Privacy and Data Protection (DPAD) work package will carry out several lines of research in the area of online privacy and data protection, in direct support of the existing ePrivacy directive, the proposal for a European Electronic Communications Code (EECC), the proposed e-Privacy regulation and the General Data Protection Regulation (GDPR) applicable from May 2018. A first line of research in the work package is related to the protection of privacy in Over-the-Top (OTT) communications, mainly focused on world-wide email communications. The main objective is to evaluate the current state of play of the adoption of modern security standards for the protection of inter service provider communications in the world-wide email ecosystem, and, to develop recommendations & best practices aimed to promote the adoption of such standards.</p> <p>This research on the security of email communications is directly linked to one of the three priority areas identified by the Commission in its Communication on Resilience, Deterrence and Defence (email encryption) to strengthen the resilience of the EU to cyberattacks with a Single Cybersecurity Market. This work on email communication security also supports the GDPR (protection of personal data in email communications), the proposal for the European Electronic Communications Code and the proposal for the new ePrivacy regulation (protection confidentiality of communications and prevention of unsolicited communications).</p> <p>A second line of research will focus on the privacy and data protection aspects of Artificial Intelligence, in particular on the processing of big data by AI systems and the explainability of AI algorithms which, due to its emerging importance for legal entities and regulators, has gained significant momentum in recent years as its own field of research in AI science.</p> <p>Finally, DPAD has a dedicated line of research focused on the design and development of The Network Cyber Security (NSEC) work package will conduct research in the area of network cybersecurity. The goal of the WP is to identify, assess and develop techniques to support the identification and analysis of new Internet cyber security attacks. The strategy to tackle these issues will hinge on the newly deployed EPIC laboratory. In NCSEC, the EPIC will be leveraged to allow large scale cyber-security experiments around distributed ledgers, a sensitive topic relevant to various policy stakeholders (ENER, CONNECT, HEALTH, TAXUD). In addition, the continued</p>	JRC.E.3	2.1.c	CNECT	JRC	ENER GROW HOME JUST			01/01/2014 31/12/2020	INS-RS	101256	Cyber-Security in Smart Environments	This deliverable will produce a first in-depth analysis of cyber-security issues related to selected interconnected smart-environments. Use-cases will be selected as subject of on-field analysis prior consultation with policy DGs. Reverse engineering techniques, Machine Learning and Artificial Intelligence approaches will be used to identify source of vulnerabilities, communication protocol and firmware weaknesses and security holes. The results will be then used (1) to identify mitigation approaches and (2) to design set of requirements and policy options toward cyber-security certification and labeling in specific sectors and (3) to publish scientific papers on sectorial research journals. Domains of investigation already identified at this stage are Smart-House, eHealth, mobile ecosystems and Cloud systems. The deliverable will start also to investigate on the cyber-security aspects of Artificial Intelligence, to further develop in 2020.	15/12/2019	Technical Reports
												56118	Cyber-Security in Artificial Intelligence	Artificial Intelligence will become more and more part of every digital service, and will impact every aspect of citizen daily life. This deliverable, starting from the preliminary steps developed in 2019, will analyse on a side the resilience of Artificial Intelligence algorithms against cyber-attacks. This will include the definition of metrics and techniques to measure the robustness of AI algorithms against malicious data injections and manipulations aiming at "silently driving" these algorithms toward wrong decisions or deductions. On the other side the deliverable will investigate on the use of AI algorithms in the context of "Usable Security", i.e. to develop new cyber-security techniques environment-aware and totally transparent to the end-user. This second part of the deliverable will be developed within the context of the Collaborative Doctorial Partnership on Machine Learning with the university of Lubiana.	15/12/2020	JRC technical reports
244 - CSPI JRC.E.3	2760 - CCDDL Crypto-Currencies and Blockchain in the Digital Single Market	<p>This work-package aims at investigating on virtual-currencies and distributed ledger (blockchain) technologies under a cyber-security and architectural perspective to provide first hand support to the DSM strategy (COM(2015) 192 final), the Anti-Money Laundering policy package and future coming policy requests on the subject. Virtual-currencies are the raising stars among the payment schemes of the digital market. Their completely un-regulated and fully distributed nature is subject of increasing concerns within the bank authorities (see EBA opinion EBA/Op/2014/08). On the other end crypto-currencies due to their fully digital and mobile nature can boost the digital single market by contributing at decreasing the traditional ancillary cost of banking operations. At the heart of cryptocurrencies stand the so called "Distributed Ledgers" a new set of distributed system paradigms that have been recently defined as the "disruptive technology" of the XXI century. Several EU Government (UK, Estonia, Latvia, Germany among the others) started to investigate on possible ways to exploit its potential to provide new, cost-efficient, secure and flexible e-services. The recent report of MEP Weizsäcker (2016/2007(IN)) on virtual Currencies and The Digital Privacy and Data Protection (DPAD) work package will carry out several lines of research in the area of online privacy and data protection, in direct support of the existing ePrivacy directive, the proposal for a European Electronic Communications Code (EECC), the proposed e-Privacy regulation and the General Data Protection Regulation (GDPR) applicable from May 2018. A first line of research in the work package is related to the protection of privacy in Over-the-Top (OTT) communications, mainly focused on world-wide email communications. The main objective is to evaluate the current state of play of the adoption of modern security standards for the protection of inter service provider communications in the world-wide email ecosystem, and, to develop recommendations & best practices aimed to promote the adoption of such standards.</p> <p>This research on the security of email communications is directly linked to one of the three priority areas identified by the Commission in its Communication on Resilience, Deterrence and Defence (email encryption) to strengthen the resilience of the EU to cyberattacks with a Single Cybersecurity Market. This work on email communication security also supports the GDPR (protection of personal data in email communications), the proposal for the European Electronic Communications Code and the proposal for the new ePrivacy regulation (protection confidentiality of communications and prevention of unsolicited communications).</p> <p>A second line of research will focus on the privacy and data protection aspects of Artificial Intelligence, in particular on the processing of big data by AI systems and the explainability of AI algorithms which, due to its emerging importance for legal entities and regulators, has gained significant momentum in recent years as its own field of research in AI science.</p> <p>Finally, DPAD has a dedicated line of research focused on the design and development of The Network Cyber Security (NSEC) work package will conduct research in the area of network cybersecurity. The goal of the WP is to identify, assess and develop techniques to support the identification and analysis of new Internet cyber security attacks. The strategy to tackle these issues will hinge on the newly deployed EPIC laboratory. In NCSEC, the EPIC will be leveraged to allow large scale cyber-security experiments around distributed ledgers, a sensitive topic relevant to various policy stakeholders (ENER, CONNECT, HEALTH, TAXUD). In addition, the continued</p>	JRC.E.3	2.1.c	CNECT	JRC	CNECT ECFIN FISMA GROW TAXUD	ECB - European Central Bank EP - European Parliament ISO - International Organization for Standardization (ISO)	01/01/2015 31/12/2020	INS-RS	101256	Blockchain Technologies, Research Evolutions, Scalability and Robustness	This deliverable will produce a set of studies and analysis on the emerging new trends in blockchain technologies from a technological point of view, investigating on relevant issues such as cyber-security, privacy, data protection, scalability, stability, resilience and interoperability, identifying the most suitable (if exist) approach for a selected number of use-cases deployed in the Experimental Platform for Internet Contingencies, adapted for running docker based blockchain nodes. The deliverable will contribute to the outputs of the European Observatory on Blockchain technologies and to shape the new initiative on "European Blockchain Platform"	15/12/2020	Technical Reports	
											1234	Scientific Publications on Blockchain Technologies	This workpackage will produce scientific results, which on a side will be used to provide policy support, but on the other side will generate scientific publications. This deliverable has been created ad-hoc to aggregate and give evidence to the scientific publications generated by this workpackage in 2019-2020	15/12/2020	Journal contributions (Scopus)	
244 - CSPI JRC.E.3	2761 - DPAD Digital Privacy and Data Protection	<p>This research on the security of email communications is directly linked to one of the three priority areas identified by the Commission in its Communication on Resilience, Deterrence and Defence (email encryption) to strengthen the resilience of the EU to cyberattacks with a Single Cybersecurity Market. This work on email communication security also supports the GDPR (protection of personal data in email communications), the proposal for the European Electronic Communications Code and the proposal for the new ePrivacy regulation (protection confidentiality of communications and prevention of unsolicited communications).</p> <p>A second line of research will focus on the privacy and data protection aspects of Artificial Intelligence, in particular on the processing of big data by AI systems and the explainability of AI algorithms which, due to its emerging importance for legal entities and regulators, has gained significant momentum in recent years as its own field of research in AI science.</p> <p>Finally, DPAD has a dedicated line of research focused on the design and development of The Network Cyber Security (NSEC) work package will conduct research in the area of network cybersecurity. The goal of the WP is to identify, assess and develop techniques to support the identification and analysis of new Internet cyber security attacks. The strategy to tackle these issues will hinge on the newly deployed EPIC laboratory. In NCSEC, the EPIC will be leveraged to allow large scale cyber-security experiments around distributed ledgers, a sensitive topic relevant to various policy stakeholders (ENER, CONNECT, HEALTH, TAXUD). In addition, the continued</p>	JRC.E.3	2.1.c	CNECT	JRC	HR JUST	EP - European Parliament	01/01/2015 31/12/2020	INS-RS	276013	JRC Contribution to the ISO-TC-307	This deliverable will contribute through research activities (use-case design, prototyping and testing, cyber-security and architectural analysis) to the work of the ISO standardisation committee TC307 on blockchain technologies, of which JRC, following the request of CNECT is contributing since 2017.	13/12/2019	Contributions to standards	
											1001	Security of Email Communications, Privacy and Data Protection in Artificial Intelligence and Edutainment applied to Data Protection.	This deliverable will present the results of the research carried out in DPAD in the areas of online privacy and data protection. Firstly, the deliverable will describe the work carried out in 2019 for the continuous development and maintenance of the JRC's MECSA online tool, its promotion and the exploitation of the results obtained. Further, this work will also include the research carried out on the explainability of AI algorithms in light of the data protection rights of the GDPR, in particular the right of data subjects not to be subject to a decision based solely based on automated processing (including profiling) and the right to express his/her point of view to contest a given decision. Finally, the deliverable will describe the design and development of an edutainment platform to support the development of serious games aimed to raise awareness on privacy & data protection aspects and illustrate some of the fundamentals of the GDPR to youngsters.	13/12/2019	Technical Reports	
244 - CSPI JRC.E.3	6393 - NCSEC Network Cyber Security	<p>This research on the security of email communications is directly linked to one of the three priority areas identified by the Commission in its Communication on Resilience, Deterrence and Defence (email encryption) to strengthen the resilience of the EU to cyberattacks with a Single Cybersecurity Market. This work on email communication security also supports the GDPR (protection of personal data in email communications), the proposal for the European Electronic Communications Code and the proposal for the new ePrivacy regulation (protection confidentiality of communications and prevention of unsolicited communications).</p> <p>A second line of research will focus on the privacy and data protection aspects of Artificial Intelligence, in particular on the processing of big data by AI systems and the explainability of AI algorithms which, due to its emerging importance for legal entities and regulators, has gained significant momentum in recent years as its own field of research in AI science.</p> <p>Finally, DPAD has a dedicated line of research focused on the design and development of The Network Cyber Security (NSEC) work package will conduct research in the area of network cybersecurity. The goal of the WP is to identify, assess and develop techniques to support the identification and analysis of new Internet cyber security attacks. The strategy to tackle these issues will hinge on the newly deployed EPIC laboratory. In NCSEC, the EPIC will be leveraged to allow large scale cyber-security experiments around distributed ledgers, a sensitive topic relevant to various policy stakeholders (ENER, CONNECT, HEALTH, TAXUD). In addition, the continued</p>	JRC.E.3	2.1.c	CNECT	JRC	CNECT JUST		02/01/2018 31/12/2020	INS-RS	1002	Innovative techniques for analysing and assessing emerging cyber-threats	Annual Report reviewing the activities of the workpackage during 2019, including: - participation to scientific conferences, - authoring of scientific articles, - contribution to Administrative arrangements - outreach to stakeholders, e.g. EDA	13/12/2019	JRC technical reports	
244 - CSPI JRC.E.3	6397 - SerIoT SerIoT - Secure and Safe Internet of Things	<p>While analysts agree on the fact that security concerns and the effective management of produced data need to be worked out before the IoT can be fully developed, there is little doubt the long-range impact will be substantial. While today security technologies play a role in mitigating risks connected to IoT security, we foresee problems and potential threats. It is not enough to include what has been developed until now. In currently developed systems, the data is not delivered using uniform, consistent technology, often conflicting protocols, with unverified designs. Moreover, we think of the maintenance cycle in a very short term span, which makes updates of IoT systems not compliant. Lack of standards for authentication and authorization, as well as the security standards, and platform configurations means that every vendor creates their own ecosystem. Following these challenges, the SerIoT project will address all the aforementioned challenges under a common framework that will be developed based on the co-operative efforts and prior expertise of a strong interdisciplinary consortium, including the most important European key players in the IoT domain.</p>	JRC.E.3	2.1.c	CNECT	CNECT			03/01/2018 03/01/2021	CON-IA	63971	Survey on existing IoT security and privacy standards and identification of gaps and priorities and strategy to support the different standardization bodies	SerIoT project will survey the existing security, privacy and interoperability standards de-fined in the context of IoT or applied to IoT. In this activity, the project will take into account the works being developed of previous projects like BUTLER, iCore, IoT6, RERUM, COMPOSE, OpenIoT and the results from the Internet of Things Clus-ter (IERC). From the initial analysis, SerIoT will identify the main gaps to be address and main standardization activities, where SerIoT will actively contribute based on the alignment.	03/04/2019	JRC technical reports	
											63972	Contributions to the standardization bodies, consortiums and Alliances	the SerIoT project will investigate approaches and technologies to make interoperable security and privacy standards using security bridges, crypto-agility, security delegation, trust negotiation, secure middleware and so on. Thus, the main focus will be on the development and contribution to standards and other projects. First, SerIoT partners will analyse which standard-based modules from existing platform can be integrated, and for the missing gaps con-tribute with the different standardization bodies in both directions. From the standards bodies to SerIoT to align our platform and proposition globally, and also from SerIoT to these bodies, in order to ensure a higher impact and adoption of the works proposed.	03/01/2020	JRC technical reports	
											63973	Contributions to the standardization bodies, consortiums and Alliances - Updated version for Month 36	This deliverable is an updated version of 63972 for the end of the project. This deliverable will describe what standards have been drafted and the type of support, which has been received by the research and industry community. In particular, the deliverable will investigate if the gaps previously identified in 63972 have been correctly addressed in the final part of the SerIoT project. If this is not the case, the deliverable should describe further actions after the end of the project to address such gaps.	03/01/2021	JRC technical reports	
244 - CSPI JRC.E.3	6524 - CS3 Cyber-Security Strategy Support	<p>This administrative arrangement is the follow up of the SECI 2016 A.A. and SECI 2017. It will support with technological activities the co-design of supporting measures for the competitiveness & innovation of the European Cybersecurity Industry accompanying the activities of the Contractual Public-Private Partnership (cPPP) established in 2016 and the proposal for the revision of the Cyber-Security Strategy which presented by the Commission in the last quarter of 2017</p> <p>The foreseen activities will move in the areas of standardization, security compliance, labelling and identification and mitigation of zero-day vulnerabilities in the different areas of the cyber-security industry. More in details: (1) will support DG CNECT initiative "toward a European ICT security certification framework for product and services and fostering a competitive and innovative</p>	JRC.E.3	2.1.c	CNECT	CNECT			15/07/2018 31/01/2020	CON-AA	101256	Final Report	Final Report of the Administrative Arrangement, including: (1) the results of the AICS Pilot, (2) the working prototype of the European Cyber-Security Atlas (3) the working prototype of the European Cyber-Security Information Hub	31/01/2020	Technical Reports	
											CS3	Intermediate Report	This deliverable aims at supporting the development of the cyber-security strategy which will be presented by the Commission in the fourth quarter 2017. It will include activities aiming at (1) clustering cyber-security industry domains (2) Identifying proper measures to boost the cyber-security industry in Europe through standardisation and labeling initiatives (3) to demonstrate through sectorial pilots the viability of the certification and labeling scheme proposed in the cyber-security strategy	15/03/2019	JRC technical reports	
244 - CSPI JRC.E.3	7742 - BlockTax BlockTax: Blockchains for Taxud	<p>During the last few years, awareness of Distributed Ledger Technology (DLT) has started to grow beyond a restricted group of technology enthusiasts, to a wider audience of citizens. On the other hand, blockchain and DLT are not the solution to every problem, as not all use-cases</p>	JRC.E.3	2.1.c	TAXUD	TAXUD	CNECT		02/07/2018 31/12/2020	CON-AA	1	BlockTax: Blockchains for Taxud - Final Report	This deliverable summarises the results of the Administrative arrangement, including: blockchain test analysis and results, viable policy options for a new, distributed, Taxation/Custom digital infrastructure and the support to the MS administrations.	15/01/2020	Technical Reports	

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2.1.d Optimising the use of digital technologies in the public and private sector - provide technical support for the interoperability of e-infrastructures (helping to modernise the digital public services) and open access (supporting open science); offer competences and expertise in data science including AI and machine learning and serve the demand for intelligent data exploration and analysis; assess the interoperability of energy services in support of digitisation of the energy system (linked to key orientation 3.2.c); analyse the impact of interoperability and standardisation on intellectual property rights; provide expert support on interoperability and security aspects for the European Electronic Health Record Exchange; provide support to Member States for delivering cross-border access to genomic information; provide support to the digital transformation of built environment.															
438 - SMART PROTECT JRC.E.4	6802 - QATWALKS Quantum sensors and walks	<p>The basis of many possible applications of quantum technology such as encryption, quantum sensors and quantum computing, relies on the phenomenon of quantum entanglement and superposition. Whereas this field has received much interest from national and EU programmes there is still a credibility gap between the claims of theoretical and experimental physics and the applicability to engineering or information technologies.</p> <p>One essential element towards the application and development phase is a more concerted technological interaction between physicists and engineers. The aim of this Underpinning Research is to reproduce two types of experiments on quantum processes, which have been validated and presented in the literature, and adapt them to accommodate signals from sensors used to measure engineering-related quantities such as deflections and strain. The procedure involved will pave the way for an examination of the practicalities, adaptation and feasibility of quantum technologies for prospective use in engineering applications.</p>	JRC.E.4	2.1.d	CNECT	JRC			01/01/2018 31/12/2021	INS-UR	2	Validation of electro-optic modulation	<p>A signal from a strain sensor modulates coherent laser-light to alter the initial conditions of a random walk on an optical lattice. Using the voltage from a piezo-polymer sensor (embedded within a suitable specimen) as the modulating signal for an Electro-Optic Modulator—EOM. The EOM will change the coherence level (either through phase or amplitude modulation). The conjecture is that an attenuated pulsed laser is modulated such that the polarized photons are made to follow a 2-dimensional walk on an optical matrix.</p> <p>A phase shift is introduced via the EOM which results in a stronger de-coherence of the quantum walk and so generates a probability distribution markedly different from that expected for a coherent walk on a grid. One pattern corresponds to, so-called, static disorder and another to fast fluctuations.</p>	15/12/2019	Technical systems
											3	Horizon scanning for Perspectives on Quantum Technology and Engineering	<p>Quantum technology has a huge potential for the development of novel application. However, due to the technical challenges and difficult implementation, the adoption of quantum technology in the industry and for engineering application requires further steps and achievements. Through the application of data mining and processing for horizon scanning, the prospects of real world implementation of quantum technology are evaluated in order to assess the technological achievements and investigate the subsequent steps in support to a European policy and strategic investments in research.</p>	15/12/2019	Technical Reports
10091 - EvidenceBasedHealth JRC.F.7	7787 - ehealth Digital transformation of health and care	<p>The work package aims at supporting the EC initiatives on setting up coordination between authorities across the EU to implement the secure exchange of genomic and other health data. The primary goal is to support a Commission recommendation that is to be adopted on the technical specifications for a European electronic health record exchange format that also address citizens' access to electronic health records and aspects related to the implementation of appropriate data protection safeguards and security of patient health data. It is supplemented with JRC expertise in (1) the operation of distributed geospatial databases with a health component and in (2) socio-economic analysis of technology developments. In this context, the JRC has already set up a number of geospatial databases, data infrastructures and information platforms that contain referenced data on environmental indicators, occurrence data to chemicals, as well as a number of databases on indicators of health, lifestyle, nutrition and diseases.</p>	JRC.F.7	2.1.d	CNECT	JRC	RTD SANTE		01/01/2019 31/12/2020	INS-RS	1	Draft Recommendation on interoperability of EHRs	<p>Further enabling interoperability of, and cross-border access to, national and regional Electronic Health Record (EHR) systems by providing specifications for a European EHR exchange format (EEHR) that should be based on open standards and build on appropriate technical expertise, and by taking into account, amongst other, the potential use of data for research and other purposes. This Technical Specification can be used voluntarily as a reference when health care organizations and public authorities procure or develop EHR systems, and will support citizens' access to and interoperability of EHR systems across borders. Additionally, the Commission intends to monitor the cross-border interoperability of EHR systems and, once in place, the adoption of the European EHR exchange format across the EU</p>	31/12/2020	Technical Reports
											2	Mining collections of e-health data	<p>This deliverable will identify the existing technical specifications and relevant standardisation work on health data collection, storage, compression, processing and access across the EU and their exchange for both research and public health purposes. It will map and analyse relevant initiatives in MS (especially in MS signatories of the eHealth declaration), as well as relevant non-MS initiatives from external stakeholders to be reached out. It will produce, through intra-JRC and international collaborations, technical reports, guidelines and recommendations, scientific articles, workshop reports, etc.</p>	31/12/2020	Technical Reports
											3	Overview and assessment of geospatial health data	<p>In the light of the development of Electronic Health Records for each EU citizen, it is imperative to assess the linkage of those records to geospatial data that can provide insight into those factors that may impact "health" as a whole. For this reason, there is a strong need of identifying interoperable solutions to properly connect info on chemical, environmental, lifestyle monitoring data (and exposure) to health/disease related information and to consider the level of detail of the information to be linked in order to avoid that assumptions, comparisons and evaluation of correlations (e.g. contaminated areas with health indicators) are almost impossible or too generic. This deliverable will provide an overview of existing and upcoming geospatial health data resources available and critically assessing the issues and challenges to overlay such data with other geospatial data (e.g. exposure oriented data)</p>	31/12/2020	Technical Reports
3. A resilient Energy Union with a forward-looking climate change policy															
3.1. Climate action															
3.1.1. Mitigation															
3.1.1.a Economic and climate modelling/assessments - design and implement domestic and international climate policies and strategies to keep global warming well below 2°C and pursue efforts to limit it to 1.5°C; maintain and further develop integrated sets of models that cover relevant sectors and greenhouse gases in the EU and other relevant world regions for applications such as (i) socio-economic analysis of scenarios consistent with climate policy goals; (ii) development of in-house energy models; (iii) assessment of contributions of related sectors; (iv) analysis of GHG emissions trends and drivers and emissions projections of non-ETS sectors per Member State.															
11135 - EAMP JRC.C.6	1074 - Integrated-CCMA Integrated Multisectoral Climate Mitigation Policy Assessment	<p>The work package focuses on the analysis of the economic effects onto the overall economic structure (both at EU and global levels) of climate-protecting policy measures (mitigation climate policy), taken within energy-intensive sectors. The emphasis is the analysis of the mitigation policy scenarios, using the multisectoral GEM-E3 model, according to the scenario design implemented in the models used for energy sectoral scenarios (POLES and POTEnCIA). The tasks include the building up, testing, and validating the multi-sectoral, macroeconomic modelling tools to be used for such type of analyses: the large scale multisectoral GEM-E3 model and the new MaGE macroeconomic model. The models are also used for the analysis climate impact and adaptation</p>	JRC.C.6	3.1.1.a	CLIMA	JRC	DEVCO ENER ENV		01/07/2013 31/12/2022	INS-RS	D2019	Progress report 2019	<p>Technical report describing the advances in the modelling as well as maintenance and data work carried out throughout the year in order to enhance the analytical capability of the unit, mainly related to climate impact and adaptation modelling. This 'container deliverable' also includes the related scientific publications.</p>	31/12/2019	Technical Reports
											D2020	Progress Report 2020	<p>Technical report describing the advances in the modelling as well as maintenance and data work carried out throughout the year in order to enhance the analytical capability of the unit, mainly related to climate impact and adaptation modelling. This 'container deliverable' also includes the related scientific publications.</p>	31/12/2020	Technical Reports
11135 - EAMP JRC.C.6	5033 - CLIMA 2017 Support to the development of EU and international GHG	<p>DG CLIMA makes extensive use of modelling capacity to prepare its policies. To assess the impact of climate change policies it applies economic models.</p> <p>There are many examples where quantitative analysis from the JRC has been used to prepare specific EU policy Communications.</p>	JRC.C.6	3.1.1.a	CLIMA	CLIMA	ENER		01/11/2016 31/12/2019	CON-AA	D3	Analyses of global climate scenarios	<p>The report describes and analyses the scenarios defined in cooperation with DG CLIMA. These scenarios feed into the international negotiations.</p>	31/12/2019	JRC contributions to policy documents
11135 - EAMP JRC.C.6	5083 - PostCOP21 Global Mitigation Scenarios post COP21	<p>This work package provides (a) analytical capability and quick-reaction support to the global emission abatement scenarios used by DG CLIMA in the UNFCCC negotiation rounds and (b) produces with tentative yearly periodicity the world energy analysis contribution to the Global</p>	JRC.C.6	3.1.1.a	CLIMA	JRC			01/01/2017 31/12/2020	INS-RS	Scientific1	Paper on climate mitigation scenarios	<p>The work on this WPK and the related contractual work package (wpk 6348) will result in scientific papers and publications.</p>	31/12/2020	Journal contributions (Scopus)
142 - CESE JRC.C.6	6348 - CLIMA 2018 Support to the	<p>DG CLIMA makes extensive use of modelling capacity to prepare its policies. To assess the impact of climate change policies it applies economic models. The JRC has been contributing to various</p>	JRC.C.6	3.1.1.a	CLIMA	CLIMA	ENER		01/01/2018 31/12/2019	CON-AA	R2	Final report	<p>Technical report summarizing the policy analyses carried out under this administrative agreement as well as related and background information.</p>	20/12/2019	Science-for-policy reports
11135 - EAMP JRC.C.6	7642 - OutreachParis International Outreach for the Implementation of the Paris Agreement	<p>The main objective of the work package is the outreach for the implementation of the Paris Agreement with possible links to the Sustainable Development Goals (SDGs). It aims at finding synergies between the different international outreach activities in this context.</p> <p>The work package will capitalise on the expertise and capacities built up in the projects 142</p>	JRC.C.6	3.1.1.a	CLIMA	JRC	DEVCO ENER ENV RTD	EEAS - European External Action Service	01/01/2019 31/12/2020	INS-RS	2	Report International Outreach for the Implementation of the Paris Agreement	<p>The report will summarize and give an overview of all activities, including possibly model developments, data collection, scenario analysis, missions, visits, or contributions to RTD-financed or CLIMA-led projects (or other services).</p> <p>Annual reports are envisaged (the first one to be published in 2019).</p>	31/12/2020	Whole parts of policy documents
142 - CESE JRC.C.6	7773 - CLIMA 2020 Continued support to the development of EU and	<p>DG CLIMA makes extensive use of modelling capacity to prepare its policies. To assess the impact of climate change policies it applies economic models. Quantitative analysis from the JRC has been used to prepare specific EU policy Communications on numerous occasions. Following the</p>	JRC.C.6	3.1.1.a	CLIMA	CLIMA	ENER		01/01/2020 31/12/2021	CON-AA	Climafinal report	Final report to DG CLIMA	<p>Final report corresponding to the AA CLIMA 2020 . There will be policy relevant output related to that contract. These outputs, however, cannot be planned in advance. It is expected that there will be relevant publication and policy documents produced .</p>	31/12/2021	Technical Reports

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3.1.1.b GHG and air pollutants emissions modelling - monitor, report and verify (using independent in-situ, air- or space-borne atmospheric measurements) anthropogenic GHG emissions, and more specifically energy-related, agricultural and forestry (Land Use, Land-Use Change and Forestry - LULUCF and Reduction of Emissions from Deforestation and Degradation - REDD+) emissions to meet legal obligations at EU and international level; model and analyse how to integrate the assessment of these emissions into EU and international legislation; assess GHG emissions and mitigation options in agriculture; compile global emissions inventories which include short lived climate pollutants (black carbon and methane). This key orientation is linked to key orientation 1.3.3.b.																
9498 - LANDMIT JRC.D.1	1000 - IFORCE International Forest Resources and Carbon Emissions	<p>In the context of the European Union's fight against global warming, IFORCE will continue to develop methods to benchmark the monitoring of forest resources and carbon emissions, with a focus on tropical regions. Assessments will be carried out to allow for an improved understanding of how forest resources can support the (often competing) demands for economic and ecological services, especially when confronted with increasing threats, such as climate change. IFORCE will further develop reference methods for the assessment of forest cover changes in tropical regions from Earth Observation data. IFORCE will continue to focus on forest degradation and look at forest regrowth issues with international and national institutional partners, such as UN-FAO and CIFOR, and national forest inventory or REDD services from a number of countries or regions including Brazil, Central and Eastern Africa, continental Southeast Asia and Indonesia. New analysis module will be developed and completed to allow the estimation of carbon emissions from disturbances in tropical forests which are needed for the implementation of REDD+ activities in the framework of the UNFCCC Paris agreement. Such methods will support the development and implementation of future services of the Copernicus programme.</p>	JRC.D.1	3.1.1.b	CLIMA	CLIMA, JRC	DEVCO ENV GROW	<p>FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) COMIFAC - Commission des Forêts d'Afrique Centrale (COMIFAC) Forest commission of central africa</p>	01/01/2014 31/12/2020	CON-AA,INS-RS		201901	Information on tropical forest resources & Ad hoc scientific support to customer DGs	Easily accessible database of up-to-date information (measurements) on forest coverage, deforestation, forest degradation, historical trends and the impact of human activities on forests, at different geographical and time scales in the Tropics with related technical reports or scientific publications.	31/12/2019	Sci information systems and databases
												201902	Methods to measure forest degradation & emissions	Scientific publications or technical reports related to the development of reference methods for the assessment of forest cover changes (with a focus on forest degradation and forest regrowth) and the estimation of carbon emissions and sinks from tropical forest' cover changes in tropical regions (focus on Brazil, Central and Eastern Africa, continental Southeast Asia and Indonesia) .	31/12/2019	Journal contributions (Clarivate)
												202001	Information on tropical forest resources & Ad hoc scientific support to customer DGs	Easily accessible database of up-to-date information (measurements) on forest coverage, deforestation, forest degradation, historical trends and the impact of human activities on forests, at different geographical and time scales in the Tropics with related technical reports or scientific publications. Ad hoc scientific support to DG CLIMA through an MoU on the monitoring of carbon emissions from tropical deforestation in relation to REDD+, including participation in expert meetings. Ad hoc scientific support to DG GROW through an MoU with DG GROW on the Global Land Component of Copernicus Land Service, including support to the Sentinel-2 Global Mosaic (S2GM) contract and including contributions to technical specifications or tender evaluations.	31/12/2020	Sci information systems and databases
												202002	Methods to measure forest degradation & emissions	Scientific publications or technical reports related to the development of reference methods for the assessment of forest cover changes (with a focus on forest degradation and forest regrowth) and the estimation of carbon emissions and sinks from tropical forest' cover changes in tropical regions (focus on Brazil, Central and Eastern Africa, continental Southeast Asia and Indonesia) .	31/12/2020	Journal contributions (Clarivate)
												3	Support to monitoring and design of LULUCF policies 2019	a) LULUCF GHG inventory: fulfilment of the EU reporting obligations for the LULUCF sector, as part of the EU decision 529/2013 (including emissions from agriculture soils) b) Support DG CLIMA in the design and implementation of LULUCF-related policies: - at EU level: reports, datasets and presentations on the implementation of the Regulation including LULUCF in the EU's GHG targets for 2030. - at UNFCCC level: datasets (e.g. LULUCF in Paris Agreement and the EDGAR database), reports and presentations.	30/12/2019	JRC contributions to policy documents
9498 - LANDMIT JRC.D.1	3763 - LULUCF+ Land Use, Land Use Change, Forestry and Climate	<p>Within the LANDMIT project's aim to support client DGs in understanding how forests mitigate and interact with climate change in the context of EU and international climate policies, the LULUCF+ WPK contributes to the JRC Key Orientation 3.1.1b (GHG emissions modelling). This includes: (a) the monitoring, reporting and verification of emissions/removals from the LULUCF sector to meet legal obligations at EU (Regulation 2018/841) and international (Paris Agreement) level, and the modelling of forest carbon dynamics at MS level; and (b) the quantification of recent, current and future land-climate interactions, the assessment how the climate influences the temporal trends of the land-carbon budget at continental and global scales, and the combined (biogeochemical and biophysical) impact of land-use change on climate. LULUCF+ includes also the AA LULUCF EU-PA (ending in May 2019, to continue with a follow-up AA till mid 2022), having the following tasks : 1) Support the implementation of Regulation 2018/841, including improving the quality MS GHG inventories; 2) Support the development of an independent verification system of land-related GHG estimates by MS; 3) Support the definition and implementation of relevant land-related technical processes under the Paris Agreement.</p>	JRC.D.1	3.1.1.b	CLIMA	CLIMA, C LIMA, JRC	<p>EEA - European Environment Agency IPCC - Intergovernmental Panel on Climate Change UN FCCC - UN Framework Convention on Climate Change (UNFCCC)</p>	01/01/2017 30/06/2022	CON-AA, CON-AA, INS-RS		4	Assessment of land-based mitigation options (2019)	Assessment of land-based mitigation options based on the combination of the biogeochemical effects (exchange of greenhouse gases) and of biophysical effects (changes in albedo, evapotranspiration, etc.). Integration of experimental evidence and model simulations to provide a global quantification of mitigation potentials and to develop methodologies for the monitoring/reporting/verification (MRV) of the net climate effects of LULUCF.	30/12/2019	Article contribution to periodicals or to conference proceedings listed in	
											5	Final report AA LULUCF EU-PA	Final report on the three tasks: (i) Improving quality LULUCF GHG inventory; (ii) Follow-up of the legislative proposal for including LULUCF in 2030 EU climate framework, with regard to Forest Reference Levels; (iii) Supporting the definition of relevant technical processes under the Paris Agreement.	29/05/2019	Science for Policy reports	
											201901	High resolution CH4 inverse modeling setup	1) Technical development of the inverse modeling system to cope with the high spatial resolution, 2) preparation of the input, 3) first simulations to check the setup. (in collaboration with external partner EMPA)	30/11/2019	Scientific information systems and databases	
4855 - GHG-MoVe JRC.C.5	4873 - VERIFY Towards a robust and comprehensive Greenhouse Gas Verification System	<p>VERIFY aims to improve the ability to monitor and verify GHG emissions under an international climate agreement by significantly decreasing current uncertainties associated with greenhouse gas emission estimates. In support to EU climate policies GVS provides reliable information on GHG in Europe over appropriate spatial and temporal scales. The final goal is to facilitate the development of an operationalised GHG monitoring, reporting and independent verification system.</p>	JRC.C.5	3.1.1.b	CLIMA GROW	RTD	<p>ENER ENV GROW RTD</p>	<p>- EUROPEAN SPACE AGENCY IPCC - Intergovernmental Panel on Climate Change UN FCCC - UN Framework Convention on Climate Change (UNFCCC)</p>	01/12/2017 31/01/2022	CON-IA		201903	Bottom-up GHG fluxes	First CH4 and N2O fluxes from anthropogenic sources from bottom-up models (VERIFY D4.1)	30/11/2019	Scientific information
												202001	Prototype of an international GHG monitoring and verification system	- Fact sheet of observation-based EU budget and inventory (VERIFY D6.1) - List of best practices to be used to improve inventories in EU countries (VERIFY D6.2) - Report (Fact sheet) on the observation-based GHG budgets and inventory to USA (VERIFY D6.3)	30/11/2020	Validated methods, Reference methods and measurements
												202002	Bottom-up GHG fluxes	Second CH4 and N2O fluxes from anthropogenic sources from bottom-up models (VERIFY D4.2)	30/11/2020	Scientific information
												202101	Prototype of an international GHG monitoring and verification system	- Knowledge transfer workshop with US, China, Indonesia (VERIFY D6.6) - workshop illustrating the GHG verification internationally based on example outside Europe (VERIFY D6.7) - Online update of national emission inventory and observation-based GHG budget trends and NDC mitigation target (VERIFY D6.12)	30/11/2021	Validated methods, Reference methods and measurements
												202102	Bottom-up GHG fluxes	Third CH4 and N2O fluxes from anthropogenic sources from bottom-up models (VERIFY D4.3)	30/11/2021	Scientific information
9498 - LANDMIT JRC.D.1	5037 - S4CC Soil for climate change	<p>Soil is a massive carbon sink, storing three times as much as the atmosphere (particularly in peatlands). While a detailed knowledge base on soil organic carbon (SOC) stocks and dynamics across the European Union is lacking, it is well understood that land use, management practices and degradation processes at a local level have a direct impact on carbon fluxes, thus reducing flexibility elsewhere for meeting carbon budget targets This WP evaluates and models SOC dynamics for current land covers/uses driven by policies such as the CAP, the 2030 Climate & Energy framework, the outcomes of the Paris Agreement, the EU Soil Thematic Strategy, together with global initiatives such as the '4 pour mille', SDG targets and the UN Convention to Combat Desertification. Particular attention will be paid to assessing the status of EU and global SOC stocks and changes following land conversion, especially within cropland and grasslands, and to</p>	JRC.D.3	3.1.1.b	CLIMA	JRC, JRC	<p>AGRI ENER ENV ESTAT</p>	<p>UN FCCC - UN Framework Convention on Climate Change (UNFCCC)</p>	01/01/2017 30/12/2020	DEL, INS-RS	201902	LUCAS SOIL for climate change	This deliverable will use the integration between LUCAS soil data and a biochemistry model to quantify C fluxes across agroecosystems. In particular, LUCAS data and proprieties changes (2009-2015 sampling) will be assimilated in a data-model framework, in order to assess both soil CO2 and N2O fluxes. In this way, the full climate mitigation capacity of different cropping systems and alternative mitigating practices will be evaluated.	31/10/2019	Science-for-policy reports	
											202001	Soil organic carbon for LULUCF	Soil organic carbon is a key driver of several soil functions. Changing environmental conditions can affect SOC levels. This deliverable will analyse, measure and model soil data for the monitoring, reporting and verification of SOC dynamics and stocks in relation to policy drivers such as the 2030 Climate and Energy Strategy, and Resource Use Efficiency and for reporting agricultural GHG emissions under the UNFCCC, Kyoto Protocol and Paris Agreement .	30/12/2020	Science for Policy reports	
9498 - LANDMIT JRC.D.1	5840 - CIRCASA Coordination of international research	<p>Soil is a massive carbon sink, storing three times as much as the atmosphere (particularly in peatlands). While a detailed knowledge base on soil organic carbon (SOC) stocks and dynamics across the European Union is lacking, it is well understood that land use, management practices</p>	JRC.D.3	3.1.1.b	CLIMA	RTD	<p>AGRI ENER ENV</p>		01/01/2018 31/12/2020	CON-IA	202005	IRC Work Programme Report	International Research Consortium (IRC) Work Programme Report presenting recommendations for the set-up of an IRC on soil carbon sequestration in agriculture.	31/12/2020	JRC technical reports	

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241 - KM-EnU JRC.C.7	6510 - EGARP Emissions Database for Global Atmospheric Research and Policy making	The Emissions Database for Global Atmospheric Research (EDGAR) supports policy making in the area of energy with in-house independent datasets on emissions of energy-related activities, because the Energy Union is a priority of the Commission. In order to monitor the implementation of directives on emissions, the Commission needs to rely on up-to-date and reliable data and information.	JRC.C.5	3.1.1.b	CLIMA	JRC	DEVCO ENER ENV GROW RTD	- EUROPEAN CENTRE FOR MEDIUMRANGE WEATHER FORECASTS - European Space Research and Technology Centre EMEP - European Monitoring and Evaluation Programme UN FCCC - UN Framework Convention on Climate Change (UN-FCCC)	01/01/2018 31/12/2020	INS-RS	2019s2	Documentation of the inventory compilation and trend analysis	1)Contribution to counterfactual analysis of climate and fuel efficiency policies using robust statistics (vector-auto-regression) - I.1); 2) Contribution to the 2019 Refinement of the IPCC GHG emission inventory guidelines - D.6; 3) Contribution to the updates of the Raw Materials Scoreboard: WPK Raw Materials - support to the European Innovation Partnership on Raw Materials (4303) and of the Raw Materials Information System (3818) – D.3; 4) EDGAR contribution to the International Nitrogen Management System project (INMS), Western Balkans and other projects – C.5, D.5; 5) Contribution to the data warehouse of C7: make EDGAR data available through the warehouse.6) Contribution to the carbon intensity maps of the Energy Union data and to the carbon capture and storage maps (WPK 3869): updates; 7) Finalizing the scientific paper of Connectivity WPK (closed in 2018) on the impacts of emissions from small combustion activities on air quality, human health and ecosystems.	30/11/2019	Article contribution to periodicals or to conference proceedings listed in the Thomson-Reuters' Science Citation Index Expanded (SCI-e) or Social Science Citation Index (SSCI)	
		Data repository of the EDGAR database with continuous update										1) Publications on EDGAR F-gases emissions and on temporal profiles; 2) Extension of the database with the emissions of Persistent Organic Pollutants; 3) Extension of the EDGAR/EOLO platform with a routine for a fast-track update of the greenhouse gas time-series; 4) Update the EDGAR with data/info on technologies for recent years; 5) Publication on EDGAR POPs emissions; 6) Extension of the EDGAR/EOLO platform with a routine for a fast-track update of the air pollutant time-series; 7) Upgrade the EDGAR with advanced proxy data for gridding; 8) Improving the EDGAR emissions for oil and gas production sector.	30/11/2020	Sci information systems and databases		
		User engagement and EDGAR contribution to other applications										1)Contribution to the updates of the Raw Materials Scoreboard: WPK Raw Materials - support to the European Innovation Partnership on Raw Materials (4303) and of the Raw Materials Information System (3818) – D.3; 2) EDGAR contribution to the International Nitrogen Management System project (INMS), Western Balkans and other projects – C.5, D.5; 3) Uptake of Copernicus data for emissions inventories - D.6.	30/11/2020	Journal contributions (Scopus)		
9498 - LANDMIT JRC.D.1	7704 - REDDCopernicus Capacity for Copernicus REDD+ and Forest Monitoring Services	Efforts to monitor and map changes of forest areas using Earth Observation (EO) technologies to support decision making in reversing deforestation/degradation has been increasing in the past decade. This has especially gained momentum due to key developments for example in the United Nations Convention on Climate Change (UNFCCC) policy process related to countries reducing emissions from deforestation and degradation (REDD) which requires an assessment of national historical and projected deforestation/degradation rates and statistics. The advent of the European Copernicus Programme's Sentinel data with their high spatial resolution and revisit time at global, regional and national levels provides an unprecedented volume of data for improved forest monitoring which should be exploited by the European science and EO industry communities. The current Project aims to implement a co-ordination and consolidation of the existing European Capacity for EO based Forest Monitoring with relevant stakeholders, International Agencies, Research Community and Private Sector. A key outcome of the Project would then be a proposed framework for a Copernicus REDD+ Service which can make use of the planned Copernicus Data and Information Access Services (C-DIAS) Platform for improving EO data and product accessibility and functionality to end Users. Furthermore the identification of infrastructural and research gaps for EO Forest Monitoring on different scales (global to local) will result in the definition of future R&D Programmes addressing key gaps and priorities.	JRC.D.1	3.1.1.b	GROW	RTD	CLIMA ENV RTD	01/01/2019 31/12/2021	CON-IA	201901	Initial Design of Copernicus REDD+ Services	The key deliverable will be a report on a Framework for European Capacity describing the initial main technical and organisational elements of a Copernicus REDD+ Service delivered for first milestone at end of Phase I. Additionally the Learning Exercises will be presented as Case studies in the deliverable. Tasks: □ Design of the initial main technical and organisational elements of a Copernicus REDD+ Service through the definition of an integrated process analysis for REDD+ reporting, based on best technical approaches from European projects □ Pre selection of key demonstration cases and learning exercises which would be provided to different User groups in WP 2.1 o Selection of thematic content for learning exercises (humid versus dry forests / logging / fire) o Identification of ancillary data to move from thematic monitoring to reporting requirement (biomass / forest definitions) □ Design of key demonstration cases and learning exercises through the development of an user interface	31/12/2019	Technical Reports		
		Learning Exercises and Studies with Users									Compilation of Learning Material from various Stakeholders (KO+18) User Validated Approaches by the Countries The key deliverables will consist in (i) a Compilation of Learning Material presented to partners in tropical countries to be delivered at end of Month 18 (mid phase II) and (ii) a Report on the feedbacks / acceptance from partner countries on a potential Copernicus REDD+ Service delivered in month 19 in phase II	30/09/2020	Technical Reports			
		Technical Specifications for Copernicus REDD+ Capacity									The key deliverable will consist in consolidated technical specifications for a potential operational Copernicus REDD+ Service - to be delivered for the second milestone at end of phase I (month 12 of phase II)	31/12/2020	Technical Reports			
9498 - LANDMIT JRC.D.1	7708 - LUMI Land-based mitigation (Planned H2020)	LUMI (Land Use Mitigation) support the H2020 project proposal C-QUESTER in response to the call LC-CLA-02-2019: Negative emissions and land-use based mitigation assessment. Land use has become central in the wake of the Paris agreement. The goal of maintaining global warming to below 2°C greatly strengthened views that to achieve this goal, industrial-scale deployment of land-based climate change mitigation will be required. To meet mitigation targets it is inevitable to transform what is currently a net source of greenhouse gases from land ecosystems into a sink.	JRC.D.1	3.1.1.b	CLIMA	n/a		01/01/2020 30/06/2023	CON-IA	1	Advanced methods to assess land GHG emissions and removals	The increasing importance of land actions in international policies calls for enhanced capacity to observe and detect the effectiveness of land-based mitigation plans. For this scope we will develop spatially explicit methods to assess the GHG land budget, building on the rapidly increasing availability of large scale observations from satellite platforms and surface networks. In particular, the assessment of the land carbon emission and removals will be based on the integration of surface data with satellite retrievals of the biomass stock change as derived from microwave and LIDAR remote sensing.	18/12/2021	Journal contributions (Scopus)		
<p>3.1.1.c Vehicle emissions - provide technical support to the implementation of the mobility packages for decarbonising the transport sector; specifically, support the further development and implementation of the CO2 emission legislation and associated tools for light- and heavy-duty vehicles, including effective market surveillance mechanisms such as in-service conformity testing; perform collection and analysis, by means of testing and modelling, of real-world fuel consumption and CO2 emissions data of light- and heavy-duty vehicles; support the development of consumer information systems in relation to CO2 and fuel consumption (also exploring feasibility to include air pollutant emissions); assess eco-innovation CO2 savings; assess innovation scenarios for smart mobility technology. This key orientation is linked to key orientations 4.1.f and 1.8.a.</p>																
209 - LoCarMo JRC.C.4	3325 - Smart Mobility Inno Smart Mobility Technology Innovation Analysis and Tools	The Smart Mobility Technology Innovation Analysis and Tools WPK covers tools, assessments and scenario analyses that will be instrumental for conceiving future CO2 transport policy initiatives and their implementation. Activities carried out in this WPK mainly cover: 1) Future architectures of hybrid/electrified vehicles and their impact on fuel consumption and CO2 emissions, 2) Characterization of the "gap" between type-approval and in-use fuel consumption and CO2 emissions and identification of possible strategies to deal with it (see for example: First Scientific	JRC.C.4	3.1.1.c	CLIMA	JRC	EPSC GROW MOVE		01/01/2016 31/12/2020	INS-RS	1	Updated tools for mobility technical	Updated DIONE fleet impact model, CO2 cost curve tool, ERMES tool and links and support to vehicle simulation tools Comnas, Vectra, IEC Fleet + Fuels tool and WWV methodology	31/12/2016	Scientific information	
												10	Closing the gap	The report describes the different methodological options to close the gap between type-approval and in-use fuel consumption and CO2 emissions	30/10/2020	Science for Policy reports
												9	Real life CO2 impacts of electrified vehicles	Report analysing on road CO2 reduction from electrified vehicles.	30/12/2019	Science-for-policy reports
209 - LoCarMo JRC.C.4	7751 - MUSE Multiple data Source based scoring system for Environmental performance of vehicles	Several vehicle sustainability ranking systems are available already for public access. Providers are cities, e.g. London, stakeholders like ADAC, EmissionAnalytics, etc. The project proposed is not aiming in adding just one more ranking system but in providing a novel and robust method to use as much data sources as possible in a consistent way in all existing and future ranking systems. Scope of the project is to develop a scientific sound and robust method (MUSE) to produce a "GREEN VEHICLE index" for any road vehicle. Due to the high influence of driver behaviour, route, traffic and ambient conditions on emissions and fuel consumption, the method will be designed to use various data sources as input to ensure a reliable assessment of the average real world vehicle behaviour which is not biased by single tests with ideal driving conditions. The MUSE method could thus be applied by all interested parties to make their data base broader and thus the results more reliable. The method will provide detailed results for real world emissions of pollutants, CO2 and noise.	JRC.C.4	3.1.1.c	MOVE	RTD	CLIMA RTD	01/01/2019 30/06/2020	CON-IA	n/a	n/a	n/a	n/a			
209 - LoCarMo JRC.C.4	7764 - CO2_Support 2020	This WP contains the Administrative Arrangement between JRC/C4 and DG Clima/C4 units. It comes as a continuation of a long collaboration between the two units for the development and	JRC.C.4	3.1.1.c	CLIMA	CLIMA	ENV GROW	ACEA - European Automobile Manufacturers Association	01/08/2018 31/07/2020	CON-AA	FinalReport	Administrative Arrangement Final	Final report on the work carried out on to support DG Clima in the framewrok of the AA 2018-2020	24/07/2020	Technical Reports	

JRC 2019 - 2020 DETAILED WORK PLAN

Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
3.1.1.d Alternative fuels for transport - assess the environmental sustainability, technological development and costs of bioenergy and biofuels, energy efficiency and associated savings on GHG and pollutant emissions, including 'well-to-wheels' analyses; assess competing demands for biomass from other sectors; provide support for alternative fuels and fuel quality legislation; support the Commission's work on alternative fuels for aviation, including international negotiations and commitments at the United Nations International Civil Aviation Organization (UN-ICAO).															
195 - ALFA JRC.C.2	678 - SUS-AL Sustainability of alternative fuels and bioenergy	SUS-AL performs the assessment of the environmental sustainability, technological development and costs of GHG savings for biofuels, other renewable fuels and bioenergy pathways relevant for Europe and internationally in the post-2020 timeframe. The assessment will be carried out following an attributional life-cycle analysis (LCA) perspective, augmented to non-energy uses of biomass, land use, as well as providing analyses of economic and technological performances.	JRC.C.2	3.1.1.d	ENER	JRC	CLIMA ENV MOVE RTD	- MASSACHUSETTS INSTITUTE OF TECHNOLOGY - FEDERAL REPUBLIC OF BRAZIL ANL - Argonne National Laboratory IEA - International Energy Agency	01/01/2019 31/12/2020	INS-RS		WPK6781	Environmental impact assessment of European bioeconomy Due to intervened lack of expertise as of April 2018 which is not foreseen to be replaced, biomass LCA analysis can not be provided any longer.	31/12/2019	Article contribution to periodicals or to conference proceedings listed in the Thomson-
		WPK6782										GHG emissions from biofuels and bioenergy pathways Updated default GHG emissions from biofuels pathways, update of newly introduced methodologies for renewable fuels of non-biological origin (refunobio) and co-processing, which are included in the Renewable Energy Directive for 2030 (RED Recast) [2016/0382(COD)]. As requested by DG ENER, the update is necessary to reflect scientific and technical progresses, new data availability, consultation with stakeholders, outcomes of on-going co-decision process for the approval of the new RED-recast, to enter into force in 2021. This work is in partly covered by AA 34783 with DG ENER expiring in 2019. Due to intervened lack of expertise as of April 2018 which is not foreseen to be replaced, update of default GHG emissions from bioenergy can not be provided any longer.	31/12/2020	Science-for-policy reports	
		WPK6783										LCA of alternative fuels To provide ad-hoc support to DG CLIMA in particular on the following topics of relevance for the Fuel quality Directive (FQD) and for the update of the Renewable energy Directive (RED-recast): - LCA of fuels, in particular CCU fuels and low-carbon H2. - support for the update of the fuel baseline taking into account the reports that will come in as of 2018 - contribution to the definition of methodology for the calculation of GHG emissions for waste based fossil fuels and renewable fuels of non-biological origin in the new RED-recast Directive (contribution of relevance also for DG ENER). Due to intervened lack of expertise as of April 2018 which is not foreseen to be replaced, support for the update of GHG intensity of electricity in different Member States for consistency of reporting of electricity supplied to transport in different MS and as input for production of CCU fuels and green hydrogen can not be provided any longer.	30/06/2020	JRC contributions to policy documents	
195 - ALFA JRC.C.2	3560 - WTW Well-to-Wheels (WTW) Analysis for Reference Vehicles and European Fleet	WTW assesses the energy and greenhouse gas (GHG) balance for the fuels/energy carriers suitable for road transport powertrains, comprising and integrating the fuel production pathway (Well-to-Tank, WTT) and the powertrain configuration and efficiency (Tank-to-Wheels, TTW). It consists of: - The WTT methodology is expanded to incorporate elements of LCA on materials cycles for selected pathways - Scenario analysis and associated impacts on regulatory mandates for the uptake of alternative fuels in the transportation sector at time horizon 2030 - Assessment of supply projections for fuel alternatives at European and global scales - WTT Cost analysis with a view to estimate the cost to Europe of substituting conventional fossil fuels (as baseline) with an alternative.	JRC.C.2	3.1.1.d	CLIMA	JRC	ENER GROW MOVE RTD	ANL - Argonne National Laboratory CONCAWE - Conservation of Clean Air and Water in Europe EUCAR - European Council for Automotive R&D (EUCAR)	01/01/2019 31/12/2020	INS-RS		1	Well-to-Wheels (WTW) V5 WTW V5 integrates: (i) Well-to-Tank (primary energy transformation to fuel production), and (ii) Tank-to-Wheels analysis (in-use fuel efficiency/GHG emissions) for each fuel/energy carrier-vehicle combinations. The overall impact of fuel and vehicle choices can be assessed only by considering the entire pathway. WTW V5 also assesses energy efficiency/GHG reduction potential of using non-fossil energy sources in (iii) non-road modes, and (iv) non-transportation sectors.	30/06/2019	Science for Policy reports
		3										Well-to-Wheels (WTW) V5 - LCA LCA approach applied to selected pathways (e.g. electro-mobility pathways) accounting for the energy efficiency and GHG emissions of relevant materials cycles. This activity is carried out in close collaboration with US ANL GREET.	30/06/2019	Science for Policy reports	
		WTW1										WTW dissemination Dissemination of JEC WTW methodology and latest available quantitative outputs via scientific articles, dedicated publications, organised and participation at events.	31/12/2019	Journal contributions	
		WTW2										Alternative fuels in Europe and worldwide: 2030 supply & demand projections Scenario-based analysis for the uptake of alternative fuels in Europe at time horizon 2030.	31/12/2019	Science for Policy reports	
195 - ALFA JRC.C.2	6316 - DEF-VALUES 3 GHG savings of biofuels and bioenergy	WP 3560 is run jointly with EUCAR and CONCAWE, consulting stakeholders' associations as This workpackage provides technical assistance to DG ENER on the implementation of the relevant provisions of the Directive 2009/28/EU on the promotion of renewable energy from renewable energy sources, particularly as regards the requirements regarding the greenhouse gas emissions of biofuels and bioliquids. Moreover, it will also provide support to the development of the new legislative framework for the new Renewable Energy Directive (RED-recast) following the adoption of the Commission's legislative proposal COM(2016)767, which contains proposal for greenhouse gas emission criteria for liquid, gaseous and solid fuels from biomass, and will support negotiations of the RED-recast in area of bioenergy sustainability.	JRC.C.2	3.1.1.d	ENER	ENER	CLIMA	01/10/2017 31/12/2019	CON-AA						
195 - ALFA JRC.C.2	8423 - I4RFF Integration FOR Reliable Fuel Forecasts	The I4RFF proposal aims to move to a "commercial-ready" stage the existing Fleet&Fuel (F&F) software - which is regularly upgraded and used as a working tool in the framework of the JEC alternative fuel study (https://ec.europa.eu/jrc/en/jec) - and extend its functions. The software allows modelling road transport (organized per fleet segments) and to estimate the demand of alternative vs fossil fuels.	JRC.C.2	3.1.1.d	CLIMA	JRC	ENER GROW MOVE RTD	01/03/2019 31/08/2020	INS-PC	Deliverable 1	I4RFF final report	Final report. Results of the design of the integration tool, including road, aviation and maritime transport modes. This integration tool will allow for creating reliable scenarios, where mutual and rebound effects among sectors are properly accounted for. Such feature is a clear added value not present in existing scientific and commercial tools alike.	31/08/2020	Technical Reports	
3.1.2. Adaptation															
3.1.2.a Support the review and update of the EU adaptation strategy and the objectives of the Sendai framework for disaster risk reduction and the sustainable development goals - assess the economic and non-economic impact of climate change, vulnerability, resilience, and options for adapting in the EU and globally; in collaboration with the Knowledge Centres on Disaster Risk Management, on Migration and Demography, and on Territorial Policies, assess the impact of weather extremes, study the links between climate change and displacement/migration and urban resilience (including support for the adaptation activities under the Covenant of Mayors for Climate and Energy, further covered under key orientation 3.2.d).															
222 - DRMKC JRC.E.1	3808 - SUCCAST Support to Climate Change Adaptation Strategy	The Paris Agreement (COP21) calls for keeping global warming well below 2°C and putting more efforts into adaptation. One of the three priorities of the EU Strategy on adaptation to climate change is to promote better informed decision-making by addressing existing gaps in the knowledge on climate change impacts and adaptation. In 2017, the DG for Climate Action will report on the Adaptation Strategy adopted in 2013, aiming to put in place a reinforced Strategy in 2018. In view of the post-Paris challenges and EU milestones, the ADAPTATION Project aims to increase the knowledge base on climate risk assessment, adaptation, vulnerability and resilience. To this end the project will •Support the revision and development of a reinforced Adaptation strategy oby generating single and multi-hazard risk scenarios – comprising social, economic and environmental impacts – in view of global change; oby appraising adaptation strategies for increasing the resilience of European societies to extreme weather and climate events. •Support EU policies on disaster risk reduction oby integrating disaster risk reduction/management and climate change adaptation to ensure synergy and full coordination with the disaster risk management policies that the EU and the Member States are developing. •Support EU migration and security policies oby assessing the relationship between climate disasters and migration and develop tools to project future potential migration flows in view of climate change. •Deliver output of relevance for the IPCC Special Report on 1.5°C global warming oby producing high-level scientific publications on the impacts 1.5°C warming and potential adaptation costs.	JRC.E.1	3.1.2.a	CLIMA	JRC	DEVCO ECHO ENV REGIO	EEA - European Environment Agency EEAS - European External Action Service IPCC - Intergovernmental Panel on Climate Change UN FCCC - UN Framework Convention on Climate Change (UN-FCCC) UN ISDR - United Nations International Strategy for Disaster Reduction (UN-ISDR)	01/01/2016 31/12/2020	INS-RS		201901	Assessment of risks of multiple climate hazards and evaluation of adaptation options under climate change scenarios Assessment of risks of multiple climate hazards for different regions of the world: - evaluation of dynamics in multiple climate hazards in view of climate change at global scale and for specific regions (e.g., Europe, Africa); - development of global and regional exposure layers for global hazard impact analysis; - appraising present and future vulnerability of society to different climate hazards; - integrating hazard, exposure and vulnerability information to generate risk scenarios across different regions of the globe; - develop scenarios of adaptation by taking stock of the latest information in literature on the cost and effectiveness of different strategies and translate this information to derive indicative costs and benefits of adaptation. The products developed (maps, data, graphs) will be tailored to the DRMKC risk data hub and through this system become available for relevant stakeholders (e.g., cities of the Global Covenant of Mayors, EU Climate Adapt Platform).	15/12/2019	Sci information systems and databases
		202001										Assessment of risks of multiple climate hazards and evaluation of adaptation options under climate change scenarios Assessment of risks of multiple climate hazards for different regions of the world: - evaluation of dynamics in multiple climate hazards in view of climate change at global scale and for specific regions (e.g., Europe, Africa); - development of global and regional exposure layers for global hazard impact analysis; - appraising present and future vulnerability of society to different climate hazards; - integrating hazard, exposure and vulnerability information to generate risk scenarios across different regions of the globe; - develop scenarios of adaptation by taking stock of the latest information in literature on the cost and effectiveness of different strategies and translate this information to derive indicative costs and benefits of adaptation; The products developed (maps, data, graphs) will be tailored to the DRMKC risk data hub and through this system become available for relevant stakeholders (e.g., cities of the Global Covenant of Mayors, EU Climate Adapt Platform).	15/12/2020	Sci information systems and databases	

JRC 2019 - 2020 DETAILED WORK PLAN															
Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
143 - EREIA JRC.C.6	5035 - CC Impact Adaptation Climatic Change Economic Impact and Adaptation Assessment	This institutional work package intends to coordinate the JRC modelling efforts on climate impacts and adaptation, providing a setting to the institutional activities around the large transversal PESETA activities within JRC, involving six JRC Units. It is geared towards the policy priorities of DG CLIMA on climate adaptation, and builds on the knowledge and expertise existing at JRC and other Commission services and/or external consultants on each specific damaging mechanism. The work package addresses the economic analysis and integration of climate change biophysical impacts, providing a harmonised approach to quantify them in terms of vulnerability, value at stake, damaging mechanisms and assessment of adaptation options. The main mission is to quantify and	JRC.C.6	3.1.2.a	CLIMA	JRC	DEVCO ENV REGIO		01/01/2017 31/12/2022	INS-RS	D2019	Progress report 2019	Technical report describing the advances in the modelling as well as maintenance and data work carried out throughout the year in order to enhance the analytical capability of the unit, mainly related to climate impact and adaptation modelling. This 'container deliverable' also includes the related scientific publications.	31/12/2019	Technical Reports
											D2020	Progress report 2020	Technical report describing the advances in the modelling as well as maintenance and data work carried out throughout the year in order to enhance the analytical capability of the unit, mainly related to climate impact and adaptation modelling. This 'container deliverable' also includes the related scientific publications.	30/12/2020	Technical Reports
4856 - ARCTIC JRC.C.5	6304 - ECO-ARCTIC Climate impacts and sustainable provision of ecosystem services in the Arctic	ECO-ARCTIC focuses jointly on the priority areas "Climate Change and Safeguarding the Arctic Environment" and "Sustainable development in and around the Arctic" of the joint communication "An integrated European Union policy for the Arctic". On one side the work package investigates the impacts of climate change on fragile and temperature sensitive elements of the Arctic, like the biosphere and the permafrost. Special attention is paid to potential feedbacks of ongoing changes to the climate systems as driven for instance by variations in the ecosystem greenhouse gas budget and in surface albedo. In parallel, ECO-ARCTIC investigates the ongoing and future challenges for the sustainable provision of ecosystem services in the Arctic and boreal regions exposed to accelerated warming. In this context the work-package will provide an assessment of the climate risks and related vulnerability of natural resources and primary productivity in both terrestrial and marine biomes under alternative climate scenarios. Moreover, under the remit of the panel Scientific Experts on Fish Stocks in the Central Arctic Ocean (FISCAO), and in line with the joint communication "An integrated European Union policy for the Arctic" the JRC will, as EU-Delegate, contribute to the setting of a scientific framework for the management of future fisheries in the Central Arctic Ocean and advise DG MARE on that matter.	JRC.D.1	3.1.2.a	CLIMA	JRC	ENV MARE REGIO RTD	EEAS - European External Action Service	01/01/2018 31/12/2020	INS-RS	3	Impacts of the accelerated warming of the Arctic on terrestrial ecosystems: a comprehensive assessment	Assessment of recent and future impacts of the rapid warming on the provision of ecosystem services in the Arctic and Boreal regions, under a business-as-usual and a climate stabilization scenario consistent with the targets of the Paris Agreement. Key ecosystem services, like climate mitigation and biomass production, will be assessed with a combination of Earth observations and land-climate modelling. The focus will be on evaluating the net impact of the on-going warming on the greenhouse gas budget by estimating the net exchange of both CO2 and CH4 from the thawing permafrost and the changes due to the net primary production of vegetation. In addition, estimates of recent CH4 emissions from sub-sea permafrost will be evaluated with observation-based products.	15/12/2019	Article contribution to periodicals or to conference proceedings listed in SCOPUS
											4	Arctic marine productivity: status and evolution	Analysis of the marine productivity in the Arctic Ocean for low trophic levels and for fisheries. 1. For low trophic levels, the activity will collect and process Earth Observation (EO) data sets relevant to the assessment of productivity in the Arctic Ocean. These include light availability for primary productivity in the context of shrinking sea ice coverage and phytoplankton population mapped from ocean color remote sensing as a basis to derive more advanced products. 2. For fisheries the JRC will continue its participation as EU-delegate in the meetings of Scientific Experts on Fish Stocks in the Central Arctic Ocean (FISCAO) and advise DG MARE on the setting of a scientific framework for management of future fisheries in the Central Arctic Ocean.	15/12/2019	Technical Reports
											5	Assessment of feedback from ecosystem processes in the Arctic to the climate system	Assessment of recent and future impacts of permafrost and vegetation changes in the Arctic and Boreal regions on the climate system, under a business-as-usual and a climate stabilization scenario consistent with the targets of the Paris Agreement. Key ecosystem services, like climate mitigation and biomass production, will be assessed with a combination of Earth observations and land-climate modelling. Special attention will be paid to ecosystem processes that may ultimately generate positive feedback in the climate system and therefore further accelerate the local and global warming. Coupled climate runs will be used to assess the interaction between changing permafrost extent and active layer thickness, as well as plant respiration and carbon uptake, and temperature changes.	15/12/2020	Journal contributions (Scopus)
143 - EREIA JRC.C.6	7772 - iCIA Integrated Sectoral Assessment of Climate Impacts and Adaptation	The main objective of this work package (WPK) is to coordinate sectoral and economic modelling on climate impact and adaptation across the JRC, based on the large experience of the past PESETA projects, with the ultimate goal of supporting EU climate policy (adaptation and mitigation policy) and the related policies, such as EU development cooperation and regional policies. Its	JRC.C.6	3.1.2.a	CLIMA	JRC	DEVCO ENV REGIO		01/01/2019 31/12/2022	INS-RS	D2019	Progress report	Technical report describing the advances in the modelling as well as maintenance and data work carried out throughout the year in order to enhance the analytical capability of the unit, mainly related to climate impact and adaptation modelling. This 'container deliverable' also includes the related scientific publications.	31/12/2020	Technical Reports
3.1.2.b Assess the climate change impacts, mitigation and adaptation options in agriculture and in the terrestrial, aquatic and marine ecosystem, within a European and global perspective (this includes the evaluation of the opportunities in the agriculture and ecosystems that climate change can bring if appropriate measures are taken).															
9477 - ParisEarthAdapt JRC.D.5	985 - Agri4Climate GHG emissions, climate change impacts, mitigation and adaptation in agriculture	Within the ParisEarthAdapt project, Agri4Climate assesses the impacts climate change on agriculture. Crop models and data-driven approaches are used to perform systematic analysis of agricultural crop yields and production under climate change conditions, including the evaluation of adaptation measures to avoid climate change impacts on agricultural production. The H2020 MED-GOLD will demonstrate the proof-of-concept for climate services in the Mediterranean food system focusing on grapes, olives and durum wheat- of relevance for Europe and global food market, and involving major stakeholders in the region. The AA Planthealth addresses the worldwide increasing threat of plant pests driven by the recent globalization of the plant trade and the effects of climate change. In the last decade, the EU has been confronted with several large scale outbreaks of new plant pests. Pursuant to Article 6(2) of the new Regulation on protective measures against pests of plants (the "new Plant Health law"), the Commission is empowered to adopt a delegated act, establishing a list of Union Quarantine pests which qualify as priority pests. Pests will be classified as priority according to severity of the economic, social and environmental impacts that can cause in the Union territory. This AA help SANCO with methodology for the assessment of the economic impact of a list of pests which are potentially qualifying as priority pests. The WP collaborates with the AgMIP global agricultural modelling project and other international efforts. As a deliverable to the LandMIT project, Agri4Climate produces the EU greenhouse gas (GHG) emissions inventory for agriculture.	JRC.D.5	3.1.2.b	AGRI CLIMA	JRC,RTD ,SANTE	CLIMA ENV SANTE	EEA - European Environment Agency EFSA - European Food Safety Authority MS EU - Member states EU UN FCCC - UN Framework Convention on Climate Change (UN-FCCC)	01/01/2017 31/12/2021	CON-AA,CON-IA,INS-UR	Agri4climate20191	Technical work for GHG inventory for Agriculture 2019	Technical work for the annual contribution to the European Union's GHG inventory for the agricultural sector in support of the JRC/CLIMA Memorandum of Understanding "Implementation of the current reporting and review requirements under the Kyoto protocol and the UNFCCC and preparation for fulfillment of future monitoring, reporting and verification (MRV) requirements". Delivered annually in July (inventory report) and December (review) (2019). Outputs: Contribution to the EU GHG inventory. Assisting the review. Contribution of Agri4climate to LANDMIT project that integrates the LULUCF and Agricultural sectors.	01/08/2019	Science for Policy reports
											Agri4climate20193	Research on agriculture - climate change modelling	Research on improving the modelling of climate change impacts on crops and adaptation options. Analysis of co-occurring stress factors for global crop yields and linking to economic indicators. Testing of modelling assumptions, improving consistent bias correction, including for ozone and nutrients. Systematic testing of the impact of adaptation options on crop yields.	24/12/2020	Article contribution to periodicals or to conference proceedings listed in the
											MedGoldD2	Wheat-tool development	A first prototype of agro-climatic tool for the durum-wheat sector will be developed. Several approaches will be evaluated from model-based to hybrid systems. The time scales will range from seasonal to decadal and the spatial focus will be the Euro- Mediterranean region. Reproducibility and usability will be key factors in this phase.	30/11/2019	Sci information systems and databases
											PlantHealthD2	Application of the methodology to two pilot examples	The agreed methodology together with the estimated weights will be applied to two pests selected by DG SANTE. Based on available statistics, literature and distribution maps for the pests the JRC will quantify the indicators for each criteria and pest and provide the relative ranking of the two pests using the different weights estimated in task 2. For this tasks close collaboration with EFSA risk assessment team and relevant H2020 projects such as PONTE (www.ponteproject.eu) and XF- ACTORS.	01/04/2019	Science for Policy reports
9477 - ParisEarthAdapt JRC.D.5	7482 - EcoAdapt Climate risks, opportunities and adaptation options for terrestrial and marine ecosystems	EcoAdapt will assess the present and future climate impacts in order to support the development of adaptation plans for terrestrial and marine ecosystems, as required by the Paris agreement on climate change. The activity will focus on natural ecosystems and will address the increasing climate risks but also look at new opportunities that may emerge under global change. Concerning risks, EcoAdapt will assess the vulnerability of ecosystems in the most fragile and exposed regions of the World, like the terrestrial biomes in Arctic/Boreal regions or in the arid Tropics, and the marine ecosystems of the Mediterranean Sea. Concerning the emerging opportunities, the WPK will focus on regions where global change may improve the environmental conditions (e.g. increasing temperature and growing season length at northern latitudes, CO2 fertilization in water limited environments, increasing sea temperature and primary productivity), ultimately leading to a potential increase in productivity and a change in the supply of ecosystem services. The WPK will formulate and assess alternative adaptation options for reducing climate risks and preserving the provision of ecosystem services under future climate scenarios complementing the service proved to the EU MN via the project ClimateADAPT. In parallel, it will explore strategies to develop new opportunities that climate change may bring for the land and marine sectors.	JRC.D.1	3.1.2.b	CLIMA	JRC	ENV RTD		01/01/2018 31/12/2020	INS-RS	1	Assessment of emerging risks and opportunities for European forest ecosystems under changing climate	European forests provide a set of fundamental services that are at risk under climate change due to the potential increase of natural disturbances like fires, draught and insect outbreaks. On the other hand, the increasing CO2 concentration and temperature is foreseen to increase the productivity in colder regions like northern EU. This deliverable will address the emerging risks and opportunities that European forests are experiencing due to the rapid changes in the climate system. For this scope we will explore the new possibilities offered by large scale Earth Observations to diagnose the recent climate impacts in sensitive and vulnerable regions of the World. The integration of multiple observations from satellite platform will produce a range of plausible estimates of current risks and opportunities that will highlight the areas where priority measures have to be implemented, with the goal of increasing the resilience and long-term stability of the European landscape.	18/12/2019	Journal contributions (Scopus)
											2	Assessment and analysis of long term trends and changes in key marine ecosystem variables in the Mediterranean Sea.	In the prospect of a major climate change, a new age of adaptation opens for the Mediterranean region. Degradation of agricultural and aquatic ecosystems resulting from projected impacts of climate change would have negative consequences with further disproportional social repercussions and possible influences on Europe. Therefore this deliverable will assess impacts from climate change scenarios on GES and on provision of ecosystem services at different temporal and regional scales in the Mediterranean Sea using the evolving Marine Modelling Framework.	18/12/2019	Journal contributions (Scopus)
											3	Evaluation of alternative adaptation options for the European forests under climate stress	Forests are very vulnerable ecosystems because the long life-span of trees limits the possibility of a rapid adaptation to drastic environmental changes. As a result, key forest services that are key for several EU policies, such as carbon sequestration and biomass supply, could be seriously affected in the near future. In order to secure the future provision of forest services for the future generations alternative adaptation plans have therefore to be evaluated and assessed. For this scope we will design and evaluate alternative adaptation plans for EU forests, evaluating the potential benefits of shifting in management practices and changes in forest tree species will bring to increase the resilience and the mitigation potential of the EU forest sector.	18/12/2020	Journal contributions (Scopus)
											4	Systematic review of risks and opportunities related to climate change for the marine environment in the Mediterranean Sea region.	The oceans are impacting and regulating climate change, but their role in ongoing assessments is underestimated: there is a need to improve ocean knowledge with appropriate data and modelling. In the prospect of a major climate change, a new age of adaptation opens for the Mediterranean region. Degradation of agricultural and aquatic ecosystems resulting from projected impacts of climate change would have negative consequences with further disproportional social repercussions and possible influences on Europe. Therefore this deliverable will attempt to provide a systematic review of selected impacts from climate change scenarios on GES and on provision of ecosystem services at different temporal and regional scales in the Mediterranean Sea. Additional scenario simulations will assess the potential impact from the Paris climate deal on marine ecosystems in the Mediterranean basin.	18/12/2020	Journal contributions (Scopus)

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
9477 - ParisEarthAdapt JRC.D.5	7524 - Intra-ACP-CS Intra-ACP Climate Services and related applications	This objective of this work package is for the JRC to provide substantial technical support to DG DEVCO in the implementation of an important action (EUR 85 million / 6 years) to develop the climate information services value chain, in ACP regions, through technical assistance, financial assistance, infrastructure and capacity building to improve wide access and use of climate information, and to enable and encourage the generation and use of climate services and applications for decision making processes at all levels. The action will contribute to fostering sustainable development, through the prevention of desertification, food security, disaster risk reduction and sustainable use of water management in ACP countries by improving the decision-making process through informed adaptation options to climate variability and change. This action will strengthen the tools to bridge climate services stakeholders and users in climate-sensitive sectors to resource and implement the UN's Global Framework for Climate Services (GFCS) at all levels. Climate change and environment are at the heart of the United Nations 2030 Agenda for Sustainable Development: achieving sustainable development and avoiding dangerous climate	JRC.D.6	3.1.2.b	DEVCO	DEVCO, JRC	CLIMA GROW	EUMETSAT - European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) WMO - World Meteorological Organization (WMO)	01/01/2019 31/12/2021	CON-AA, INS-PC	AnnualReport2019	Annual Report for DEVCO JRC Administrative Arrangement on Technical support to Intra-ACP-CS	Annual Report summarizing technical support from JRC Units D.6, D.1, D.5 D.2 and E.1 would be involved. From a thematic perspective addressing priority areas for : Agriculture, Water Resources, Forestry and Disaster Risk Reduction as well as crosscutting aspects linked to the fitness-for-purpose and quality control for observational and modelling data record, the evolution of the eStation to include climate information system elements as well as its associated training and finally to provide a conduit on the requirement gathering and translation process, from the users in the ACP regions back to the big EU data providers (such as Copernicus).	27/12/2019	Technical Reports
												Annual Report for Administrative Arrangement between DEVCO and JRC on technical support to Intra-ACP Climate Service Action	Annual Report summarizing technical support from JRC Units D.6, D.1, D.5 D.2 and E.1 would be involved. From a thematic perspective addressing priority areas for : Agriculture, Water Resources, Forestry and Disaster Risk Reduction as well as crosscutting aspects linked to the fitness-for-purpose and quality control for observational and modelling data record, the evolution of the eStation to include climate information system elements as well as its associated training and finally to provide a conduit on the requirement gathering and translation process, from the users in the ACP regions back to the big EU data providers (such as Copernicus).	25/12/2020	Technical Reports
9477 - ParisEarthAdapt JRC.D.5	7725 - LandAdapt Adaptation of terrestrial ecosystem to a rapidly changing climate (Planned H2020)	LandAdapt supports the following three H2020 project proposals related to the reported calls: 1) Project FORGENIUS; Call SFS-28-2018-2019-2020: Genetic resources and pre-breeding communities 2) Project N-SCRIBE; Call LC-CLA-06-2019: Inter-relations between climate change, biodiversity and ecosystem service	JRC.D.1	3.1.2.b	CLIMA	RTD	ENV		01/01/2019 31/12/2023	CON-IA, CON-IA, CON-IA	1	Climate risks for EU forests genetics	Assessment of the environmental conditions (including risk factors, e.g. fire, storms, pests and diseases) of the forests in the GCU network by exploiting the information available from Earth observations and in particular from the Copernicus program. Describe the climate envelope of the different tree species in the GCUs and the variation in the habitat suitability under various climate change scenarios.	18/12/2020	Journal contributions (Scopus)
9477 - ParisEarthAdapt JRC.D.5	7755 - ExtremeEarth Extreme Earth	Extreme earth considers the following issues: Earth System, Climate Change, Natural Resources, high-precision modelling, extreme-scale computing, extreme- scale data handling, model-data integration. xtremeEarth, a proposed FET Flagship Programme FETFLAG-01-2018 of the European Commission. It addresses the specific need, articulated in the Call for Preparatory Actions, for "New technologies and approaches for high-precision modelling and simulation, including the necessary data integration, that enable an in-depth understanding of the earth, natural hazards and climate change." Environmental extremes are responsible for thousands of casualties and billions of € in damages in Europe annually. Societal risks associated with many of these extremes are poorly understood in today's climate – even more so as climate changes. Knowledge gaps arise from the inadequacy of existing models, which are unable to capture key physical processes and hence cannot fully incorporate an expanding palette of observations. ExtremeEarth will deliver the methods needed to achieve a step change in simulation accuracy and data integration, to allow scientists to understand the drivers of extremes and application communities to anticipate their impact. ExtremeEarth will develop the technologies for a required thousand-fold increase in computation, and fundamentally redesign workflows to dynamically expose the full information content of a new generation of models and data to users. These developments will exploit the complementarity of ExtremeEarth's domain sciences, be realised through co-design by scientists, application communities and technologists, and become an engine for European innovation across a broad range of sectors. The ExtremeEarth-PP will prepare the ExtremeEarth project proposal, by identifying partners and stakeholders, specifying an operating and governance model, developing a project roadmap and work plan. In addition it will build support from EU member states and other agencies, contribute to EC policies and support efforts for the Flagship Programme also through an appropriate dissemination and communication strategy.	JRC.D.5	3.1.2.b	CLIMA	n/a	AGRI		01/01/2019 01/01/2021	n/a	n/a	n/a	n/a	n/a	n/a

3.1.3. Climate science, research and observations

3.1.3.a Climate monitoring and observation - advance the understanding of how climate change will affect the Earth's system (see also key orientation 4.1.b); study the occurrence and dynamics of extreme events and the vulnerability of the Arctic region to climate change (including support to international initiative to inform policy makers to sustain Arctic observation investments in the long term) and translate the findings into specific strategies for mitigation, adaptation and sustainable development.

4855 - GHG-MoVe JRC.C.5	4872 - BoTop Bottom-up emission inventories and Top-down monitoring with measurements and modelling	BoTop establishes greenhouse gas (GHG) emissions trends based on emission inventories, atmospheric flux & concentration measurements and their linkage based on inverse modelling. It relies on the JRC/EDGAR database for emission inventories of greenhouse gases and air pollutants consistently estimated for all world countries with international statistics and on the competences at the JRC/ABC-IS station in Ispra and the San Rossore station, both of the latter aiming at being part of the GHG monitoring network of the Integrated Carbon Observatory System - Research Infrastructure, established as a European Research Infrastructure Consortium (ICOS - ERIC). Inverse modelling with the JRC/TM5-4DVAR gives estimates of GHG emissions by combining top-down concentration measurements and the bottom-up measurements in the EDGAR database, in order to verify emissions reported under the Kyoto Protocol. This is also in line with the Copernicus Programme and of use for the Paris Agreement on GHG monitoring/verification. In addition the EDGAR database estimates also the air pollutant emissions for all world regions, which serves the UNECE Convention of Long-Range Transport of Air Pollution, the Gothenburg Protocol to abate acidification, eutrophication and ground-level ozone, the Stockholm Convention on Persistent Organic Pollutants and the Minamata Convention on Mercury. A special outcome of BoTop is the science for policy report on Methane, which demonstrates on the one hand the GHG verification under the Paris Agreement for DG CLIMA and on the other the hemispheric transport of air pollution under the Convention of Long-Range Transport of Air Pollution for DG ENV.	JRC.C.5	3.1.3.a	CLIMA	JRC	ENER ENV GROW	- United Nations Environment Programme- Switzerland ICOS - Integrated Carbon Observation System, European Infrastructure IEA - International Energy Agency UN FCCC - UN Framework Convention on Climate Change (UN-FCCC)	01/01/2017 31/12/2020	INS-RS	201903	Independent data sets for monitoring GHGs	1) As monitoring stations of the Integrated Carbon Observation System – Research Infrastructure (ICOS-R) with an Atmospheric Station in Ispra and an Ecosystem Station in San Rossore, we deliver both Near-Real Time and annual fully QA/QC checked datasets making them accessible to international partners and general public through the ICOS Carbon Portal. 2) As part of the EDGAR database, we release datasets on the JRC data portal with full meta-data files as documentation and links to our website with full description. 3) We contribute to DG CLIMA, DG ENV and DG GROW with independent data supply including inverse modelling datasets (e.g.used for the COPERNICUS-CAMS and COPERNICUS-C3S)	30/11/2019	Scientific information systems and databases
											201904	Mapping of global CO2 and GHG Emissions and assessment of their uncertainties	1) Evaluation of the 2017-2018 CO2 and GHG emission trends with the 2019 JRC Booklet "Fossil Fuel CO2 and GHG emissions of all world countries"; Extension of EDGAR time series to 2018 (current year -1) for CO2 and non-CO2 GHG emissions , and release of new data with documentation; Update of EDGAR using satellite data to support further development of EDGAR-LULUCF dataset. 2) Contribution to the GEO Human Planet Atlas with CO2 and GHG emissions 3) Uncertainty assessments of the emissions inventories and their trends and gridmaps; 4) Documentation of the EDGARv4.3.2 extension;	30/11/2019	Science-for-policy reports
											201905	Regional GHG estimates bottom-up & top down	1) Scientific analyses of regional greenhouse gas emissions and their trends with (a) EDGAR emission time series and grid maps, (b) GHG measurements at the ABC-IS and San Rossore monitoring stations, (c) inverse modelling of CH4 and N2O, 2) analyzing the consistency between EDGAR bottom-up emissions inventories (grid maps) and top-down emission estimates using atmospheric concentration measurements at the regional scale (North Italy).	30/09/2019	Article contribution to periodicals or to conference proceedings listed in the
											202001	Independent data sets for monitoring GHGs including inverse modelling of European CH4 emissions at high spatial resolution	1) As monitoring stations of the Integrated Carbon Observatory System – Research Infrastructure (ICOS-R) with an Atmospheric Station in Ispra and an Ecosystem Station in San Rossore, we deliver both Near-Real Time and annual fully QA/QC checked datasets making them accessible to international partners through the ICOS Carbon Portal. 2) As part of the EDGAR database, we release datasets on the JRC data portal with full meta-data files as documentation and links to our website with full description. 3) We contribute to DG CLIMA, DG ENV and DG GROW with independent data supply including inverse modelling datasets (e.g.used for the COPERNICUS-CAMS and COPERNICUS-C3S) 4) Quantification of European CH4 at high spatial resolution (50km or better) using coupled TM5-4DVAR / FLEXPART inverse modelling system	30/11/2020	Sci information systems and databases
											202003	Trends in Global CO2 Emissions in all world countries: 2020 Booklet including extensions of EDGAR	An analysis of CO2 emission trends with: 1) The bottom-up calculated CO2 emissions globally and discussion of the uncertainties in a broader perspective, Extension of EDGAR time series to 2019 (current year -1) for CO2, and release of new data with documentation; 2) Contribution to the GEO Human Planet Atlas with emissions of air pollutants 3) Extension of the EDGAR-LULUCF dataset with CO2 from sources and sinks from land-use, land-use change and biomass burning with focus on the evaluation of data based on region specific satellite data. It includes also atmospheric measurements.	30/11/2020	Science for Policy reports

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3.2. Energy															
3.2.a Energy-climate-economy modelling and the Energy Union governance - develop, validate, and run models for a climate-energy-economy system (including the POTEnCIA and the METIS models) and integrate them with modelling tools that allow to look at non-energy GHG emissions and absorptions; develop and maintain the necessary databases and other relevant models for the use of the Commission's services; carry out relevant techno-economic analysis, in particular mapping the latest evidence on techno-economic costs for energy supply, demand and storage technologies; provide support for impact assessments, carry out energy modelling at national, regional and European level and analyse the results meeting reliability, credibility and transparency criteria; quantify the impact of the policies and measures on air quality and on emissions of air pollutants; develop the capacity to contribute to the design of future energy-climate reference scenarios by ensuring the adequate representation of national and European policies; support the Commission by using analytic tools (modelling and/or other type of quantitative analysis), in its assessment of the national integrated energy and climate plans, required from the Member States in the Commission's proposal for a governance of the Energy Union.															
241 - KM-EnU JRC.C.7	3869 - Data-EnU Data for the Energy Union	This WPK is designed so that the Unit "Knowledge for the Energy Union" will be facilitated to deliver its mission and ambition as described in its endorsed concept note. It will essentially manage the collection and preparation of datasets with direct relevance to the Energy Union for reference, analytical and modelling purposes as well as dissemination. The datasets will be unique in the sense that cannot be found in other non-commercial sources as well as specifically tailored to meet the demand for such data by analysts and modellers. The WPK will facilitate the use of the data various levels (Unit, Directorate, JRC, Commission, general public as it may be appropriate) fostering thus openness and transparency and accordingly striving for a knowledge-exchange infrastructure. The data will be used 1) directly by policy makers in other DGs and 2) indirectly since data is also processed and analysed by the JRC or policy DGs to produce insights and knowledge which, are in turn made available to the policy maker (notably in modelling exercises). The WPK will also develop common platforms and tools for the collection,	JRC.C.7	3.2.a	ENER	JRC	CLIMA ENER GROW MARE RTD	SET-Plan Com - SET-Plan Community	01/01/2017 31/12/2020	INS-RS	98	Data warehouse and user interface	Further development and maintenance of the common platform or warehouse for data collection, depository and access. The warehouse will host and provide access to Dir.C databases for the implementation of the Energy Union strategy and will accommodate the various levels of access needed (ENER, Dir. C, JRC, Commission, the general public). Development and maintenance of the graphical user interface to access and manage the warehouse. This activity will be carried out both in 2019 and 2020.	31/12/2020	Sci information systems and databases
											99	Collection and management of data for the Energy Union	The WPK will collect and manage data necessary for the implementation of the Energy Union strategy. Existing Dir. C databases will be maintained and updated. New ones will be created in collaboration with Dir. C units involved in data acquisition and use. Datasets will be made accessible through a knowledge sharing platform. Datasets that will be available include amongst others: 1) investments, patents, trade & jobs to underpin the Research, Innovation and Competitiveness dimension of the Energy Union; 2) wind & solar power time series (EMHIREs) for the integration of RES in the energy system; 3) JRC power plant database; 4) data on cost curves for energy technologies; 5) data related to the opening of the JRC-EU-TIMES model.	31/12/2020	Datasets
142 - CESE JRC.C.6	5034 - EEP European energy policy economic assessment	The European Commission DG ENER and DG CLIMA make extensive use of energy-economy modelling capacity to prepare and analyse energy policies and investigate their ex-post or ex-ante impacts. Several units within DG ENER, DG CLIMA and other Commission services have deployed modelling tools to develop the empirical base evidence underpinning policy proposals, strategies, and impact assessments. The availability within the energy modelling community of detailed energy system models covering in-depth EU Member States, other candidate countries to the European Union and economies of the Energy Community is currently limited. In addition, models that are available in the literature tend to be limited in their transparency, accessibility, and openness. More importantly, there is the need for a more coordinated approach to analysis and modelling in order to support the policy objectives of EU's Energy Union strategy, particularly in terms of contributing to integrated governance. The JRC could further contribute to improving data, analysis and the intelligence needed to underpin the Energy Union. The ECCET (DG JRC C.7) (and formerly the IPTS) has accumulated over the years a considerable experience in the conceptual development, maintenance and exploitation of	JRC.C.6	3.2.a	ENER	JRC	CLIMA		01/01/2017 30/12/2020	INS-RS	PotenciaA PP	Application of the POTEnCIA model	This "container deliverable" stands for scientific papers related to the European energy policy and the POTEnCIA model. The model is used in several WPKs in the Energy Economics and Governance for the Energy Union projects. The scientific underpinning and output related to Potencia is channelled through this WPK. If for 2018 the planned output is related to the methodology, the 2019 output will focus on applications of the model (including results of scenarios and related analyses).	31/12/2020	Article contribution to periodicals or to conference proceedings listed in the Thomson-Reuters' Science Citation Index Expanded (SCI-e) or Social Science Citation Index (SSCI)
7670 - GOV-EU JRC.C.7	6350 - EnergyScenarios 2018 Economic Analyses of Energy Scenarios 2018	DG ENER makes extensive use of energy-economy modelling capacity to prepare and analyse energy policies and investigate their ex-post or ex-ante impacts. Several units within DG ENER and other Commission services have deployed modelling tools to develop the empirical base evidence underpinning policy proposals, strategies, and impact assessments. The JRC Directorate C - Energy, Transport & Climate has accumulated over the years a considerable experience in the development, maintenance and exploitation of economic/energy	JRC.C.6	3.2.a	ENER	ENER	CLIMA MOVE		01/01/2018 31/12/2019	CON-AA	d1	intermediate report	Report describing work done as well as the work envisaged until end of contract. Description of the scenarios and analysis carried out with the modelling tool. Summary of the corresponding findings.	15/03/2019	Science for Policy reports
											d2	final report	summary of work carried out under the AA. Description of the scenarios and analysis carried out with the modelling tool. Summary of the findings and recommendations derived from the analysis.	09/12/2019	Science-for-policy reports
142 - CESE JRC.C.6	6351 - METIS METIS support	The objective of this WP is to support DG ENER through the Administrative Arrangement 35075 to develop a full in-house capacity within the European Commission on the METIS tool, on top of the relations with the contractor that originally developed the tool. In addition, it also includes the capacity to produce a limited number of specific studies using the tool to answer relevant policy questions by DG ENER concerning electricity system and markets, gas system and markets, heat system, and their integration. JRC will purchase the licensing coverage and then set up the internal procedures that will allow training people and running the model on multiple sites. The long-term objective for JRC is to develop both technical expertise (acquire the computing licencing, be able to run the model, implement model upgrade and/or data updates) as well as the ability to produce applied studies on request of DG ENER. This project thus includes the acquisition of the tool across different JRC Units and sites, the development of modelling competences as well as putting in place technical procedures (on data, inputs, outputs) that would ensure the long-term viability and efficiency of the modelling capacity.	JRC.C.7	3.2.a	ENER	ENER,E NER,JRC			01/01/2018 31/12/2020	CON- AA,CON- AA,INS-RS	201901	Analysis of the National Energy and Climate Plans prepared by the member states in the context of the Governance of the Energy Union.	Development, testing, calibration, and validation of a series of new contexts representing the planned European power and gas systems based on information contained in the National Energy and Climate Plans. A study providing country level and EU-wide indicators related to the dimensions of the Energy Union will be conducted. This corresponds to study 2 in the AA.	31/08/2019	Technical Reports
											201902	Decentralisation vs Interconnection	A study exploring a path of increasing decentralisation of electricity production and storage and the benefits vis a vis a path relying primarily on interconnections. This corresponds and extends study 3 in the AA.	31/08/2019	Technical Reports
											201903	Power to X for 2050	A study exploring one or more mid-century strategy scenarios.	31/12/2019	Technical
											201904	Current context and Central scenario context	A scenario (context) representing the current gas and power systems in Europe in METIS will be created and tested with regard to its behavior vs historical data.This corresponds to study 1 in the AA.	15/03/2019	Technical Reports
											202001	Development of additional contexts and studies	Various contexts derived from energy system projections produced by DG ENER and various stakeholders for DG ENER use.	31/12/2020	Technical Reports
7670 - GOV-EU JRC.C.7	6540 - GOV-COORD Coordination and implementation of JRC support to the Energy Union Governance	The aim of the WPK is to provide effective coordination to existing and new JRC activities contributing to the Governance of the Energy Union and ensure the implementation of actions not already addressed by other work packages. In particular, the WPK will plan and oversee the execution of the supporting JRC activities, carried out by several Units across Directorate C and beyond, as described in the other WPKs of this project; will execute tasks on renewables, transport and the energy system at large, not included in other Work Packages; will ensure that the outcome complies with the requirements of the Governance by setting and implementing the necessary quality controls; and will facilitate the communication between the JRC and the other Commission services involved in the Governance structure. Finally, the WPK will ensure the proper Commission-internal communication of the JRC findings, and potential dissemination of the results in coordination with the policy DGs, in particular DG ENER and DG CLIMA. Overall, this WPK will facilitate the timely and high-quality contribution of the JRC to the Commission's assessment of integrated national plans and thus will contribute to the efficient and effective implementation of the Commission commitments, stemming from the Regulation on the Energy Union Governance.	JRC.C.7	3.2.a	ENER	JRC	CLIMA MOVE		01/01/2018 31/12/2020	INS-RS	1	Review and analysis in support to the assessment of the draft national climate and energy action plans	The report will summarise the key findings from the JRC analysis of the draft national climate and energy action plans and will provide inputs to recommendations that are to be formulated by the Commission services for the preparation of the final national energy and climate plans, addressing in particular the topics not covered by Administrative Arrangements or other WPKs of the Project: verification of technological assumptions for renewables; assessment of impact of renewables on GHG emissions; and the review of national objectives in the area of energy efficiency in transport, the deployment of renewables, the diversification of storage and the increase of flexibility.	25/10/2019	JRC contributions to policy documents
											2	Review and analysis in support to the assessment of the final national climate and energy action plans	The report will summarise the key findings from the JRC analysis of the final national climate and energy action plans and will provide inputs to recommendations that are to be formulated by the Commission services for the preparation of the final national energy and climate plans, addressing in particular the topics not covered by Administrative Arrangements or other WPKs of the Project: verification of technological assumptions for renewables; assessment of impact of renewables on GHG emissions; and the review of national objectives in the area of energy efficiency in transport, the deployment of renewables, the diversification of storage and the increase of flexibility.	28/10/2020	Whole parts of policy documents
271 - EMSI JRC.C.3	7752 - ReCET Support to Regions in the Clean Energy Transition	The EU is shifting away from large-scale fossil fuel to a more sustainable regional renewable-based energy system, and this transition requires a digitalization process of the energy grid. The aim of the WPK is on one hand to support this transition by acting on a regional level through the use of the Smart Specialization Strategy and continuing the S3 activities on Smart Grids. On the other hand this WPK is to support regions (including cities and/or islands) in the development and implementation of a strategy towards the clean energy transition taking into account their economical, technical and social challenges. This activity builds upon the experience gained while supporting coal regions in transition in the Slovak Republic and Poland, in the frame of an initiative led by SG and DG ENER. At the time, a multi-approach analysis for future energy scenarios was used to capture the multiple features of the transition, including: Value Chain Analysis, Energy System Modelling and Power System Scenario Analysis, which will be used within the proposed WPK. It The analysis will improve the understanding of the socio-economic impacts of the industrial transition and provide insights into the energy system, based on scenario analysis and an assessment of the implications for the security of energy supply. The objectives are: • Development of an analytical framework for understanding the industrial reconversion process; • Local impact analysis on the energy sector; • Case studies; • Identification of domains of application in the socio-economic context that would accompany the regions in the process; • Sharing experience/knowledge. The outcome of these scenario analyses will feed into the Smart Specialisation Platform for Energy (S3PE) and a new prototype reporting system will be designed based on Jupyter Notebooks..	JRC.C.3	3.2.a	ENER	JRC	CNECT EMPL GROW REGIO RTD SG		01/01/2019 31/12/2020	INS-RS	2	Report on the Smart Specialisation Platform on Smart Grids: activities in 2019	The report will synthesised, in agreement with the regions taking part in the platform and the industrial and R&D actors participating in the meetings, the view on challenges and opportunities for smart specialisation in the field of smart grids. The report will look at three key aspects: 1) applicability of the Smart Grid Architecture Model (SGAM) and synergy with the European standardization efforts; 2) lessons learned from regional efforts in terms of regulation, financing, and job creation; 3) reflections on the replicability and scalability of studied projects, with the scope of dimensioning the European scale of the potential market.	20/12/2019	Science for Policy reports
											20191	Report on the Smart Specialisation Platform on Smart Grids: activities in 2020 and achieved results	The report will summarize the activities of the smart grids platform and will include specific studies carried out in agreement with the member regions. It will reference the pilot projects initiated under the partnership umbrella and summarize the current situation and results.	20/12/2020	Science for Policy reports
											20201	Industrial Roadmap	Medium/Long term industrial roadmap: Scenario analysis of the long term growth and possible transformation of the coal industry in the region. For exploring the economic and social challenges emerging from the closure of coal mines methodologically three approaches were applied: value chain analysis, energy sector analysis and techno-economic electricity system analysis. Each well-established methodology gives us important insights into the problem and provides us with comprehensive results on qualitative and quantitative bases. Application of the methodology to the specific study cases: SK, PL, DE, CZ, HE, BG, ES and RO. Possible comparison of selected regions to derive highlights, common approach, synergies and lessons learned.	30/06/2020	Science for Policy reports
											3	Report mapping the (missing) skills and competences in Smart Grids in the Greek region of Western Macedonia	competences in Smart Grids in the region of Western Macedonia (Greece). The region will be invited to participate in the Smart Grids Partnership and the work will be carried out in this context. (1) ADMINISTRATIVE ARRANGEMENT "ASSISTANCE TO GREEK ELECTRICITY MARKET REFORMS" - srrs.01(2016)7142123 Ares(2016)666506928/11/2016 (2) Offer for amendment to Administrative Arrangement Nr. SSR/C2016/034 for "Assistance to Greek Electricity Market Reform" (34599) - jrc.r.2(2018)2930824 Ares(2018)262225218/05/2018	31/05/2019	Science for Policy reports

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category	
											5	Feasibility and Prototype of Jupyter Notebook reporting system	The reporting from static websites and paper reports will change significantly with the implementation of Jupyter notebooks, which can create dynamic purpose tailored reports with real-time modelling data.	31/05/2020	Science for Policy reports	
142 - CESE JRC.C.6	7775 - EnergyScenarios 2020 Economic analysis of energy scenarios 2020	DG ENER makes extensive use of energy-economy modelling capacity to prepare and analyse energy policies and investigate their ex-post or ex-ante impacts. Several units within DG ENER and other Commission services have deployed modelling tools to develop the empirical base evidence underpinning policy proposals, strategies, and impact assessments. The JRC Directorate C - Energy, Transport & Climate has accumulated over the years a considerable experience in the development, maintenance and exploitation of economic/energy models that can project energy consumption and GHG emissions, covering in detailed manner all final energy consumption sectors as well as energy supply on a regional and global scale. These tools include on the one side the POTEnCIA model to analyse the impact of policies on the European energy sector; and on the other the POLES model with its focus on global energy markets. DG ENER has been supporting the development by the JRC of the new EU energy-system modelling tool POTEnCIA. Under a currently active Administrative agreement EnergyScenarios 2018 (WPK 6350) POTEnCIA is being applied for the analysis of NECPs. This WPK is a placeholder for the expected continuation of these activities.	JRC.C.6	3.2.a	ENER	ENER	CLIMA MOVE		01/01/2020 31/12/2021	CON-AA	FR	Final report	This deliverable will contain the final report: a technical report summarizing the work carried out under that contract.	16/12/2021	Technical Reports	
429 - SEC-GAS JRC.C.3	7788 - PCI 2019 Energy infrastructure digitisation, and Projects of Common Interest	The work package supports the TEN-E Regional Group's activities on the identification and evaluation of energy Projects of Common Interest, notably in the categories of electricity and natural gas, under the provisions of Regulation (EU) No 347/2013. These activities are coordinated by DG ENER. The work package also explores issues related to the societal appreciation of security of energy supply, as well as how the digitalisation of the energy system can increase or decrease hybrid threats. In particular, this WPK will provide inputs for the JRC transversal projects on Hybrid Threats, and Digital Transformation. The activities build upon the competencies developed in work packages AFEIP, MMEIP, SASOS, and PCI 2017.	JRC.C.3	3.2.a	ENER	ENER, JRC	COMP ECFIN HOME	ACER - European Agency for the Cooperation of Energy Regulators (ACER) ETSO-E - European Network of Transmission System Operators	01/01/2019 31/12/2020	CON-AA, INS-RS	3	Evaluation of candidate Cross-border Carbon dioxide Networks of Common Interest	Report on the evaluation of candidate Cross-border Carbon dioxide Networks Projects of Common Interest, aimed to assist the Group in the selection of projects to be included in the 4th European Union-wide list of PCIs. In addition, there will be various presentations on the assessment framework, evaluation of candidate Cross-border Carbon dioxide Networks of Common Interest, 'lessons learned' etc. These presentations shall be submitted to DG ENER as reports.	30/07/2019	Technical Reports	
											4	Evaluation of candidate Smart Grid Projects of Common Interest	Report on the evaluation of candidate Smart Grid Projects of Common Interest, aimed to assist the Group in the selection of projects to be included in the 4th European Union-wide list of PCIs. In addition, there will be various presentations on the assessment framework, evaluation of candidate Smart Grid Projects of Common Interest, 'lessons learned' etc. These presentations shall be submitted to DG ENER as reports.	30/06/2020	Science for Policy reports	
											5	Governance of international energy infrastructure projects	This report will provide insights and best practices for the governance and decision making processes of international energy infrastructure projects.	31/12/2020	Science for Policy reports	
3.2.b Energy security - carry out security assessments of the EU energy supply system and safety, risk and techno-economic analyses for certain energy sources, taking into account the resilience of the supply system to the adverse impacts of climate change and other natural hazards and intentional threats. This work covers security of supply, transmission and distribution of gas and electricity, critical energy infrastructure, and the interconnections with countries outside the EU (including risks and geopolitical factors); analyse privacy and cybersecurity aspects in the energy sector.																
429 - SEC-GAS JRC.C.3	487 - EUGas Gas Transmission Network Modeling	The target of this WP is to develop a hydraulic model for the EU Gas Transmission Network (EUGas), and for some neighbouring countries, such as Ukraine and the Western Balkans (Serbia, Bosnia-Herzegovina and FYROM) to analyse normal operation of the network at national and at regional level (set of neighbouring MS), but also the effect of gas crises, including the resilience of the network (network flexibility & emergency planning), as well as reliability aspects. EUGas shares data with two other ancillary dedicated mass-balance models: ProGasNet (risk, reliability and vulnerability analysis) and GEMFLOW (study of gas crises at EU level). The models developed in this WP are used in support of the development of the Energy Union and its Roadmap. More specifically they have already been used in the period 2014 - 2017 in support of the implementation of Regulation 994/2010 on security of gas supply, in support of the Impact Assessment on the and the Liquefied Natural Gas (LNG) and Storage Strategy and of the European Programme for Critical Infrastructure Protection (Directive 2008/114/EC). These models will also be used to implement Regulation 2017/1938. This WP is also dedicated to study the Liquefied Natural Gas (LNG) Supply chain and the role of Gas Storage in energy security. Both, LNG and gas storage have been identified as key elements to cope with gas crises. A deep understanding of both may help improving the strategy to keep them in the market and enhancing their contribution to security of supply. Gas quality issues are also addressed in EUGas, specifically the different gas quality (calorific value, different chemical composition, Wobbe index) in different countries and how this can become a threat to joint effective reactions of EU MS to gas crises. Work on new uses of gas for transportation and methane emissions linked to the transmission system are also addressed. Collaborations with other units and directorates are taking place, particularly with C.7 on gas transmission network layout and characteristic facilities and parameters, with C.1 on data collection and analysis related to gas quality issues, and with I.1 on sensitivity analysis (both in the methodological field and in the area of applications). Some deliverables of this WP will also support policies of DG ENER (B4 and B1).	JRC.C.3	3.2.b	ENER	ENER, JRC	CLIMA COMP DEVCO EEAS ENV GROW HOME NEAR	Tech Serv - Member States and their Technical Services/type approval authorities	01/01/2014 31/12/2020	CON-AA, INS-RS	2222	Gas transmission network facilities review	Gas transmission networks consist of a number of different types of facility of such as pipelines, compressor stations, blending stations, Liquefied Natural Gas (LNG) regasification terminals and underground storages. Design diversity is quite large within the EU in terms of both layout, components and incorporated technologies. A detailed knowledge of such features is essential in understanding how components and entire facilities may fail, as well as their exposure to attacks and natural hazards. Such an understanding will help developing more comprehensive Risk Assessments of gas transmission networks and identifying potential critical facilities in the transmission infrastructure. An ancillary task that will be developed in parallel will be the identification of facility components prone to cause methane emissions and methods to measure them. The research will be developed by consultation of literature and experts and a EU-wide survey (support of the gas coordination group).	18/12/2019	Technical Reports	
											3	Complete the transfer of the applications EUOAG, SPIROS and VICOS and the information system SyRIO to ENER / DIGIT.	The tasks to be completed are the preparation and finalisation of the transfer of a number of IT applications to DG DIGIT/DG ENER in line with the applicable IT rules/governance in the Commission. The transfers concern: 1. the web site of the EUOAG (European Union Offshore Authorities Group); 2. the SPIROS software for reporting and publication of incident data by Member States to the Commission and to the public; 3. the Virtual Centre of Offshore Safety Expertise (VICOS) and 4. SyRIO for the reporting of accidents from operators and owners of offshore installations to the Competent Authorities of the Member States	31/08/2020	Technical Reports	
											9	Methodological advancements in Risk assessments for gas systems	JRC C.3 has been developing methodology for performing Risk Assessments (RA) of gas systems (at national and regional level) during a number of years. The methodology has been progressively enriched and improved thanks to the development of several RAs (Romania, Bulgaria and Greece; Baltic States and Finland, and Ukraine). This deliverable contains a consolidated methodology for performing Risk Assessments of regional gas systems (regional in the sense of several countries), fully in line with Regulation 2017/1938 on Gas Security of Supply recently agreed by EP, EC and European Council, repealing Regulation 994/2010. This methodology will feed into a best practices report to be delivered in 2021 to DG-ENERGY, Member States and the Gas Coordination Group.	18/12/2020	Science-for-policy reports	
271 - EMSI JRC.C.3	2749 - INTERCON Intercontinental Electricity Infrastructures	Considering the EU's ambition for a stronger role in global energy markets and taking into account the Energy Diplomacy Action Plan, the core objective of this WPK is to assess the potential for intercontinental electricity infrastructures connecting Europe with other relevant areas in the world. The motivations for this work are: i) to establish a factual basis for supporting energy co-operation and dialogues in international settings; ii) to provide technical and economic support to the study of the diversification of sources, suppliers and routes; iii) to set a framework for the analysis of risk of the concerned intercontinental connections; and iv) to support the definition of global energy architecture from the system and market viewpoints in the electricity sector.	JRC.C.3	3.2.b	ENER	JRC	DEVCO EEAS SG		01/01/2017 31/12/2020	INS-UR	D2019	The Potential of Central Asia to Supply Europe with Large-Scale Renewable Energy	This concise report will present large-scale renewable energy sources in the Central Asian area that are collectively apt for exporting electric power towards Europe, supporting the EU to achieve its renewable energy targets. Associated transmission grids will be discussed, including technical and market-related issues. Moreover attention will be paid to geographical and geopolitical risks along the transmission routes.	31/12/2019	Science for Policy reports	
												D2020	Techno-Economic Analysis of an EU - Central Asian Power Interconnection	The paper will present the outcome of the techno-economic analysis (including social welfare evaluation) of an electricity system arising from deliverable D2019, i.e. the European transmission network combined with a power grid in Central Asia (including selected large renewable energy sources) and the interconnecting infrastructure.	31/12/2020	Journal contributions (Scopus)
271 - EMSI JRC.C.3	3476 - PSMA Power systems and markets analysis	This Work Package aims to support the implementation of the Energy Union Roadmap's Actions on "Infrastructure" (interconnection developments), "Electricity" (security of supply measures), "Industrial competitiveness" and "Cross-cutting measures" by: - providing data, analysis and intelligence on future transmission systems and electricity Projects of Common Interest. - developing scenarios and assessing merits and options for the development of transmission systems and electricity highways in Europe and beyond. - building and integrating advanced steady state and dynamic models of the power system, with special focus on the interfaces/interactions between inter-continental (super) grids, the Baltic system, the North Seas offshore grids for wind, electricity transmission & distribution systems and gas & power networks. The power system evolution requires a drastic change also in the methodologies to assess power system operation: new quantitative models are needed to evaluate system performance The purpose of this Work-package is to provide DG ENER with Technical Assistance and Scientific Support to the implementation of Directive 2013/30/EU on Safety of Offshore Oil and Gas Installations This work-package supports the project's objectives as it determines the requirements that have to be met by hydrocarbon production industries in terms of health and safety. The work-package will develop a fully operational version of the 'Virtual' Centre of Offshore Safety Expertise (VICOS). VICOS will coordinate the provision of additional resources to Member States competent authorities. The expertise on ICT tools available in the team and the knowledge on the functioning of the competent authorities will be central to the implementation of VICOS and for the organization of both workshops and trainings for competent authorities. This work is essential because it provides assistance to competent authorities in optimizing their regulatory work pursuant the Offshore Safety Directive.	JRC.C.3	3.2.b	ENER	JRC	SG		01/01/2016 31/12/2020	INS-RS	7	European Internal Electricity Market: where do we stand?	This Deliverable addresses the current status in tackling the main challenges for the effective delivery of the Internal Energy Market. It deals with: - zonal pricing: the EU target model as defined by Capacity Allocation and Congestion Management Framework Guidelines and what is the current status, what can be done next (nodal pricing) - market session organisation: how the different market sessions are organised throughout Europe. How to converge towards a Single Market - EUphemia algorithm for market solution: unboxing the black box (challenges in defining a common allocation algorithm for all market sessions in EU) - Coordination of markets with System Operation: the role of TSOs in delivering the Internal Energy Market.	30/11/2019	Science for Policy reports	
												8	Nodal pricing potential application in Europe	This is a scientific paper investigating how nodal pricing can be implemented in Europe and what could be the implications for the efficiency of the Internal Energy Market.	30/11/2020	Journal contributions (Clarivate)
301 - HyRis JRC.C.3	5019 - VICOS Virtual Centre of Offshore Safety Expertise	The purpose of this Work-package is to provide DG ENER with Technical Assistance and Scientific Support to the implementation of Directive 2013/30/EU on Safety of Offshore Oil and Gas Installations This work-package supports the project's objectives as it determines the requirements that have to be met by hydrocarbon production industries in terms of health and safety. The work-package will develop a fully operational version of the 'Virtual' Centre of Offshore Safety Expertise (VICOS). VICOS will coordinate the provision of additional resources to Member States competent authorities. The expertise on ICT tools available in the team and the knowledge on the functioning of the competent authorities will be central to the implementation of VICOS and for the organization of both workshops and trainings for competent authorities. This work is essential because it provides assistance to competent authorities in optimizing their regulatory work pursuant the Offshore Safety Directive.	JRC.C.3	3.2.b	ENER	ENER			01/01/2017 22/02/2019	CON-AA	4	Technical Secretariat of the EUOAG	This is an ongoing activity for which the JRC has received mandate from the Commission. The JRC takes care of organising the meetings of authorities and plenary sessions with industry and their associations. Publish the minutes of the meetings. Disseminate official information to the competent authorities of the Member States. This deliverable will summarize JRC's support until December 2018 and the support provided in the handover of the activity to DG ENER.	22/02/2019	JRC technical reports	
												6	Update of SyRIO software	The SyRIO software version 1.0 is operational since December 2016. We expect many feedbacks from the Competent authorities and by operators. On the basis of these feedbacks the JRC will upgrade SyRIO to comply with the authorities' requests. This will be the last production of the code by JRC, and no further support will be provided	22/02/2019	Scientific information systems and databases
												8	Supporting Member States in the preparation of external emergency response plans	The JRC will examine the relevant literature in external emergency response plans and will prepare an assessment of the level of capacity and readiness of the Member States with regards to their external action plans, regional plans, identification of main challenges and follow-up recommendations.	22/02/2019	JRC technical reports
												9	Training / Workshop on a topic to be identified	The main objective of this task is to provide Member States access to knowledge, tools and expertise to increase their own capacity – and to support them in building the necessary expertise to properly carry out their regulatory functions, as required by Directive 2013/30/EU.	22/02/2019	Training
												D11	Recommendations on Cyprus' energy security and internal energy market	Analysis and recommendations related to energy security and internal energy market in the context of Cyprus' long-term energy planning	15/04/2019	JRC technical reports

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
271 - EMSI JRC.C.3	6354 - CESDS Cyprus Electricity System Development Support	<p>The achievement of the objectives related to the Energy Union strategy</p> <p>The promotion of a competitive electricity market based on open access and non-discriminatory use of national infrastructure</p> <p>The fulfilment of their obligations under the EU Regulation 347/2013 on trans-European energy infrastructure.</p> <p>JRC's work will contribute to the aforementioned objectives by:</p> <ul style="list-style-type: none"> Evaluating some aspects of the on-going energy and climate plans, and in particular to the Dimensions "Energy Security" and "Internal Energy Market". Of specific interest, among others, are resilience against interrupted supply of gas or electricity, key infrastructure projects other than PCIs, the electricity system adequacy and flexibility, and the regulatory framework for storage, Demand Response, and Distributed Energy Sources. Developing a methodology for evaluating the network charges and needed adjustments in the future support schemes (i.e. net-metering, net-billing, self-consumption) Reviewing good practices for the fulfilment of obligations under the Regulation (EU) 347/2013 on the trans-European energy infrastructure <p>The work will include a combination of critical review of best practices, consolidation of existing</p>	JRC.C.3	3.2.b	SG	SG	ENER		15/01/2018 15/04/2019	CON-AA	D12up	Report of Training on Energy Modelling Tools	This comprehensive report will summarise the training activities offered by JRC to the Cypriot Authorities on Energy Modelling Tools. It will include: - final training programme; - training material (presentations, lecture handouts, etc.) in printed and/or electronic form and evaluation material (evaluation forms filled in by training participants) in original and/or electronic/scanned form; - assessment of participant evaluations	15/03/2019	Training
											D22	Propose a detailed methodology for determining the use of network charges	This report will contain a proposal of a detailed methodology for determining the use of network charges, explaining how the proposed methodology satisfies the primary objectives of network pricing and taking into account that the network charges should avoid cross subsidization and distortion of electricity prices to consumers that are not participating in the support schemes.	31/01/2019	Science for Policy reports
											D24	Prototype Tool to calculate the real network charges	This deliverable will provide a commonly available user-friendly prototype tool to calculate the real network charges in accordance with the proposed methodology in D22. With the employment of the tool the real network charges will be identified.	28/02/2019	Sci information systems and databases
											D25	Report on training on the implementation of methodology and use of the proposed tool	This comprehensive report will reflect the training activities on the prototype tool developed in D24. It will include: - final training programme; - training material (presentations, lecture handouts, etc.) in printed and/or electronic form and evaluation material (evaluation forms filled in by training participants) in original and/or electronic/scanned form; - assessment of participant evaluations	15/01/2019	Training
											D2019	Identification of critical components in the energy system	The work in this deliverable will be based on methodological basis developed in the Deliverable 1 of 2018. The report will focus on identification of critical components in the energy system from the system resilience to provide its functions point of view. Quantification of criticality is another aspect that will be analysed in the report. The JRC developed tool ProGasNet will be used to apply the methodology to the selected EU gas transmission system. The identified critical components are target for protection actions and considerations of new infrastructure projects to diminish criticality of the identified components. Both aspects will be considered and analysed in the report.	15/12/2019	Science for Policy reports
7596 - Resilience4EU JRC.B.1	6369 - CEI-Resilience Critical Energy Infrastructure Resilience	<p>Resilience of critical energy infrastructure is among the key elements of modern society. Resilience is explicitly mentioned in the Energy Union strategy: a resilient infrastructure is the backbone of the Energy Union. The development of a systematic resilience modelling methodology to assess critical energy infrastructure resilience is needed to identify, evaluate and justify new infrastructure projects both at national or regional levels. This is in particular important not only from technical perspective, like transmission network bottlenecks, but also in the light of new threats of this century: cyber-attacks, terrorism or climate change induced natural hazards.</p>	JRC.C.3	3.2.b	HOME	JRC	EEAS ENER		01/01/2018 31/12/2020	INS-RS	D2020	Development of resilience indicators in the energy system up to 2030	The indicators developed in the Deliverable 2 of 2018 for the historical data will be computed up to 2030, by using the outputs of models of gas transmission networks and power transmission grids. The models will be run for different scenarios, allowing thus to perform uncertainty / sensitivity analysis for the selected indicators and selected EU regions. The geographical scope will be extended to partners/associated countries/candidate countries. A composite indicator for the resilience of the infrastructure will also be considered.	15/12/2020	Science for Policy reports
429 - SEC-GAS JRC.C.3	6384 - RSGS III Support to the implementation of the new Regulation 2017/1938 on Security of Gas Supply, repealing Regulation 994/2010	<p>Regulation 994/2010 on Security of Gas Supply was enacted on October 20th, 2010. This regulation contributed to improve the level of security of gas supply in the EU, as reported by some scientific and technical papers. In 2014 a process was started to amend it in order to enact a new, improved Regulation, being the new dispute between GAZPROM and Ukrainian authorities and commercial entities and the subsequent Stress Tests exercises the triggering event. In early May 2017 EC, EP and the Council of the EU reached a final agreement on the text of the new Regulation. The new Regulation 2017/1938 on security of gas supply was finally enacted on October 25th, 2017. The main innovations of this new Regulation refer to the mandatory regional approach to assess Risks to the EU gas system, the inclusion of the solidarity principle and the cooperation with Energy Community Contracting Parties. JRC's support to the implementation of this new Regulation consist of five components: 1) provide technical and analytical assistance to DG ENER in the assessments of regional and national Risk Assessments (RA), developed by Member States in line with Regulation (EU) 2017/1938; 2) develop research in order to provide Member States (MS) with a toolbox and case study to estimate peak demand (Dmax) and a toolbox on the interaction gas-electricity and best practice to address such issues in the risk</p>	JRC.C.3	3.2.b	ENER	ENER	EEAS HOME NEAR RTD SG		27/07/2018 26/07/2021	CON-AA					
271 - EMSI JRC.C.3	6551 - Crosos Risk Preparedness in the electricity sector. Cross-border security of supply	<p>The purpose of the work to be carried out is to continue providing DG ENER with technical assistance, analysis and input to support the implementation of the legislative proposal of Regulation on Risk Preparedness in the electricity sector (hereafter referred to as the proposal of Regulation).</p> <p>The main components (tasks) of the work to be carried out are:</p> <ol style="list-style-type: none"> To support the work of DG ENER related to the analysis of the methodologies for: (a) identification of electricity crisis scenarios at a regional level and, (b) for short-term adequacy assessments. Both methodologies have to be developed by ENTSO-E and approved by ACER. Before submitting the proposed methodologies, ENTSO-E has to conduct a public consultation. The proposed methodologies and the results of the public consultation have to be presented to the Electricity Coordination Group. The objective is to identify whether the proposed methodologies fulfil the purpose set out in Articles 5 and 8 of the proposal of Regulation. To provide technical assistance in the implementation of regional measures and guidance for compensation when Member States assist each other to prevent and manage electricity crisis situations, in accordance with Article 12 and Article 14 of the proposal of Regulation. To provide technical assistance on the implementation of annual crisis simulations, with the view to elaborate guidelines that Member States could follow in the preparation and carrying out the annual crisis simulations in accordance with Article 12.1 (d) of the proposal of Regulation. Other activities: <ul style="list-style-type: none"> a) To support DG ENER on cooperation activities with third countries on specific topics related to Risk Preparedness; b) To provide input on scientific and technical work developed on topics related to Risk Preparedness (e.g. natural hazard impact on power systems, risk analysis in the electricity sector). 	JRC.C.3	3.2.b	ENER	ENER, E NER, JRC	COMP	ACER - European Agency for the Cooperation of Energy Regulators (ACER) ENTSO-E - European Network of Transmission System Operators	11/04/2018 10/04/2020	CON-AA, CON-AA, INS-RS	1	Review of short-term adequacy assessments	The risk preparedness regulation establishes that ENTSO-E must propose a methodology for short-term adequacy (seasonal, week-ahead and intraday) to be performed by ENTSO-E (in the case of seasonal) and by the regional operational centres in the case of the week ahead and intraday assessments. This report will review the current practices in Europe and other countries (US, if it is relevant), as well as scientific literature to propose the basic elements that the ENTSO-E methodology should contain. The report will contain a review of the current ENTSO-E methodology for short term adequacy	30/06/2019	Science-for-policy reports
											2	Review of the methodology for the identification of electricity crisis scenarios at a regional level	The risk preparedness regulation establishes that ENTSO-E must propose a methodology for identifying electricity crisis scenarios at a regional level. This scenario identification methodology shall cover very different relevant topics as rare and extreme natural hazards, hazards going beyond N-1 and malicious attacks. The report will review the current practices in Europe and other countries as well as US if it is relevant.	30/04/2019	Science for Policy reports
											3	Concept paper on the elements to be included in the technical, legal and financial arrangements for the implementation of articles 12 and 14 of the proposal of regulation	Provide input on the minimum requirements set out in Article 12.1 on the content of regional measures, Provide input on the minimum requirements for compensation as set out in Article 14.2b Review of existing practices on regional measures and compensation in the electricity sector and in other related sectors (gas);	15/04/2019	Science for Policy Briefs
											4	Concept paper on crisis simulations	Review of existing practices on simulations of crisis scenarios in the electricity	16/03/2020	Science for Policy Briefs
429 - SEC-GAS JRC.C.3	8222 - CEIP-ENER Support to DG ENER on Critical energy Infrastructure Protection	This WP addresses the objective of identifying areas where physical protection of critical energy infrastructure needs to be improved. This would result in the following general tasks: 1) on the basis of knowledge established in the previous years of TNCEIP, identify the areas for improvement of the protection of critical energy infrastructure (handbook); 2) on the basis of the	JRC.C.3	3.2.b	ENER	ENER	EEAS HOME NEAR RTD		01/11/2018 30/04/2021	CON-AA					
<p>3.2.c Internal energy market - assess the development of energy infrastructure and energy markets in the EU, including design of the retail market, new deal for energy consumers, energy poverty and protection of vulnerable consumers, short-medium and long-term storage of renewable energy, integration of LNG and gas storage, super power grids, smart power grids (including interoperability and smart-metering), economic evaluation of self-sufficiency modes, flexibility requirements and gas networks, and the new market design initiative; support measures for digitisation of energy markets; develop methodologies for the economic valuation of energy security in the evaluation of energy infrastructure projects, including projects of common interest; assess the value and role of energy storage, also in what concerns sector coupling.</p>															
429 - SEC-GAS JRC.C.3	488 - MAEIP Market Analysis for Energy Infrastructure Projects	<p>This work package (WP) develops a framework of different techno-economic models (e.g. global TIMES model TIAM & JRC EU-TIMES) to analyse the multidimensional aspects of energy security, such as access to energy sources or shocks to the energy system (e.g. abrupt supply changes). It will assist decision making taking into account synergies and trade-offs between energy security and EU policy goals, especially with short to mid-term implications. This WP coordinates the horizontal activities in the area of Security of Supply, including GIS and data gathering and processing (e.g. infrastructure projects, national and cross-border). This WP contributes to the implementation of the Energy Union Roadmap initiatives, especially to the generation of the 3rd and 4th lists of Projects of common interest (PCIs) and the Infrastructure Forum.</p> <p>Close cooperation is foreseen with other units and directorates, particularly with B1 and C7 regarding data sharing, with I1 regarding sensitivity analysis (mostly particular application and case studies) and indicators, and with C7 regarding data sharing and definition of common scenarios to analyse.</p> <p>The scientific output will be maximised, publishing in well-known peer reviewed journals key research results.</p>	JRC.C.3	3.2.c	ENER	JRC	CLIMA COMP DEVCO ECFIN ENV FISMA SG	Tech Serv - Member States and their Technical Services/type approval authorities	01/01/2016 31/12/2020	INS-RS	3	Study on international oil and gas markets	Report on the inter-links between European and international oil markets with emphasis on security of supply (e.g. disruption scenarios). Furthermore, the inter-relations between oil and gas markets will be explored with an emphasis on security of supply. Results from the analysis conducted within the WPk will be presented in a scientific paper. In particular, issues regarding the European security of energy supply from the oil-gas nexus will be presented. The paper will be a 2.1.1 Article contribution to periodicals or to conference proceedings listed in the Thomson-Reuters' Science Citation Index Expanded (SCI-e) or Social Science Citation Index (SSCI).	01/05/2019	Science for Policy reports
											6	Economic impact of missing gas	In the framework of the new Regulation on Security of Gas Supply, we study the economic impact of missing gas in terms of price of replacement fuels and/or value of lost service. Comparisons will be made with the cost/benefit analysis of new infrastructure to be built.	30/11/2020	Science-for-policy reports
											D5	Integrated gas and electricity Plexos model	The interconnections between gas and electricity networks and markets are relevant to the Regulation 2017/1938 on security of gas supply. Indeed, gas-fired power plants require gas to deliver electricity to the network, and a number of facilities in the gas transmission network need electricity to work adequately. The only way to address the interactions between those two systems is by using models. We will build in Plexos integrated model(s) for gas and electricity, covering either the EU, with coarse granularity (one node per country), or some specific countries/regions with an adapted granularity (several nodes per country, depending on the particular market/system conditions of the country/region). The model(s) built may be used to identify various issues related to the security of gas supply, such as for instance the identification of critical gas-fired power plants.	06/12/2019	Science for Policy reports
		<p>This WP aims at supporting the Energy Union Package (COM (2015) 80 FINAL) and the DSM package (COM(2015) 192):</p> <ol style="list-style-type: none"> Analysing technological means to facilitate the energy transition through smart grids and smart home applications, under a cyber-security and privacy perspective Studying the application of blockchain technologies to create a seamless internal energy market that benefits citizens <p>The WP supports the Smart-Metering Data Protection Impact Assessment recommendation (2014/724/EU) and the Best Available Technique process (2012/148/EU):</p>									123	Blockchain for the Electricity Market	This deliverable, leveraging on the results produced in 2018, will continue develop research activities on the use of blockchain technologies for Energy market. It will include the full implementation of a working prototype, economic studies on the viability and sustainability of the energy blockchain economic model, and cyber-security, scalability and resilience tests. The deliverable will feed the recent request from the European Parliament to the Commission to study the use of Blockchains in the energy sector.	12/03/2020	Technical Reports
											124	Research Publications	This workpackage is expected to produce research results which will be not only used for JRC policy support reports, but also published on peer-reviewed journals and conferences. For this reason this ad-hoc created deliverable has been inserted to collect and give visibility to all the research publications produced in 2019-2020	15/12/2020	Journal contributions (Scopus)

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
244 - CSPI JRC.E.3	3440 - PSES Cyber-security and Privacy in the Energy Sector	(1) Providing technical advice to DG-ENER on the testing phase of the DPIA testing phase (2) Chairing the follow-up of the Best Available Techniques process The WP supports the shaping the coming Energy Cyber Security Strategy through the participation to the European Smart-Grid Task force and to the Energy Cyber-security Expert platform and its follow-up The WP will support DG-ENER and ACER in the definition of the Energy Network Code for Cyber-Security through: (1) The participation in the editorial team of the EG2 and EG1 of the EC Smart-Grid Task Force (2) Expanding the experimental and research activities in the Energy Cyber-Security Domain The investigation approach of this workpackage mixes together traditional on-field research and prototyping activities based on vulnerability analysis risk assessment, system modeling and simulation, with innovative approaches based on artificial intelligence, data analysis and clustering and blockchain technologies. The target goal is that of using the scientific results obtained to provide evidences able to feed and This work package aims to support the implementation of the Energy Union Roadmap's Actions on "Infrastructure" (interconnection developments), "Electricity" (security of supply measures), "Industrial competitiveness" and "Cross-cutting measures", and the Smart Specialization Strategy (S3) in the field of smart grids, by	JRC.E.3	3.2.c	ENER	JRC	CNECT GROW	ACER - European Agency for the Cooperation of Energy Regulators (ACER)	01/01/2016 31/12/2020	CON-AA,INS-RS	2	Cyber-Security and Privacy in the Digital Energy Paradigm	Digital Energy is a concept which merges together not only energy production and delivery, but data (not only energy related data), third party services and much more. This deliverable aims at investigating on the new concept of digital energy from a cyber-security and privacy perspective, taking into consideration not only cyber-security vulnerabilities and threats affecting traditional energy ICT infrastructures, but also those impacting on the new raising approaches based on Artificial Intelligence and Blockchain Technologies. With a classical state-of-the-art analysis -> Modelling -> prototyping and testing approach the deliverable aims at providing sound scientific evidence supporting decision makers in the conception and design of the new policy packages on Digital Energy Cyber-Security and Data Protection. The deliverable will support the activities on digital energy which are included in the EU-China collaboration negotiation.	15/12/2020	Technical Reports
		- developing an experimental platform and methodologies for testing the interoperability of smart grids, in line with the work of the European Standardization bodies - providing data, analysis and capabilities on smart grid interoperability. - mapping competencies, infrastructure and facilities of smart grid laboratories at EU level and beyond - analysing the role of ICT standardisation in enabling smart grid interoperability, grid management and distribution automation	JRC.C.3	3.2.c	ENER	JRC	CNECT GROW REGIO	CENELEC - European Committee for Electrotechnical Standardization (CENELEC)	01/01/2016 31/12/2020	INS-UR	6	Interoperability between Electric Vehicle (EV), Advanced Metering Infrastructure (AMI) and Supervisory Control System (e.g. SCADA)	One of the main objectives of the Smart Grid lab is to assess technological implementations according to proposed standards, use cases and processes in conjunction with applicable reference architectures. Towards this end, this work focuses on the inter-operations between EVs, their charging equipment (EVSEs) and an integrated system of smart meters, communications networks, and back-end data management systems that enable two-way communication and ultimately two-way energy flow between utilities and customers (V1G and V2G). The output of this work will underpin policy making through counselling regulatory and legislative measures in this field and help industrial innovation regarding the modernization of the electricity grid and exploiting economies of scale through harmonisations. Report on validation of the methodology for Interoperability testing on a use case on e-mobility in collaboration with JRC.C.4 and the industry. The report will also include Interoperability testing on a use case defined in collaboration with Aachen University and the industry.	13/12/2019	Technical Reports
			JRC.C.3	3.2.c	ENER	JRC	CNECT GROW REGIO	CENELEC - European Committee for Electrotechnical Standardization (CENELEC)	01/01/2016 31/12/2020	INS-UR	6	Interoperability between Electric Vehicle (EV), Advanced Metering Infrastructure (AMI) and Supervisory Control System (e.g. SCADA)	One of the main objectives of the Smart Grid lab is to assess technological implementations according to proposed standards, use cases and processes in conjunction with applicable reference architectures. Towards this end, this work focuses on the inter-operations between EVs, their charging equipment (EVSEs) and an integrated system of smart meters, communications networks, and back-end data management systems that enable two-way communication and ultimately two-way energy flow between utilities and customers (V1G and V2G). The output of this work will underpin policy making through counselling regulatory and legislative measures in this field and help industrial innovation regarding the modernization of the electricity grid and exploiting economies of scale through harmonisations. Report on validation of the methodology for Interoperability testing on a use case on e-mobility in collaboration with JRC.C.4 and the industry. The report will also include Interoperability testing on a use case defined in collaboration with Aachen University and the industry.	30/12/2019	JRC technical reports
208 - INTEROP-STORE JRC.C.4	3478 - SGI Smart Grid Interoperability		JRC.C.3	3.2.c	ENER	JRC	CNECT GROW REGIO	CENELEC - European Committee for Electrotechnical Standardization (CENELEC)	01/01/2016 31/12/2020	INS-UR		VloP Validation of the Interoperability methodology	Report on validation of the methodology for Interoperability testing on a use case on e-mobility in collaboration with JRC.C.4 and the industry. The report will also include Interoperability testing on a use case defined in collaboration with Aachen University and the industry.	22/12/2020	Technical Reports
271 - EMSI JRC.C.3	3480 - EDSC Emerging Distribution Systems and Consumers	The Clean Energy for all Europeans package recognizes the central role of consumers in the transitioning energy system. It also acknowledges the role of local energy communities as possible facilitators in the up-take of new technologies and consumption patterns. In this context, Emerging Distribution Systems and the Consumers deals with the socio-technical challenges related to consumers and local energy communities in emerging electricity systems. It investigates how digital technologies contribute to consumer active participation in demand response solutions and other services, enhancing retail market competition. Furthermore, the work package provides insights into issues of energy poverty, vulnerable consumer and energy justice. Considering how energy poverty and energy digitalization relate to each other, it aims at providing early identifications of potential problems and opportunities associated with vulnerable households and	JRC.C.3	3.2.c	ENER	JRC	CNECT GROW JUST REGIO		01/01/2019 31/12/2020	INS-RS	10	Energy poverty and local energy communities	The report will discuss energy poverty and vulnerable consumers based on evidence from the JRC database on Smart Grid Projects. The focus will be on those projects in the database that present a community-based approach in order to gain insights into local energy community practices and solutions for energy poverty alleviation.	30/11/2019	Science for Policy reports
		This work package aims to support the implementation of the Energy Union Roadmap's Actions on "Electricity" (Market design), "Retail" (New deal for consumers), "Industrial competitiveness" and "Cross-cutting measures" by	JRC.C.3	3.2.c	ENER	JRC	CNECT GROW JUST REGIO		01/01/2019 31/12/2020	INS-RS	11	Smart Grid Projects Outlook	The report will provide an updated analysis of European smart grid projects focusing on emerging stakeholders, new business models, energy poverty issues and community-based approaches.	31/12/2020	Science for Policy reports
		- providing data, analysis and intelligence on smart grid and smart home interoperability. - developing and interlinking load simulation tools and agent-based models to capture the behaviour of electricity consumers. - assessing performances and interfaces of the smart grid cyber and physical layers. - running the JRC-Petten branch of a network of laboratories, with specific focus on smart home integration and distributed energy resources, in order to scientifically support the development of European energy and electricity policies in that area.	JRC.C.3	3.2.c	ENER	JRC	CNECT GROW JUST REGIO		01/01/2019 31/12/2020	INS-RS	8	Energy poverty and vulnerable consumers	Perspectives on energy poverty and vulnerable consumers based on evidence from smart grid projects and analysis of data from current consumer studies (e.g.: DG JUST studies on residential prosumers and billing information);	28/02/2019	Science for Policy reports
		A liquid, well diversified, hub-based gas market is considered as a key contributor to energy security. The delay in the implementation of the third package has been identified by different stakeholders as the most important contributor to not achieving such a good quality market in the EU and neighbouring countries. Proposals for a Gas Target Model (GTM) for the EU have been developed and updated along the last years by ACER and by the Florence School of Regulation. The GTM must be accompanied by the adequate operational Network Codes that facilitate its implementation, and by the adequate creation of market regions with their Virtual Trading points and associated IT platforms. Two points not to forget are the evolution of the demand and of the prices, in the EU and in the rest of the world; interaction Regulation / market dynamics. The aim of the work package is to get an accurate understanding of the functioning of the EU gas market, which involves three major areas of work	JRC.C.3	3.2.c	ENER	JRC	CLIMA CNECT DEVCO ENV GROW HOME		01/01/2016 31/12/2020	INS-UR	08	Real time simulation platform	Development of a geographically-distributed real-time simulation platform by interconnecting the systems in Petten (OPAL) and Ispra (RTDS) using the Intersite link or the Geant network for data exchange. It includes the development of the specific hardware and software interfaces that will allow the execution of distributed models using both systems in synchronization. A technical report describing the concept, methodology, technical aspects and use cases will be produced.	15/05/2019	Technical systems
208 - INTEROP-STORE JRC.C.4	3481 - SGSHI Smart Grid and Smart Home Interoperability		JRC.C.3	3.2.c	ENER	JRC	CLIMA CNECT DEVCO ENV GROW HOME		01/01/2016 31/12/2020	INS-UR	20191	Annual report 2018	The Annual Report will describe the laboratory, including layout, devices, instruments, experiments, web-activities and objectives. This deliverable will be an informative report on the laboratories equipment and activities and should serve as a handbook (for labs, industry, research centers which want to see what we are doing and how is the lab without visiting the lab)	01/04/2019	Science for Policy reports
			JRC.C.3	3.2.c	ENER	JRC	CLIMA CNECT DEVCO ENV GROW HOME		01/01/2016 31/12/2020	INS-UR	20201	Energy management System for the SGSHI Laboratory	The objectives are: • To design a real-time monitoring system for the energy flows (gas+elec) of the lab building. • To design an energy management tool that allows to simulate and optimize in real-time the energy consumption, storage and production, according to pre-defined use cases. • To evaluate energy saving potential and to optimize energy flows for some use cases (existing JRC tariffs, other available tariffs on Dutch market, ancillary services provision, ...) • Investigate replicability at the level of the JRC institute	01/07/2020	Technical systems
			JRC.C.3	3.2.c	ENER	JRC	CLIMA CNECT DEVCO ENV GROW HOME		01/01/2016 31/12/2020	INS-UR	20202	Annual Report 2019	The Annual Report will describe the laboratory, including layout, devices, instruments, experiments, web-activities and objectives. This deliverable will be an informative report on the laboratories equipment and activities and should serve as a handbook (for labs, industry, research centers which want to see what we are doing and how is the lab without visiting the lab)	01/04/2020	Science for Policy reports
			JRC.C.3	3.2.c	ENER	JRC	CLIMA CNECT DEVCO ENV GROW HOME		01/01/2016 31/12/2020	INS-UR	D3	Analysis of gas demand and prices in EU	The deliverable will include the identification and selection of data sources regarding gas demand and gas prices in the EU and produce statistical analyses of various types. It will include a review of structure of the demand, a study of available models to analyse demand and prices and a study of relations with other markets (electricity, oil, other regions).	01/06/2019	Science for Policy reports
429 - SEC-GAS JRC.C.3	5082 - GMF Gas Market Framework		JRC.C.3	3.2.c	ENER	JRC	COMP DEVCO ECFIN GROW		01/01/2017 31/12/2020	INS-RS	D5	Analysis of (regional) energy wholesale markets	This study will provide relevant information on wholesale energy markets, such as energy prices, energy demand, licences and regulatory aspects. Particular regional markets will be analysed by means of statistics, maps, indicators and also time series, in the fields of energy security, market access and liquidity, competition, market design. The scope of the deliverable will be narrowed down after deciding of the most relevant/important information for the regulators and/or DG ENER and as a complement to the market monitoring reports made by ACER.	31/12/2019	Science-for-policy reports
			JRC.C.3	3.2.c	ENER	JRC	COMP DEVCO ECFIN GROW		01/01/2017 31/12/2020	INS-RS	D6	Overview of the implementation of the Third Energy Package	A global picture of the gas markets in EU and of the changes they undergone as resulting from the implementation of the Third Energy Package.	11/12/2020	Science-for-policy reports
271 - EMSI JRC.C.3	5094 - GEMD Greek Electricity and Gas Markets Design		JRC.C.3	3.2.c	SG	SG	COMM ECFIN ENER		14/12/2016 14/09/2019	CON-AA	33	Support for the Trans-Balkan Risk Group of member states	Greece (RAE, as Competent Authority) has taken the lead of the Trans-Balkan Risk Group of member states (Bulgaria, Greece, and Romania) for the implementation of the Risk Assessment and Standards (supply and infrastructure) as mandated by Regulation 2017/1938 on security of gas supply. JRC will provide support to Greece in the execution of the tasks assigned to the member state leading this risk group. This involves setting the work plan, attending coordination meetings, and providing advice on all issues related to the Risk Assessment and Standards. In addition, JRC will provide support in specific steps such as the identification of sources of risk, the definition of scenarios, and the estimation of consequences of selected scenarios, possibly including hydraulic computations. JRC will also provide support with the statistical treatment of demand data	30/05/2019	Technical Reports
			JRC.C.3	3.2.c	SG	SG	COMM ECFIN ENER		14/12/2016 14/09/2019	CON-AA	52	Studies on energy poverty	Development of methodologies for assessing and combating energy poverty, in collaboration with the COST action and the European Commission's newly established EU Energy Poverty Observatory. The first deliverable will focus on providing a methodological approach for defining and measuring energy poverty, providing examples on how these can inform energy poverty mitigation policies. A second deliverable will provide perspectives on energy poverty and vulnerable consumers based on evidence from the JRC database on Smart Grid Projects (e.g. http://ses.jrc.ec.europa.eu/smart-grids-observatory). The focus will be on those projects in the database that present a community-based approach in order to gain insights into local energy community practices and solutions for energy poverty alleviation. These insights will provide support and contemplate those of the COST action.	01/09/2019	Science for Policy reports

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568 - WEFE Nexus JRC.D.2	6320 - WEFE - Energy WEFE - Water and Energy Analyses	The objective of this WP is to assess the water-energy nexus in a low carbon energy system, making use of expertise, models and scenarios already available at the EC (such as the JRC models Dispa-SET and LISFLOOD, or ENER's EU Energy Reference Scenario), in order to i) identify water/energy management and production strategies that result in overall benefits to the economy and society at broad, with a more balanced water demand and availability, especially in water-stressed areas, and ii) provide modelling-based estimations of the baseline conditions and interactions of water quantity, water quality, and energy production. The results from this WP will contribute to WEFE project deliverables aimed at i) understanding the impacts and of water resources on the operation of the energy system, and vice versa, ii) the spatial analysis and projection of water and energy requirements of agricultural and urban areas in different regions, as well as iii) producing insights for a better management of water and energy resources. This work is needed for supporting the impact assessments and communications related to the Energy Union Actions, and data analysis and intelligence in areas of interest for the EU (e.g. EU member states, neighbouring countries, or Africa). The work package is also aimed at supporting ongoing collaborations with DoE/ TEC WG on Technology, the Copernicus initiatives on energy and climate, and the Union for the Mediterranean, as well as JRC's knowledge centres (e.g. Knowledge Hub on Water and Agriculture).	JRC.C.7	3.2.c	ENER	JRC	AGRI CLIMA DEVCO ENER ENV ESTAT NEAR REGIO RTD	ICPDR - International Commission for the Protection for the Danube River EEA - European Environment Agency IEA - International Energy Agency SET-Plan - Strategic Energy Technology Plan (SET Plan) UN ECE - UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE US DoE - US Department of Energy (DOE)	01/01/2018 31/12/2020	CON-IA,INS-RS	201801	Analysis of the potential of the water system as a source of flexibility for the European power system	Study of the water infrastructure as a source of flexibility for the power system, based on a mapping of the energy needs from the water sector (including pumping, transport, distribution, collection, treatment, and desalination services), quantifying the: i) energy storage potential of the water supply and distribution network, ii) potential of the water treatment plants and desalination plants to integrate peaks of renewable energy production. Initially focused on selected European urban regions, the results will be generalized into broader policy recommendations with special attention to the renovation of water infrastructure to cope with increased climate and energy production variability. They will support the main WEFE reports on the "Potential for water infrastructure to enable electricity system flexibility in Europe" and "A spatial baseline analysis and projection of water and energy requirements of agricultural and urban areas in the Mediterranean region".	30/06/2019	Science for Policy reports
											201900	AMBER: Online Stream Barrier Interactive Atlas	This deliverable deals with the "ecosystems" part of the water-energy nexus. River fragmentation by barriers of different sizes is a key pressure preventing European rivers to reach good ecological quality. Management of this fragmentation, as requested by the Water Framework Directive, requires reliable information of the location of barriers. Many of those barriers are for hydropower, and the AMBER Atlas provides the necessary information for proper barrier management (construction of new dams, dam removal, mitigation of negative ecological effects), through the concept of 'adaptive barrier management'. The AMBER atlas is the first comprehensive web-based presentation of the location of river barriers, their types, and their key attributes, based on a collation of existing national and regional data sets, validated through a comprehensive field exercise, complemented by data collated by citizens using a smartphone app.	30/09/2019	Sci information systems and databases
											201901	The role of renewables in addressing water demands of the African energy sector	Analysis of the feasibility of renewable energy production at different scales in Africa, including an estimation of water demand from the African energy sector (primary energy supply and transformation) with publicly available scenarios and projections (e.g. JRC's Global Energy and Climate Outlook, IEA's World Energy Outlook, or DOE's International Energy Outlook). Grid-connected or off-grid solutions will be assessed. The deliverable will explore the potential role of renewables for improved water availability and access to affordable, reliable, sustainable and modern energy for all. Integrated energy and water (e.g. access, irrigation) analysis will support policy formulation, implementation and monitoring. This deliverable will contribute to the project deliverable 2020-02: "Fairness in access to resources: addressing trade-offs in water, energy, food and ecosystem security in Africa".	01/09/2019	JRC technical reports
											201902	Water-energy nexus knowledge management support	This WP contributes to project level deliverables and other ongoing WEN-related activities, namely: 1) the development and dissemination of the EMHIRE hydro dataset, for water-energy modelling in Europe, in particular supporting WP 6351 METIS and Copernicus-related activities; 2) support DG RTD on the ongoing collaboration with DoE/TEC WG on integrated water-power system modelling, 3) socio-economic and techno-economic assessment of ocean/marine energy technologies, 4) activities in support of the "Clean Energy to EU Islands" initiative (e.g. desalination, PV,Wind and Ocean energy technology application for carbon neutral islands) or the analysis of the energy footprint of the energy sector and vice-versa, 5) activities in support of the Water Framework Directive related to hydromorphology and ecological potential, and 6) mapping of opportunities from coupled management of water and energy in European urban systems.	31/12/2019	Technical Reports
											202001	Development and application of models for analysing the interactions between the water and power sectors	Case studies based on the methodologies developed during the WATERFLEX exploratory project (Water Resources Providing Flexibility to the European Power System) analysing (with the Dispa-SET and LISFLOOD models) the implications of water resource availability on power system economics and operations, as well as the impacts of power production on the water systems under different scenarios, in Africa, Europe and the Mediterranean. This deliverable includes potential model developments and applications contributing to the project level deliverables 2019_02 "Report on projected water-energy-food supply-demand disparities and alternative options for management of consumption in Europe" and 2020_01 "The Mediterranean WEFE Nexus Atlas - Spatial baseline analyses and projections of water-energy-food requirements of agricultural and urban areas in the Mediterranean region, including best practices".	31/12/2020	Sci information systems and databases
											202002	Analysis of sustainable energy options for improved access to clean water	This deliverable will study specific sustainable energy options to address energy-water-food and challenges in Africa, in an integrated manner. It will investigate alternative sustainable energy solutions such as tolerant plant species (e.g. halophytes) that have the potential to purify water and contribute to water, energy, food and feed supply in marginal and degraded lands, using saline, municipal and aquaculture wastewaters. The deliverable will also examine the potential role of wastewater and estimate its untapped potential in African cities for energy and clean water provision. Overall, the exercise will analyse interactions between water use, clean energy, and food production on multifunctional land use systems of Africa.	31/12/2020	Journal contributions (Clarivate)
271 - EMSI JRC.C.3	6353 - ERMWI Electricity Retail Markets and Wholesale Interfaces	Electricity Retail Markets and Wholesale Interfaces deals with the interactions between transmission and distribution of electricity, and wholesale and retail markets. It is a cross-disciplinary WPK that will provide insights both from a technical and from an economic standpoint to support the provisions for reinforcement of EU retail markets, as included in the "Clean Energy for all Europeans" package.	JRC.C.3	3.2.c	ENER	JRC	COMP		01/01/2018 31/12/2020	INS-RS	5	DiNeMo web module - phase 2	This module will allow researchers from all over the world to test in a cloud (managed through the website ses.jrc.ec.europa.eu) reference Network models. In the second phase, the interaction among researchers will be allowed, using each other's case studies. (In the first phase, researchers will be only allowed to test their own cases).	30/09/2019	Technical systems
											7	DSO Observatory, 2020 edition	This deliverable is the next edition of the Distribution System Operators observatory report. As the previous editions, it will provide a snapshot of the role of DSOs in Europe, especially after the approval of the Clean Energy Package.	30/09/2020	Science for Policy reports
271 - EMSI JRC.C.3	7542 - AMAD 4 CEP AMAD 4 CEP	AMAD 4 CEP is a new Administrative Arrangement to be concluded with ENER B.2 Wholesale Markets and possibly ACER - Agency for the Cooperation of Energy Regulators in Europe. It will be carried out in cooperation with JRC Units B.1 and I.3, who have already worked with ACER in the past. It will be backed up by institutional resources.	JRC.C.3	3.2.c	ENER	ENER, JRC	COMP	ACER - European Agency for the Cooperation of Energy Regulators (ACER)	01/01/2019 31/12/2022	CON-AA,INS-RS	1	JRC report on Adequacy, Monitoring and Anomalies Detection	In this report the JRC will present the interactions on the three topics (Adequacy, Monitoring and Anomalies Detection in the energy market) and discuss them with the relevant experts from around Europe and beyond. The Science for Policy Report to be delivered to ENER will define the priorities and the scientific orientations of the work to be performed during the rest of the AA. It will be made up by 3 main chapters: - economic implications of adequacy in the Internal Energy Markets - Monitoring of the wholesale markets - Anomalies detection in the wholesale energy markets. Each of the three components mutually benefits from the others.	31/10/2019	Science for Policy reports
											2	Adequacy, Monitoring and Anomalies Detection within the Clean Energy Package	This report will present the results of the scientific activity performed by the Units C.3, I.3 and B.1 on the topics described in Deliverable 1. After Deliverable 1, which will define the context and the scope of the research (to be completed in the first year of the Administrative Arrangement), this deliverable will provide the simulation results for all the three parts of the AA: economic adequacy, market monitoring and anomalies detection and identify what research gaps should be filled up next.	31/10/2020	Science for Policy reports
208 - INTEROP-STORE JRC.C.4	7765 - DELTA Future tamper-proof Demand rEsponse framework through self-configured, self-opTimized and collAborative virtual distributed energy nodes	The Energy Efficiency Directive (2012/27/EU)7 establishes the requirements and technical modalities that regulators, TSOs and DSOs among the Member States need to adjust to, in order to facilitate energy market participation of demand response services. Exploiting the demand flexibility in small and medium scale consumers, instead of investing in new non-renewable transmission-connected generation capacity introduces a more pro-active and effective approach for the future Smart Grid energy transactions. The DELTA ICT Framework poses as a breakthrough concept in designing, developing and integrating innovative DR solutions that can unleash the demand response potential of small and medium scale prosumers in Europe. DELTA aims to address the aforementioned gaps in current demand-response schemes, through several cutting-edge technologies aiming for cross-vertical business domain applications.	JRC.C.3	3.2.c	ENER	RTD	GROW		01/05/2018 30/04/2021	CON-IA	T14D14	D1.4 – Performance Measurement & Verification methodology report (R, PU, M18 and M28)	As real-time Demand Response strategies are exposed to several uncertainties (e.g. Distributed Generation forecasts), a cost-effective verification framework for analysing savings that occur during the piloting period. Best practises and lessons learned by other Demand Response programs in International level will be investigated117, relying i) on ground truth data generated from the smart metering infrastructure of the pilots, ii) key performance indicators are estimated using periodic rather continuous data collection, and iii) extending metering for the baseline period using the eeMeasure methodology. For more details see Section 1.3.6.2. This methodology will guide all pilot demonstration and validation activities of WP7	31/10/2019	Technical Reports
											T43D43	D4.3 – DR, Flexibility Forecasting and Energy Market Simulation (R+OTH, PU, M28)	This task will deliver an empirically grounded large-scale simulation methodology for the evaluation of the multi-scale and critical self-organized smart energy grid management in terms of Demand Response mechanisms and flexibility, as to provide accurate and fast models that will allow the Aggregator to forecast DR and flexibility when requested, enriching the information provided to the DSS that will be developed in T4.4 towards optimising the DR signals dispatched from the Aggregator. To that end, a complete Test Suite for various DR scenarios and the available energy portfolio will be defined, describing also some key point interrelations among consumers/prosumers, layout, input data, expected results, response times, etc. so that bottlenecks and critical customers could be analysed before real-life testing and any arising issues addressed as early as possible, while also optimal DR-enabled customers can be properly identified and all available flexibility can be accessed.	30/09/2020	Technical Reports

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208 - INTEROP-STORE JRC.C.4	7766 - DRIMPAC Unified DR interoperability framework enabling market participation of active energy consumers	Buildings constitute a vast, yet currently untapped, source of energy demand flexibility that can provide invaluable services to the energy system. This flexibility currently remains unattainable due to the lack of a technological framework that can connect the multitude of buildings and building systems with the energy system in a cost-effective manner as well as the reluctance of energy consumers to enroll in demand response programs. DRIMPAC offers a comprehensive solution to empower consumer to become active participants in the energy markets. It comprises three main pillars: a) A legacy and Standards-compliant interoperability framework to interconnect building energy loads/appliances and expose their demand flexibility as price-responsive demand to the grid or for market actors to aggregate and bid in ancillary service markets. b) A human-centric, intelligent building energy management system that will lift the burden of demand response from the consumers shoulders and reduce reluctance and fear of participation in DR programs. It will infer user comfort preferences and dynamically control building loads to minimize energy cost and use for the building occupant leveraging dynamic prices, while always preserving comfortable and healthy indoor conditions. c) Innovative business models and service offering for energy retailers in order to facilitate their transformation from commodity suppliers to digital energy service suppliers and kick-start the deployment of the DRIMPAC solution in the market.	JRC.C.3	3.2.c	ENER	RTD	GROW		01/09/2018 31/08/2021	CON-IA	T15D15	D1.5 – Performance Measurement & Verification methodology report (R, PU, M11)	The evaluation of complex, combined implicit and explicit Demand Response intervention will require a comprehensive Performance Measurement & Verification methodology, which will be developed within this task. On top of the standard provisions for the assessment and validation of energy related interventions in buildings, the PMV methodology will also extend to interpreting why interventions do (not) work as well as for which consumer demographics in order to provide valuable insights to retailers for the definition of their marketing strategy. This methodology will guide all pilot demonstration and validation activities of WPA4.	31/07/2019	Technical Reports
											T46D47	D4.7 – Ex-ante analysis and baseline estimation for pilot premises (R, PU, M27)	The task aims to perform an overall analysis and evaluation of the pilot operation phase of the project across the pilot sites based on the methodology of T1.5. A consolidated evaluation will take place for providing individual, aggregated and comparative assessments of pilot results considering several aspects, including: a) the technical performance of the DRIMPAC solution, b) its effectiveness in reducing building energy costs, facilitating self-consumption and increased participation of consumers in the market, c) its efficiency in discovering and delivering the expected demand flexibility to satisfy retailer and grid operator requests, d) the interactions between the system and human users and how closely it complied with their inferred or stated preferences, e) the overall satisfaction and acceptance of the pilot users.	15/12/2020	Technical Reports
											T46D48	D4.8 – DRIMPAC solution holistic evaluation	Post-intervention surveys will be conducted to elicit the participant experiences from system performance, user interactions and the degree of expectation achievement. Special emphasis will be placed on understanding and quantifying the user perceived value – in the context of the achieved energy cost reduction – and how much they would be willing to pay, if engaged in the appropriate contractual arrangement with their energy retailer. During this task further improvement actions, interventions and measures will be defined to successfully exploit DRIMPAC components as commercial products that address real market and user needs.	30/07/2021	Technical Reports
											T51D51	D5.1 – Report on activities for the definition and promotion of DRIMPAC standardization punch-list (R, PU, M36)	The purpose of this task is to define the standardization punch-lists, the concrete proposal for standards extensions that would be required in order to enable the benefits of the DRIMPAC system and overall approach. The main emphasis will be on OpenADR, where significant extensions will be proposed as outlined in Section 1.4.1.2. Extensions to the OneM2M standard will also be structured in a punch-list that can be used to promote them to the respective standardization body. This task also encompasses all activities necessary for the promotion of these extensions to the appropriate bodies, technical committees and working groups in order to initially obtain feedback and find a common ground with the committees and secondly to push the necessary extensions to enable the replication and upscaling of the DRIMPAC solution.	31/08/2021	Technical Reports
271 - EMSI JRC.C.3	7922 - EleComp Technical assessment of restrictions to electricity	Technical assessment of restrictions to electricity market competition through limitation of cross-border transfer capacity. The WPK will assess specific cases which will be selected together with the partner DG, DG COMP.	JRC.C.3	3.2.c	COMP	COMP	ENER		01/01/2019 31/12/2020	CON-AA	1	Assessment of selected case studies	Annual Science for Policy Reports including the assessment of specific cases to be selected by the partner DG, e.g. Poland-Germany interconnection, France – Germany interconnection. One science for policy report will be produced every year (2019 and 2020).	22/12/2020	Science for Policy reports
<p>3.2.d Energy efficiency and local climate and energy action - support the implementation of the current and revised EU energy efficiency legislation, including on energy performance of buildings and on efficient heating and cooling; analyse the development and deployment of energy efficiency technologies; assess technology innovation in energy-intensive industries; support the Covenant of Mayors for Climate and Energy in the EU and beyond, including by assessing national plans on energy efficiency, renewables, emissions reduction, climate adaptation and access to energy, long-term renovation strategies, as well as assessing and reporting on the results and (potential) impact of the initiative with a view to contributing to policy orientation; perform modelling and cost-benefit analyses; support the EU Building Stock observatory and maintain the European Energy Efficiency Platform; support the initiative for Coal and Carbon-Intensive Regions by assessing clean energy transition potential and by identifying priority regions that depend on carbon intensive activities.</p>															
326 - EE JRC.C.2	607 - EEinPr Energy Efficiency in Products	The objective of this WPK is to assess the role of technology innovation and the policy options for the reduction of energy consumption of end-use products. The WPK focuses in particular on supporting EU sustainable product policies, in particular the Eco-design and Energy Labelling and indirectly the Circular Economy. These are key EU energy efficiency policies in the third pillar of the Energy Union, i.e. the moderation of the energy demand. These policies are expected to deliver by 2020 half of the EU energy efficiency target. The WPK analyses the current energy consumption of key products in different sectors and the technical and economic energy efficiency potential. The WPK will develop advanced methodologies and indicators to measure energy savings resulting from energy efficiency policies. Finally the WPK investigates innovative policies, financing and business models for the adoption of high efficient equipment and systems through energy saving companies (ESCOs). Special emphasis will be placed on Information and Communication Technologies (ICT), motors and drives, smart and connected appliances, and lighting. In ICT the research is focused on technologies to reduce the fast growing energy consumption associated to the internet and cloud computing. In particular it covers broadband equipment and data centres, including servers, storage and networking equipment. The work on data centres is not yet covered by the Eco-design measure and therefore of particular importance due to the uniqueness of this research at European level. Of particular importance are the further development of the European Codes of Conduct for energy efficiency in ICT as a unique research implemented in collaboration with major industry stakeholders and research centres. The WPK contributes to the development of international (IEC) and European standards (CEN/Cenelec) on energy efficiency measurement methods. The WPK will assess social practices related the energy consumption in products. This WPK makes public the findings in JRC reports, including the Status Report on Energy Efficiency, and peer-review publications. The data collected in this WPK will feed into the Energy Efficiency Platform (E3P), thus contributing to its success. This work is needed because no other public or private institution is able to carry it out in an independent manner. Stakeholders, including key manufacturers, stress the important role of the JRC in energy efficiency in products.	JRC.C.2	3.2.d	ENER	JRC	CLIMA CNECT ENV GROW JUST	- European Telecommunication Network Operators' Association CEN - European Committee for Standardization CENELEC - European Committee for Electrotechnical Standardization (CENELEC) EDCA - European Data Center Association ETSI - European Telecommunications Standards Institute (ETSI) IEA - International Energy Agency IEC - International Electrotechnical Commission ISO - International Organization for Standardization (ISO) ITU - International Telecommunication Union	01/01/2014 31/12/2020	INS-RS	2	Impact of Internet of Things (IoT), Cloud Computing, Blockchain and Demand Response on Energy Efficiency and Energy Consumption	The Internet of things (IoT) is the inter-networking of physical devices, products, appliances (also referred to as "connected devices" and "smart devices"), buildings. IoT is predicted to have an important impact on energy efficiency of products and systems, allowing to optimise energy consumption with the exchange of data and feedbacks from control units. The report investigate the latest developments on IoT, Cloud Computing and Blockchain in relation to energy efficiency in products, showing exemplary applications and innovative solutions, together with market and technology developments. Also the additional consumption due to communication devices and sensors will be investigated. New results from scientific events with the scientific leadership by the JRC such as EEDAL and EEMODs conferences are part of the deliverable. A new status of the Demand Response market will be prepared to analyse current developments, remaining barriers and suitable policies.	31/12/2019	Science-for-policy reports
											21	Methodology to assess effectiveness of the energy saving policies since 1990	Peer reviewed articles based on research on new and innovative methods to assess energy savings resulting from energy efficiency policies. These methods are based on econometric modelling (e.g. panel model, data envelop analysis, etc.). Focus of the research is on EU products policy achievements (e.g. Eco-design, the Energy Label, the Energy Efficiency Directive, etc.). Part of the research activity is to assemble the database of EU and MSs energy efficiency policies since 1990. The research will also compare the results of the modelling with other more traditional methods to evaluate policy induced energy savings such as decomposition analysis, randomized control trial (RCT), longitudinal study, etc.	28/02/2019	Journal contributions (Clarivate)
											3	Assessment of Policy Induced Energy Savings	Based on the JRC energy policy database (derived from the MURE database) the energy savings due to the EU and national energy efficiency policies in the various sectors will be calculated by using an econometric models. The focus will be on the residential and service sectors. In addition, the annual Status of the Energy Consumption Report will be prepared.	30/11/2019	Science for Policy reports
											4	Sustainable social practices, collective Actions and Social Innovation, with focus on products and systems for household services	This deliverable analyses possible energy and water savings associated with the reorganization of social practices related to household services. Traditional sustainable energy policies are designed by addressing in isolation and within sectorial boundaries the challenge of reducing energy inputs needed for technologies and services responsible for household services. This deliverable aims to identify the limitation of this "traditional" approach and to show how, by focusing on changing social practices (e.g. related to food production, washing, comfort, cleanliness and convenience), allows facing this challenge in a systemic way, which very effectively complements traditional policy approaches. Some new sustainable energy policy options based on Sustainable social practices will be identified. Articles discuss the relevant social innovation potential that can be associated with collective actions and existing barriers impeding that this potential.	30/11/2019	Journal contributions (Clarivate)
											7	Refined methods to evaluate energy savings	Update and refinement of the JRC energy policy database (derived from the MURE database). Innovative econometric techniques will be used to identify the energy savings resulting from the EU and national energy efficiency policies in the various economy sectors (residential, service, industry, transport). Evaluation of methods based on results will be performed. In addition, the annual Status of the Energy Consumption Report will be prepared.	31/10/2020	Journal contributions (Clarivate)
											71	Market Assessment of Energy Service Companies	The deliverable will present a detailed analysis of the current market of Energy Service Companies (ESCOs) in the EU Member States and other countries. The market assessment includes the analysis of the barriers and drivers for the development of the national ESCO markets, as well indicators (e.g. number of projects, level of investments, sector covered, etc.) on the developments of each national market. The report will particularly focus on Energy Performance Contracting. An expert workshop will be organised to collect information on market developments and best practices.	15/04/2019	Science for Policy reports
											8	Annual Technical Revision and Update of the European Codes of Conduct for Energy Efficiency in the ICT	Information and Communication Technology (ICT) is the fastest growing electricity load due to internet (e.g. social media, e-shopping, etc.), the mobile communication (e.g. 5G), blockchain, and cloud computing. The European Codes of Conduct are pre-normative and pre-regulatory European initiative managed by the JRC in collaboration with research institutes, academia and industry to monitor and improve energy efficiency in ICT. Currently there are 5 European Codes of Conduct for: Broadband Equipment, External Power Supplies, Digital TV Services, Data Centres and UPS. Due to fast technological development under this deliverable the technical specifications (e.g. power consumption levels and types of equipments) will be revised in agreement with stakeholders. The deliverables are Technical Reports (one for each Code of Conduct) with annual updates, including best practices examples and evaluation of energy consumption.	31/12/2020	Technical Reports
437 - SAFE&CLEAN-CONSTRUCT JRC.E.4	4922 - The IDEA Thermal Envelope for an innovative Dynamic Efficient Approach	The WPK is studying the building cladding systems made with a high amount of thermal energy Storage Aggregates* (TESAs). The use of TESAs increases thermal inertia of the panels and blockworks thanks to the presence of Phase Change Materials (PCMs). The selection of the most promising PCMs was not limited to technical and practical aspects, but all environmental issues were considered from the perspective of Life Cycle. In particular, bio-based PCM products that promise to be successful, both for economic and environmental reasons, being now considered as waste product of several industrial processes. The WPK is based on results of a recent and successful exploratory research (E4iBuildings). Moreover, an innovative process to manufacture TESAs has been patented as a spin off of E4iBuildings.	JRC.E.4	3.2.d	ENER	JRC	ENER ENV REGIO	- Building Research Institute CEMBUREAU - European Cement Association	01/01/2017 31/12/2020	INS-UR	2a	Design of building envelopes using TESAs	The developed assessing procedures, methodologies and devices for measuring the energy efficiency of dynamic insulation will be presented and discussed. The technical aspects of construction and monitoring will be presented aiming at to share knowledge on operational procedures to be adopted in order to maximize the benefits of these new solutions.	16/12/2019	Technical Reports
7670 - GOV-EU JRC.C.7	6312 - EEHCP ext Energy efficiency heating and cooling potential - extension	JRC shall provide DG ENER with technical assistance, analysis and input to support the implementation of Article 14 of Directive 2012/27/EU on energy efficiency. The JRC should also contribute to the development of related policies for the strengthening of the EU energy efficiency framework on heating, cooling and electricity supply.	JRC.C.7	3.2.d	ENER	ENER	REGIO		12/08/2017 05/05/2019	CON-AA	2	Update of methodology for Art 14 of EED	Update of the methodology for the Comprehensive assessment of efficient heating and cooling potentials in the context of art 14 of Directive 2012/27/EU on energy efficiency (EED), to take stock of the experience gained through the review of the 28 national comprehensive assessments carried out in 2016-17.	30/04/2019	Science-for-policy reports

JRC 2019 - 2020 DETAILED WORK PLAN															
Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
271 - EMSI JRC.C.3	6313 - S3PE H&C Smart specialisation energy heating and cooling	The objective of this AA is to support the effective uptake of the cohesion funds for those regions with particular interests in the thematic area of sustainable heating and cooling. To do so, knowledge sharing will be promoted and dedicated information will be tailored to facilitate decision-making of regions in the H/C field. The work plan is based on the cooperation with regions that are interested in receiving specific support from the Commission in this topic. The S3 Platform will act as a facilitator for regions and countries in the uptake and incorporation of the smart specialisation concept and methodology in their research and innovation strategies. The WPK will also support to R&I strategies for Smart Specialisation in the heating and cooling sector.	JRC.C.7	3.2.d	ENER	ENER	REGIO		01/07/2017 28/02/2019	CON-AA	1	Support development of regional H&C priority plans.	Two workshops will be organised to provide best practices, present technology solutions, and offer practical support. The workshops will facilitate mutual learning, best practice exchange and the creation of the partnership. A report with general recommendations about heating and cooling priorities for each region will be provided.	30/09/2018	Science-for-policy reports
											2	Internal report with policy recommendations	Internal report with policy recommendations to DG ENER how the uptake of regional funds can be improved in the future.	28/02/2019	Science-for-policy reports
337 - CoM JRC.C.2	6362 - CoM EU/Global Covenant of Mayors EU & Global	The main objective of this WPK is to provide technical and scientific support to the Covenant of Mayors Initiative in the EU and in the regions supported by FPI, in the Covenant pillars (mitigation, adaptation to climate change and secure, sustainable and affordable access to energy) keeping in mind the different experiences and conditions encountered by towns and cities in the different regions. The WPK allows assessing the contribution of the local and regional authorities to the achievement of EU Energy Policy's goals and collecting information and data on the type of measures adopted and their geographical distribution. One key task (in collaboration with the technical Global Covenant expert working group on data) will be the setting of the methodologies for emission inventories, data reporting and sustainable energy and climate planning for the Global and Regional initiatives development. The purpose of this task is to ensure the overall methodological consistency and robustness of the Covenant initiative world-wide. Other key tasks include the continuous overall assessment based on submitted SEACAPs; the analysis of policies and measures adopted by the cities; the financial instruments used to allow the transition to low-carbon and resilient cities; and the assessment of the planned/achieved energy savings and adaptation by policy. These tasks will result in the release of a yearly publication summarising the achievement of the Global Covenant. The JRC will also support DG ENER/ CLIMA and FPI in the adaptation of the Covenant to the new global framework by adjusting its tools accordingly, including a new and upgraded data handling architecture allowing the in house web applications (for the SECAPs and monitoring analysis) to share access to the Covenant data in a more optimized way. Moreover, the new system will allow JRC having instant direct access to the whole dataset, needed for the assessment and methodological purposes included in previous Finally, the JRC will continue operating a second-line technical helpdesk replying to cities' questions on SEACAP development and monitoring. The emergence of the Global Covenant requires that the technical helpdesk function co-run by the JRC is extended to support contractors implementing the global initiative. It is expected that the contractors' experts will need specific and	JRC.C.2	3.2.d	ENER	ENER	CLIMA FPI		20/09/2017 19/09/2020	CON-AA	1	Update of the Guidebook	The updated Guidebook will cover the Access to Energy pillar and the new harmonised reporting framework, and will include the expertise developed within the GCoM Technical Working Groups.	31/01/2019	Science for Policy reports
											2	New Guidebooks for regions outside the EU	Adaptation of the EU Guidebook to the specific situations of the main regions/countries outside the EU participating in the Global CoM, in close cooperation with EC Foreign Policies Instruments.	31/12/2019	Science for Policy reports
											3	Training on SECAPs in regions outside the EU	Training provided to regional; CoM Secretariat and local city experts on SECAP process, including BEI, Climate planning, adaptation and access to energy	18/09/2020	Training
											3	New architecture of the Covenant of Mayors data system	The objective of this deliverable is to implement a new data architecture allowing the in house web applications (for the SECAP and monitoring analysis) to share access to the Covenant data provided by cities in a more optimized way. The system will also allow archiving regularly (twice/year) frozen database versions of the CoM database(s), in which original figures remain available for comparison with later versions. Moreover, the new system will allow the JRC to have instant direct access to the whole dataset, needed for the assessment and methodological purposes included in previous. This will be achieved with the implementation of a master/slave solution hosted by JRC.	31/07/2019	Sci information systems and databases
											4	overall assessment of the initiative and aggregation report	Assessment of CO2 emission reduction, energy savings, local energy production, based on SECAPs and monitoring plans. Projection at 2030 and 2050 and contribution to assessment of the GCoM. Activity based on the processing of the data from the CoM data base. This activity will be the source of peer reviewed papers.	28/12/2019	Science for Policy reports
											4	Training of contractors running regional first-line helpdesks	A Covenant helpdesk has always been a central point of the Covenant initiative, as it links the request for assistance coming from signatory cities and other Covenant stakeholders with the provision of technical assistance services. The emergence of the Global Covenant requires that the technical helpdesk function co-run by the JRC is extended to support contractors implementing the global initiative. There will be five (5) contractors responsible for various geographical parts of the Global Covenant of Mayors based in Brazil (for Latin America and the Caribbean); Mexico (for North America including Mexico); China (for China, South Korea and certain South-East Asian partners); Japan (for Japan) and India (for India). The contractors will run first-line helpdesks for signatories of the Covenant. It is expected that the contractors' experts will need specific and regular training from the JRC on the Covenant methodology to allow them to operate the first-line helpdesks.	31/03/2019	Training
271 - EMSI JRC.C.3	6386 - H&C markets Heating and cooling markets	This WPK supports the development of efficient heating and cooling (H&C) markets and solutions in the EU. The WPK aims at: (i) providing direct support requested by policy DGs in Brussels, e.g. preparing a methodology for evaluating shares of renewable cooling for the Renewable Energy Directive (ii) increase knowledge about new heating and cooling solutions, (iii) develop knowledge about optimal integration of efficient low carbon heating and cooling technologies. Their overall objective is to provide policy-makers with insights and recommendations on the future developments of the heating and cooling sector. The topics treated aim at supporting the implementation of the Clean Energy Package, the Heating and Cooling Strategy (COM(2016)51), and the revised Renewable Energy and Energy Efficiency Directives. The work will also support the Digital Single Market by examining the expected transformation from implementing IT in the heating and cooling sector. The Energy Efficiency Directive is a key EU policy to reach the 2020 and 2030 energy and climate targets. It requires Member States (MSs) to adopt a number of specific policies, to prepare every 3 years a National Energy Efficiency Action Plan (NEEAP) and to report annually on the energy savings achieved thus allowing a strong monitoring of the progresses by the Commission. In the Winter Package of 2016 the Commission has propose the extension of the EED to 2030. The Energy Performance in Buildings Directive requires strong implementation of policies in the buildings sector by MSs, for examples having all new buildings to be NZEBs by 2021. The present WPK is a new AA with DG ENER (continuing the work of the TSSEED AA concluded in December 2017) and it includes the JRC support to DG ENER for the effective implementation of the EED and EPBD by MSs and the monitoring of the MSs' progresses towards the 2020 and 2030 energy savings (e.g. assessment of MS targets and policies, as described in the NEEAP, the Building Renovation plans, the annual reports, etc.). The WPK includes the support for the future revisions of the EED and EPBD as well as the contribution to the major EU financial initiative for energy efficiency: the Smart Financing for Smart Buildings initiative. While the other WPKs in the EE project cover specific sectors such as building, products, industry, heat and cooling and are investigating technologies and policies, this WPK is of horizontal nature covering all the sectors as well as policies across different sectors such as taxation, behaviour,	JRC.C.7	3.2.d	ENER	ENER, JR C		01/01/2018 31/12/2020	CON-AA, INS- RS	1	Energy policy support to heating and cooling sector	This deliverable concerns outputs with immediate links to policy development in the heating and cooling sector. The following outputs are foreseen during 2019: 1. Support to request from DG ENER on methodology development to evaluate the share of Renewable cooling. In 2019 we supervise an external study and we draft an Annex for the revised Renewable Energy Directive. 2. Study on digitalisation of the future heating and cooling sector. Benefits will be analysed, e.g. more optimal operation, momentaneous information about the performance of equipment. How blockchain technologies can be used will be treated, as well as the risks associated with the digitalisation. 3. Report on renewable heating technologies. It will present the state of the art, expected developments and market developments.	31/12/2019	Science-for-policy reports	
										2	Energy efficiency and renewable energy implementation strategies in the heating and cooling sector	This deliverable concerns outputs related to analyses of implementing energy efficiency improvements and renewables in the heating and cooling sector. The outputs during 2019 are: 1. Study on the interactions between heating & cooling and electricity systems and in particular identification of solutions that can provide benefits to both systems. This report is the third in a series, here the policy implication on European scale is investigated. 2. Report on cost-optimal implementation of energy efficiency measures in the heating and cooling sector of cities. It compares different building typologies in various climates by performing Cost-Benefit Analyses. The study would allow providing policy guidance on an optimal set of cost-efficient measures to increase the energy efficiency and sustainability in the heating and cooling sector in cities. 3. Report on how renewable heating and cooling use in industry.	31/12/2020	Science-for-policy reports	
7670 - GOV-EU JRC.C.7	6406 - TSSEED II Support to EE and EPBD Directives Implementation 2017-2020	The Energy Efficiency Directive is a key EU policy to reach the 2020 and 2030 energy and climate targets. It requires Member States (MSs) to adopt a number of specific policies, to prepare every 3 years a National Energy Efficiency Action Plan (NEEAP) and to report annually on the energy savings achieved thus allowing a strong monitoring of the progresses by the Commission. In the Winter Package of 2016 the Commission has propose the extension of the EED to 2030. The Energy Performance in Buildings Directive requires strong implementation of policies in the buildings sector by MSs, for examples having all new buildings to be NZEBs by 2021. The present WPK is a new AA with DG ENER (continuing the work of the TSSEED AA concluded in December 2017) and it includes the JRC support to DG ENER for the effective implementation of the EED and EPBD by MSs and the monitoring of the MSs' progresses towards the 2020 and 2030 energy savings (e.g. assessment of MS targets and policies, as described in the NEEAP, the Building Renovation plans, the annual reports, etc.). The WPK includes the support for the future revisions of the EED and EPBD as well as the contribution to the major EU financial initiative for energy efficiency: the Smart Financing for Smart Buildings initiative. While the other WPKs in the EE project cover specific sectors such as building, products, industry, heat and cooling and are investigating technologies and policies, this WPK is of horizontal nature covering all the sectors as well as policies across different sectors such as taxation, behaviour,	JRC.C.2	3.2.d	ENER	ENER	CLIMA		08/12/2017 31/12/2020	CON-AA	1	Update of European Energy Efficiency Platform (E3P)	Annual Update and maintenance of the European Energy Efficiency Platform (E3P). The E3P serves as the Commission on-line platform foreseen by the Energy Efficiency Directive Article 25, facilitating the practical implementation of the Directive at national, regional and local levels, with data collection and analysis.	31/12/2020	Datasets
											10	Reports on specific articles of the EPBD	As specified in the AA the JRC will carry out studies for monitoring the implementation or the revision of specific article of the EED on e.g. heat metering, financing, energy audits, energy companies obligations, split incentives and of the EPBD on e.g. Net Zero Energy, on cost-optimality. The JRC reports are based on surveys, expert consultations and workshops	31/12/2020	Science for Policy reports
											6	Collection of indicators/data on indoor environmental quality related to buildings	This task will consolidate data on indoor environmental, thermal comfort, ventilation and health in a co-ordinated and systematic way with the aim to centralise large-scale national/regional datasets. The results of the work will be integrated in the EU Building Stock Observatory and used for policy analysis	28/02/2019	Science for Policy reports
											6	Report on specific articles of the EED	As specified in the AA the JRC will carry out studies for monitoring the implementation or the revision of specific article of the EED on e.g. heat metering, financing, energy audits, energy companies obligations, split incentives. The JRC reports are based on surveys, expert consultations and workshops.	31/12/2020	Science for Policy reports
326 - EE JRC.C.2	6438 - SelfCities Self-sustaining energy supply for cities	Today, ca. 75% of EU citizens live in urban areas, which account for up to 80% of energy consumption and GHG emissions. The WPK investigates the transition towards a carbon neutrality at urban level, including the exploitation of carbon neutral energy generation with renewable energy sources (RES) at local level. The Energy Union highlights consumers at the heart of the energy transition. Consumers are individual citizens, households, non-commercial organisations, public entities and SMEs that actively participate in the energy market, either individually or through Sustainable Energy Communities (SECs). SECs are legal entities where citizens cooperate in energy efficiency and demand-side management services as well as the generation, distribution and storage of energy from RES. They aim to benefit all stakeholders and enable an open participation and democratic governance of the undertaking. Using RES and their potential as the least cost option for power and heat generation at community level provides the chance to eliminate energy poverty. With 40% of the final energy consumption and 36% of CO2 emissions in Europe, the building sector is the main target of energy efficiency (EE) policies. This WPK will evaluate the energy generation potential of decentralised RES and the management of energy use in urban areas in an efficient and CO2 reducing way. The results combined with those from TSSEED will provide much needed evidence for effective EE in buildings policy. The WPK will explore pathways towards the decarbonisation of urban areas, and how to match reduced energy demand with local renewable energy production. The focus will be on technical solutions to reduce the energy consumption of the building stock, the potential of RES using the sun as well as citizens' engagement in SECs as a mean to trigger more sustainable behaviours. The Ispra goes Smart initiative will be supported by feeding the respective results into the energy	JRC.C.2	3.2.d	ENER	JRC		01/01/2018 31/12/2020	INS-UR	Del4	Present and future energy needs of the urban building stock and barriers to renovation	This deliverable will analyse the energy needs of the European building stock. Two approaches will be used: 1) a top-down approach downscaling national data to the regional and local level (WPK TSSEED, in collaboration with unit B3), will allow estimating the buildings' related energy needs in cities and 2) a bottom-up approach, based on the use of geolocation data (compliant with the INSPIRE directive, in collaboration with unit B6) associating energy performance levels and energy needs to individual buildings including energy efficient ventilation and scaling up the output to map energy needs at urban level.	30/11/2019	Science-for-policy reports	
										Del5	Analysis of the renewable solar energy generation use in urban areas (self consumption)	This deliverable will develop and implement a methodology for the assessment of the technical potential of self consumption in multi apartment buildings and building ensembles in urban areas that will be applied to selected European urban areas. Comparing these actual solar PV electricity generation with the actual electricity need at building, ensemble and urban level will allow estimating the possible reduction for electricity imports outside the urban areas.	31/07/2019	Science-for-policy reports	
										Del6	Energy pathways towards decarbonised urban areas – part 2 (social aspects)	The deliverable will analyse citizens' engagement in Sustainable Energy Communities as a pathway toward decarbonised urban areas. The creation of community-based energy initiatives represents a new policy option to face the challenges of energy transition. Policies that can be designed and implemented to stimulate these initiatives will therefore be analysed and critically assessed based on already existing best practice examples and on insights provided by complex system theories. New conservation policies envisage the active involvement of citizens.	30/06/2020	Science-for-policy reports	
										Del7	Synthesis report: Energy pathways towards decarbonised urban areas	The report will present a synthesis of the main findings of the whole work package. It will combine the results of the assessment of the renewable energy generation potential (deliverable 2) with the actual and future electricity consumption needs at urban level (deliverable 3 and 4) and compare them with the technical (deliverable 5) and behavioural (deliverable 6) potential for decarbonising urban areas. The analysis will allow extracting insights and recommendation for effective policy making for the transformation of cities into decarbonised urban areas and communities.	31/12/2020	Science-for-policy reports	

JRC 2019 - 2020 DETAILED WORK PLAN

Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
3.2.e Low-carbon energy technologies - analyse deployment trends of renewables and their impact on climate change mitigation and on other policies such as air pollution; carry out techno-economic assessments of renewable energy technologies and their cost-effective deployment, including by using geo-spatial tools, by assessing the deployment potential in coal and carbon-intensive regions and by analysing relevant renewable energy scenarios and associated policy measures supporting the implementation of the revised directive.															
326 - EE JRC.C.2	6314 - COMETS Collective action Models for Energy Transition and Social Innovation	COMETS is a H2020 project developed in collaboration with partners in the EU and co-ordinated by Politecnico di Turin. The JRC is a full partner of the project consortium. Funding has been requested under the call H2020-LC-SC3-2018: "Building a low-carbon, climate resilient future: secure, clean and efficient energy", topic: "Social Sciences and Humanities (SSH) aspects of the Clean-Energy". The overall objective is to investigate Collective Action Initiatives (CAIs) as the main driver of Social Innovation (SI) in the energy sector. The main research questions addressed concern a) the mechanisms that promote the creation or uptake of CAIs in the energy sector and existing barriers, b) the actual and potential contribution of SI in the energy sector provided by Clean energy, and in particular renewable energy, is a key to realising Energy Union objectives, but also the EU's commitments to achieving the UN sustainable development goals for developing in particular in sub-Saharan Africa. We target two main aspects: a) critical analysis of policy drivers, related socio-economic aspects and sustainability issues for deployment of renewables, and b) geospatial analysis of pathways to optimise the exploitation of the available resources in Europe and in developing countries. Specific activities include: - analysis of renewable energy growth trends and markets, in particular for photovoltaics, sustainable bioenergy and hydropower. - analysis of policy measures in the EU and 3rd countries, including options for prosumers and for ensuring all citizens, including vulnerable customers, can benefit from the clean energy transition - assessment of opportunities provided by renewable energies with geographic information systems, at geographical levels relevant to policy: EU, members states, regions, islands, developing countries/regions (in particular Africa). - information platforms, providing integrated energy solutions relevant to distinct geographic areas and to individual prosumers. This covers solar energy (both photovoltaics and thermal) via the PV-GIS systems and the tools under development for biomass production, as well as other clean energy sources such as wind, hydropower and geothermal. There will be strong and mutual collaboration with EMHIRE database system, with energy system modelling activities and platforms such the Europe Energy Atlas (Eurena WPK) and the proposed "Geographical Information Knowledge Integrator" (ENGINE WPK) - contribution to relevant projects of International Energy Agency, in particular for photovoltaics, but also for bioenergy and hydropower if judged appropriate. - coordination of the technical programme for the annual European Biomass Conference. The main policy-relevant deliverables are listed below, and these will be accompanied by scientific publications relating to the methods and data developed.	JRC.C.2	3.2.e	ENER	RTD	CLIMA CNECT ENER GROW JRC JUST		01/02/2019 31/12/2020	CON-IA	2	Implementing energy-related social innovation initiatives at the urban level	This deliverable will document how new social innovation initiatives implemented in the countries covered by the project consortium have been identified, implemented and monitored. These initiatives may relate e.g. to the creation of energy co-operatives, to bottom-up initiatives undertaken at the urban level to create new and more energy sustainable social practices related e.g. to mobility, food production, food conservation, shopping, washing, buildings construction, etc. Indications for policy makers on how complex systems and social practice theories should inform policy making in relation to how social innovation initiatives in the energy sector can be stimulated at the urban level will also be produced.	01/10/2020	JRC technical reports
241 - KM-EnU JRC.C.7	6439 - RSD Clean Energy for Sustainable Development in Europe and Africa	Clean energy, and in particular renewable energy, is a key to realising Energy Union objectives, but also the EU's commitments to achieving the UN sustainable development goals for developing in particular in sub-Saharan Africa. We target two main aspects: a) critical analysis of policy drivers, related socio-economic aspects and sustainability issues for deployment of renewables, and b) geospatial analysis of pathways to optimise the exploitation of the available resources in Europe and in developing countries. Specific activities include: - analysis of renewable energy growth trends and markets, in particular for photovoltaics, sustainable bioenergy and hydropower. - analysis of policy measures in the EU and 3rd countries, including options for prosumers and for ensuring all citizens, including vulnerable customers, can benefit from the clean energy transition - assessment of opportunities provided by renewable energies with geographic information systems, at geographical levels relevant to policy: EU, members states, regions, islands, developing countries/regions (in particular Africa). - information platforms, providing integrated energy solutions relevant to distinct geographic areas and to individual prosumers. This covers solar energy (both photovoltaics and thermal) via the PV-GIS systems and the tools under development for biomass production, as well as other clean energy sources such as wind, hydropower and geothermal. There will be strong and mutual collaboration with EMHIRE database system, with energy system modelling activities and platforms such the Europe Energy Atlas (Eurena WPK) and the proposed "Geographical Information Knowledge Integrator" (ENGINE WPK) - contribution to relevant projects of International Energy Agency, in particular for photovoltaics, but also for bioenergy and hydropower if judged appropriate. - coordination of the technical programme for the annual European Biomass Conference. The main policy-relevant deliverables are listed below, and these will be accompanied by scientific publications relating to the methods and data developed.	JRC.C.2	3.2.e	ENER	JRC	DEVCO RTD		01/01/2018 31/12/2020	INS-RS	10 202001 4 5 6 7	Scientific publications Input to assessment of Integrated National Energy and Climate Action Plans Decision support tools for prosumers Integrated multi-sector renewables solutions for clean energy supply Contribution of solar power, bioenergy and hydropower to EU renewables targets for 2020 and 2030 Effectiveness of Policy Tools for Promoting Investment in Renewables	Umbrella deliverable for scientific articles and related output in the period 2019-2020 arising from the work package activity i.e in the areas of renewables deployment, markets, policies and resource assessment tools Placeholder - content and timing subject to agreement with ENER and CLIMA N.B: this one deliverable is an umbrella for all output over the period 2019-2020 Renewable solar, mini-wind, mini-hydro prosumers solutions, as essential feature in meeting the growing need for electricity, will be investigated using spatial data on population, resources and infrastructure data with due consideration of economics and social fairness. This deliverable will describe the decision support tools developed and contribute to better understanding of the performance, cost and payback for overcoming barriers to large scale renewables energy solutions for prosumers and stand-alone systems. The opportunities provided by renewable energies for a low carbon energy system in Europe are assessed following an integrated approach of spatial analysis with Geographic Information Systems. Complementarities are investigated with the aim of enabling higher integration of renewables (solar, wind, biomass and/or hydro) into the European energy system. This will also consider large-scale electrification of heating and cooling and transport sectors. Spatial data on resources, infrastructure, economic and environmental constraints are used for a spatial analysis, employing a mix of statistical and geographical methodologies, tools and models. This will summarise ad hoc support provided to DG ENER on key issues relating to the actual and planned deployment of renewables by EU member states in relation to the 2020 and 2030 targets. It will include studies relevant to assessing aspects relevant to renewables in the Integrated National Energy and Climate Plans foreseen under proposed regulation for governance of the Energy Union. In particular this will address verification of assumptions for current and future renewable energy technology performance, with special emphasis on the exploitation of solar, hydro and biomass resources. Analysis will also address deployment trajectories, related measures and policies, and related GHG emissions, as required. The work will be coordinated with the overall JRC support to Energy Union governance. A robust Energy Union Governance must ensure that policies and measures at each level are efficient, coherent, complementary and sufficiently ambitious. This deliverable makes an overview on renewable energy policy developments in the EU bringing together the efforts of Member States on (i) support schemes (investment aid, tax exemptions or reductions, renewable energy obligation support schemes including those using green certificates, tax refunds and direct price support schemes including feed-in tariffs and premium payments) and other measures applied for the promotion and integration of renewables into existing power system including energy storage; (ii) administrative procedures improvement to remove regulatory and non-regulatory barriers for renewable energy deployment; (iii) measures in transition, distribution and grid connection bearing and sharing costs; (iv) allocation of final electricity to the customers. It also looks at developments outside of Europe for comparison.	31/12/2020 31/12/2020 31/12/2019 30/09/2020 31/12/2020 31/10/2019	Journal contributions (Clarivate) Whole parts of policy documents Science-for-policy reports Science-for-policy reports Whole parts of policy documents Science-for-policy reports
3.2.f Energy research, innovation and competitiveness - help to implement the research and innovation and competitiveness dimension of the Energy Union by managing relevant knowledge and available scientific data; support the integrated strategic energy technology SET plan through a strengthened information system and the accelerating clean energy innovation strategy; develop indicators that monitor the progress of energy technology innovation as an input to the annual State of the Energy Union report; support the development of indicators and intelligence through relevant techno-economic analysis; support the operation of the knowledge-sharing facility of the NER 300 funding programme and the management of NER 300-related communication activities and help to design and implement its successor, the Innovation Fund; support in setting up and implementing a monitoring framework for the "Mission Innovation" initiative.															
167 - EST JRC.C.1	518 - ESSI Energy Storage System Integration	Based on the first-ever EU-level definition for energy storage included in COM(2016)864 and as described in SWD(2017)61, energy storage will play a major role in the integration of increasing shares of renewable energy in the overall energy system, covering electricity, transport, heating and cooling sectors. There are mature and emerging energy storage technologies and applications which can provide flexibility, increased efficiency and enable decarbonisation. Energy storage also plays a major role for securing the supply of energy in case of disruptions or high demand. A comprehensive technology monitoring and assessment of energy storage technology options and potentials (location, capacity) will provide policy makers, regulators and energy system operators with the relevant information for decision making. The Wpk will deliver a report summarizing the state of the art of technology performance and deployment, on-going projects, promising innovative technologies and reliability of storage technologies, resource efficiency (LCA and recycling) and barriers to deployment. Upon ENV request support will be provided to the review of the Battery Directive 2006/66/EC. To utilise the full potential of renewables for decarbonisation, converting renewable electricity into heat and/or gas is a key enabler. The coupling of the electricity sector with other sectors through storage enables the integration of a substantially higher share of renewable energies, thereby further decarbonising the residential, industry and transport sectors. Sector coupling also increases efficiency in the overall energy sector and provides flexibility and resilience. Aligned to the priorities of ENER, specific scenarios and case studies on the potential role of storage technologies, including battery storage, thermal storage and hydrogen in the future energy system will be defined in close collaboration with WPK 3288/PMSM, where the economics of various energy storage and conversion technologies will be analysed with modelling tools. The Wpk will analyse the pre-normative research needs and the standardisation and regulatory barriers for sector coupling, focusing on power-to-hydrogen and hydrogen-to-X. The Wpk will support the CEN/CLC Sector Forum Energy Management (SFEM) working groups (Energy Storage and Hydrogen) to develop a standardisation strategy, to analyze gaps and to identify	JRC.C.1	3.2.f	ENER	JRC	GROW	CEN - European Committee for Standardization IEA-HIA - IEA HIA International Energy Agency Hydrogen Implementing Agreement IPHE - Partnership for Hydrogen and Fuel Cells in the Economy ISO - International Organization for Standardization (ISO) US DoE - US Department of Energy (DOE) - FUEL CELLS AND HYDROGEN JOINT UNDER	01/01/2018 31/12/2020	INS-RS	ESSI1 ESSI20192 ESSI20201 ESSI20203 ESSI20204	Overview of state-of-the-art of energy storage technologies Report on sustainability of the lithium-ion battery value chain and battery recycling Which energy storage technology will prevail for which applications? CEN/CLC Sector Forum Energy Management (SFEM) working groups on Energy Storage and on hydrogen Contribution to the review of the Batteries Directive (2006/66/EC)	The deliverable will contain an inventory of projects on energy storage and provide an overview of the state of the art of EST, focusing on technologies with a TRL 3 – 7. Promising innovative technologies (TRL <3) are identified. Potential for deployment of the various technologies in terms of capacity and of location in the energy system is an important factor. In particular, the potential storage capacity in the EU member states should be assessed. For underground gas storage (NG,H2,CAES), suitable geological formations are not evenly distributed and may compete with underground CO2 storage. The reliability of EST is another important aspect, with implications on the security of energy supply. This deliverable channels the expertise of several units across several Directorates on the topic of sustainability of the battery value chain and battery recycling. The deliverable will report on the existing battery value chain and global demand of raw materials, critical raw materials and bottlenecks, collection and recovery of batteries, primary vs. secondary raw materials, lithium-ion battery sales projections and raw materials flow analysis scenarios, aiming at a sustainable battery value chain and Circular Economy implementation and R&I policy recommendations. Building on the cluster of deliverables ESSI1 of year 2019, this deliverable will deliver a more specific focus on the ES technologies emerging as market winners for specific applications, exploring their further potential. Specific aspects such as reliability, resources and geographic location will be tackled as well, including the sustainability dimension related to the FCH2JU programme and selected other energy storage technologies. Based on demand the Wpk will support the CEN/CLC Sector Forum Energy Management (SFEM) working groups (Energy Storage and Hydrogen) to develop a standardisation strategy, to analyze gaps and to identify specific needs for standards and pre-normative research in these realms. This deliverable includes support to the review of the Batteries Directive 2006/66/EC (pending formal request for support from DG ENV) and entails support to the establishment of second use and recycling practices including regulatory framework for batteries at the end of (first) use. Whenever possible, results of the underpinning scientific work will be published in peer-reviewed scientific journals.	31/07/2019 30/04/2019 15/12/2020 31/12/2020 31/12/2020	JRC technical reports Science for Policy reports Science for Policy reports Science for Policy reports Technical Reports

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
7670 - GOV-EU JRC.C.7	765 - Energy RIC Energy Research Innovation and Competitiveness	<p>The "Energy RIC" WPK, will contribute to the assessment of the national integrated energy and climate plans for meeting the Energy Union objectives by quantifying research and innovation indicators. It will assess progress in the implementation of the Research, Innovation and Competitiveness (5th) dimension of the Energy Union through relevant indicators such as investments and patents. The support to the 5th dimension of the governance of the Energy Union will extend to – among others – assessments on global competitiveness, jobs and skills and analysis of relevant import – export trade data balances, in the context of the Mid-century strategy and Mission Innovation.</p> <p>"Energy RIC" contributes to the annual state of the Energy Union reporting (SOEUR), providing the indicators that monitor EU energy R&I, such as the level of investment in R&I, trends in patents, and the number of researchers active in the energy sector. In collaboration with the IEA and EPO, methodologies are developed to collect, harmonise and process statistics and provide robust results at the desired level of granularity.</p> <p>The WPK encompasses the Strategic Energy Technologies Information System (SETIS) which underpins the SET Plan, one of the main instruments of implementation of the 5th dimension of the Energy Union framework strategy, by operating the monitoring and reporting mechanism which manages the knowledge necessary for its implementation and further development. SETIS follows the progress of the SET Plan implementation, ensuring transparency and facilitating decision-making by providing supporting knowledge, independent of national and industrial interests. The main deliverables of the "Energy RIC" are the annual input to the state of the Energy Union report (SOEUR) and the annual SET Plan implementation reports. It also coordinates a WPK of the Low Carbon Energy Observatory and is the point of reference for Research Innovation and Competitiveness indicators at a level of geographical and technological disaggregation beyond that of publicly available statistics. The work is both unique and necessary, as there is no other comprehensive source available to provide this knowledge to stakeholders.</p> <p>The collection of sensitive information, the need for trust, confidentiality, impartiality and effective governance necessitate the involvement of the Commission. The requirement for a high level of competence on energy issues means that the JRC is best placed to undertake this role.</p> <p>In line with the JRC strategy, the purpose of this WPK is to contribute to ongoing JRC Knowledge Management initiatives on the fields of relevance for Directorate C and especially anticipation in the field of energy.</p>	JRC.C.7	3.2.f	ENER	JRC	CLIMA RTD	IEA - International Energy Agency SET-Plan Com - SET-Plan Community	01/01/2015 31/12/2020	CON-AA,INS-RS	2020COMP	Competitiveness of EU low-carbon energy industries	The European Commission, in its 'Clean Energy for All Europeans' proposal and the 2nd State of the Energy Union, has announced the intention to further support the EU industry to take advantage of the growth opportunities arising as part of the energy transition. In the context of the above and the forthcoming Mid-century Strategy, the JRC is contributing in the conceptualisation of competitiveness through the selection of relevant indicators and by producing assessments on the global competitiveness of the EU energy industries, including R&I, trade, employment and skills, on an annual basis, or as requested by the partner EC services. The outputs of the deliverable will also support the work of the Clean Energy Industrial Forum on how to enhance the competitiveness of the EU energy technology industry.	31/12/2020	Whole parts of policy documents
											2020RICMI	Global Low Carbon Energy R&I	The deliverable contributes indicators in support of the implementation of the 5th (RIC) dimension of the Energy Union, such as assessments of the public and private R&I investments in energy technologies and analysis of patent trends in the energy sector, based on the latest available statistics. Progress of these indicators will be tracked on a global scale and particularly for EU main competitors and trading partners in the context of the Mission Innovation Tracking Progress Work Plan. The deliverable will contribute to the monitoring framework on the circular economy through the indicator on "Number of patents related to waste management and recycling", and will also address, trade balances and other relevant indicators as required. The format of the outputs under this deliverable is co-designed with the partner DGs and consists of annual reports and ad-hoc assessments as required.	31/12/2020	JRC contributions to policy documents
											2020SET	Support to the SET Plan Implementation	The deliverable comprises all actions by the WPK in the context of the Strategic Energy Technologies Information System in support of the Implementation of the Integrated SET Plan, one of the main instruments of implementation of the 5th dimension of the Energy Union framework strategy. These are summarised in annual reports which will present: the actions carried out by the SET Plan in the course of each year, addressing in particular the execution of implementation plans of the 10 SET Plan Actions as agreed with the Member States and the industrial and academic stakeholders; a review of progress of joint actions that support the implementation of SET Plan; an overview of the priorities of major national R&I programmes on energy; and a presentation of relevant 'flagship' projects. The deliverable will also report on actions to maintain and further develop the SETIS web portal.	31/12/2020	Science-for-policy reports
											5	Scientific articles on energy technology R&I	Peer-reviewed papers in the areas of research, innovation and competitiveness in energy. These could explore, among others: relevant drivers and barriers; methodological considerations for the monitoring of corporate R&I expenditure; statistical analysis of patent to track early invention trajectories; jobs and skills; and the indicator based assessment of specific technologies.	31/12/2019	Article contribution to periodicals or to conference proceedings listed in the
											201901	Annual reports on horizon scanning, technology foresight and fact sheets stemming from these	These reports will summarise the outcomes of the horizon scanning function. They will identify, discuss and communicate to relevant policy makers, emerging issues (risks and opportunities) that might have policy and societal implications for Europe with a focus on the context of the Energy Union. Further, capacity on quantitative approaches to horizon scan will be strengthened, using e.g. text mining and network analysis to detect patterns and follow trends in scientific publications. The main objective here is to document and showcase how patterns in scientific publication activity can be used to monitor the development of emerging energy technologies. A possible outcome would be for policymakers to (visually) compare the evolution of scientific publication activity for different energy technologies. The reports will be produced both for 2019 and 2020	31/10/2020	Science for Policy Briefs
241 - KM-EnU JRC.C.7	5380 - KNOWMATOME Knowledge Management for Energy Union via TOols and METHodologies (KNOWMATOME)	<p>The WPK will summarize the unit contributions to flagship and cross-cutting reports of the JRC in the context of knowledge management activities. More specifically in 2019, the WPK will support anticipatory capacities with contributions to the JRC pilot on evidence gap mapping, the Horizon Scanning function, as well as the European Semester, the regional microscope and other Knowledge Management activities. It will condense a profusion of information to succinct yet relevant notes supporting the policy process from the short term (workprogramme definition) to the long run (Horizon Scanning-HS).</p> <p>The purpose of HS is to identify, discuss and communicate to relevant policy makers, emerging issues that might have policy and societal implications for Europe. Building on the pilot-phase -</p>	JRC.C.7	3.2.f	ENER	JRC	CLIMA ENER ENV EPSC GROW MOVE RTD	EEA - European Environment Agency	01/01/2017 31/12/2020	INS-RS	201902	Fact sheets on cross-cutting knowledge management activities in 2019 and 2020	The deliverable encompasses contributions to flagship and cross-cutting reports of the JRC in the context of knowledge management activities. It will also deliver on ongoing activities within Directorate H (contributions to the energy sector section of the European semester country reports; analysis of socio-economic indicators at national and regional levels for the socio-economic regional microscope series; evidence gap mapping).	31/10/2020	Whole parts of policy documents
											219 - Photovoltaic Energy JRC.C.2	6221 - PV-Enerate Advanced PV Energy Rating	Objective. The aim of the project is to provide the metrological infrastructure, techniques and guidance to accelerate time-to-market for emerging photovoltaic (PV) technologies, which have the potential to significantly reduce the cost of photovoltaic energy.	JRC.C.2	3.2.f
241 - KM-EnU JRC.C.7	7763 - ETIC Energy Technology & Industrial Competitiveness	<p>This WPK contributes to the knowledge management strategy of the JRC for the Energy Union, and its purpose is to:</p> <ul style="list-style-type: none"> access and capitalise existing knowledge related to the diversity of outlooks from different organisations in the context of the Energy Union. critically analyse and synthesis this knowledge; make it timely available and tailored for policy consideration and to relevant organizations/services. <p>This WPK will manage the exiting knowledge related to the role of technology innovation in energy-intensive industries, its role in the prospective moderation of the energy demand (required by the energy transition) and its effect on the competitiveness of the European industry. The WPK will pay special attention to the effects of the energy transition and clean energies on coal regions. Regarding the SET-Plan, this WPK will condense a profusion of information to succinct yet relevant notes supporting the policy process from the short term (SET-Plan monitoring), and will provide ad-hoc technical expertise necessary for its implementation and further development. This includes feeding the SET-Plan temporary working groups – dealing with SET-Plan actions - with knowledge and expertise, a SETIS mandate. The WPK also includes further technology and market assessments of SET-Plan relevance.</p> <p>This WPK will rely on the established links with numerous communities:</p> <ul style="list-style-type: none"> The JRC and the European Commission at large, building on the ties initiated through Horizon Scanning and the need by other services for technology expertise; MSs organisations through the SET-Plan community and the participation in international agreements such as IEA implementing agreements and IRENA; Research institutes and the private sector thanks to technology and market watches as well as systematic review. <p>This work package will also support (through a contractual commitment with DG CLIMA) the knowledge management function (knowledge sharing) required by the NER 300 Decision, and will assess the progress achieved by demonstration projects of innovative renewable and carbon capture and storage technologies co-funded by the NER300 programme.</p>	JRC.C.7	3.2.f	ENER	CLIMA,CLIMA,EN ER,JRC	CLIMA ENV EPSC GROW MOVE	EEA - European Environment Agency IEA - International Energy Agency IRENA - International Renewable energy Agency SET-Plan Com - SET-Plan Community	01/01/2019 31/12/2020	CON-AA,CON-AA,CON-AA,INS-RS	201901	Research reports for synthesising knowledge	Reviews of energy scenarios such as the IEA World Energy Outlook, IRENA Renewable Energy Outlook and specific assessments thereof, striving to answer questions such as: How the 5 dimensions of the Energy Union may develop over time and under which global context; How wind and solar technologies may evolve according to different outlooks and on dynamics/implications that are induced in the energy system; What may be the alternative futures of EU/global transport sector. Additional reports could further elaborate on previous knowledge gathered about production costs of some European energy-intensive industries in a global context.	31/10/2019	Science for Policy reports
											201910	Reports in support of NER 300 II	Series of reports required by the contractual commitment (CON-AA-34352), in particular: 1) Report on NER300 II submissions 2019: This report outlines key lessons learnt from the assessment, including a reasoned recommendation and supporting evidence for each project considering the knowledge sharing requirements. 2) Annual report consolidating: a) all L2 relevant knowledge; b) aggregated/anonymised L1 information; c) project fiches. In addition to providing a picture of the year in question, these reports shall also trace over time key tendencies and the evolution of projects and relevant knowledge gain 3) Report summarising all public dissemination and outreach activities (presentations, meetings, events, webpostings)	28/12/2019	Science for Policy reports
											201920	Clean energy technologies in coal regions: Deployment potentials and impacts	Report in support of the Coal Regions in Transition activity with a concise overview of the role of clean energy technologies in the path to decarbonisation of the 41 coal regions, identified by the CRIT platform. In the form of factsheets, the report will estimate the deployment potential of clean energy technologies in each region and the subsequent impact on jobs and regional economic development. The goal is to provide a set of energy-related potential options to the regions as an alternative to their current power generation and employment/growth model, whilst supporting national efforts to reduce GHG emissions and increase the penetration of RES in line with the 2030 energy and climate targets of the Union.	29/11/2019	Science for Policy reports
											202001	Research reports for synthesising knowledge	Reviews of energy scenarios such as the IEA World Energy Outlook, IRENA Renewable Energy Outlook and specific assessments thereof, striving to answer questions of high relevance for policy-making.	30/10/2020	Science for Policy reports
											202002	Scientific and technical expertise in support to the SET-Plan	This activity includes policy support to the SET-Plan and to the S&T communities it covers: With respect to the SET-Plan implementation and monitoring processes, JRC experts will participate in the SET-Plan Temporary Working Groups and support, wherever suitable, the monitoring of their relevant Implementation Plans. Experts will represent the European Commission, JRC and unit C.7 in various international fora such as the International Energy Agency Technology Collaboration Programmes. This activity also includes ad-hoc support to policy DGs on the relevant files.	29/10/2020	Technical Reports
											202010	Reports in support of NER 300 III	This deliverable encompasses the reports to be agreed with DG CLIMA for the extension of the current AA in support of the NER 300 II. The current contract (CON-AA - 34352) concludes by December 2019	31/12/2020	Science for Policy reports

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3.3. Safe and secure use of nuclear energy															
3.3.a Enhancement of safety of nuclear reactors and nuclear fuels:															
63 - SEAT GEN-IV JRC.G.I.3	449 - PreMaCoR Pre-normative Materials & Components Research for Codes & Standards	The objective is to support the development and qualification of materials, components, structures and associated assessment methods for next generation nuclear reactors through pre-normative research. This is crucial to ensure that nuclear reactors are designed in accordance with the highest safety standards and best engineering practices to allow competitive costs. The Work Package integrates modelling and experimental work related to high temperatures, liquid metal embrittlement, irradiation and weld integrity. The work is based on JRC expertise in modelling of structural integrity ranging from multi-scale physics based models to engineering models and experimental expertise with dedicated and unique laboratories such as material testing in heavy liquid metal, neutron diffraction and testing of miniature specimens. Special emphasis is given to i) the development of Design Rules and Assessment Procedures incorporated into European Codes such as RCC-MRx and R6; and ii) to the development of non-standard test procedures and harmonized European and international standards for material characterization for example testing in liquid lead, accelerated creep tests and small punch testing. Another important contribution is the continuous development and implementation of material databases applications in support of Design Rules and Test Standards.	JRC.G.I.4	3.3.a	RTD	JRC	ENER GROW	- University of Manchester - Nuclear Research Institute Rez - FRAMATOME ANP SAS CU - Charles University Prague UKAEA - NUCLEAR MATERIALS CONTROL OFFICE (UKAEA) AFCEN - AFCEN CEA - Commissariat à l'Energie Atomique et aux Energies Alternatives CEN - European Committee for Standardization CIEMAT - Centro de Investigaciones Energeticas Medioambientales Tecnologicas	01/01/2014 31/12/2020	INS-RS	D201901 D20192 D20193	Outreach activities Codes & Standards Outreach Support to Member States & International Organizations Outreach Scientific Activities	This deliverable compiles contributions to Codes & Standards, and in particular contributions to international standardization organizations such as CEN/CENELEC and ISO. This includes: 1) ISO Standard Neutron Diffraction Stress Measurements ; (ISO 21432:2018 2) Data management procedures and European Standardized material data in support of reactor design and safety assessment; 3) TC54 / WG 59 (Creep) on EN 13445 / Negligible Creep; 4) ECISS TC 101 WG 1 on Small Punch standard. This includes an executive summary of support to Member States and integration of EU as well as international organizations with respect nuclear materials research, in particular with respect to EERA JPNM and ESNII, but also SET Plan Action 10 and GIF. Expected input documents: Description of Work and Deployment plan EERA JPNM; 2) Cross-cutting Activities EERA JPNM and ESNII; 3) GIF LFR System Safety Assessment and Safety Design Criteria; 4) SET-Plan Action 10 - Nuclear This includes peer reviewed papers and other publications related to nuclear safety and underpinning research related to Codes & Standards. Expected papers/reports: 1) Multi-scale model for single crystal to polycrystals; 2) Assessment & Test procedures for prediction of long-term high temperature degradation; 3) Assessment of small punch test for material characterization; 4) Assessment of residual stresses in welded components; 5) The effects of embrittlement of steels in heavy liquid metal.	15/12/2019 15/12/2019 15/12/2019	Contributions to standards Science for Policy reports Journal contributions (Clarivate)
268 - K-NUSP JRC.G.10	493 - NUSP Support to Nuclear Reactor Safety Policy	The objective of the work-package is to provide the required technical and scientific support to DG ENER for the Energy Union actions related to nuclear energy and for the development and implementation of EU nuclear reactor safety policy and legislation (EURATOM Treaty, amended nuclear safety directive and related secondary legislation). The activities of the project comprise the required technical support for: -Implementation and follow-up of the EU Nuclear Safety Directive (Directive 2009/71/EURATOM amended by Directive 2014/87/EURATOM), including: -initiatives aimed at developing a harmonised technical approach to achieving the nuclear safety objective of the Directive* -carrying out the Topical Peer Reviews required by the Directive* -supporting transposition of the directive into national legislation* -participation in selected IAEA Integrated Regulatory Review Service (IRRS) missions to EU MS nuclear regulatory authorities *Implementation of nuclear stress tests: -Follow-up of the implementation of the national action plans resulting from the EU stress tests -Implementation of stress tests in neighbourhood countries *Formulation of Commission points of view regarding nuclear investment notifications in respect of Art. 41 of the EURATOM Treaty *EURATOM obligations under the Convention on Nuclear Safety *EC contribution to the development of IAEA safety standards, The work package sets the foundation for a nuclear operating experience knowledge base with the ultimate aim to become the one-stop shop that translates the massive amount of data contained in databases and websites into understandable findings, ready to be used in nuclear safety policy support. This is achieved through collaboration with member states by means of the European Clearinghouse, a network of nuclear safety authorities enhancing collaboration in operating experience feedback programs. In particular, the work package complements the operating experience programs of the member states by providing insights derived from the event reports issued by nuclear plants around the world. The members of the Clearinghouse network choose the subjects to review, which are then developed within the work package and presented as topical operating experience reports. These reports include a comprehensive, worldwide review of hundreds or thousands of events, an effort that could not be undertaken by most individual regulators. As the operating experience programs of regulators are mainly focussed in the feedback from their own nuclear power plants, the Clearinghouse brings to them a valuable international perspective, with lessons learned derived from a wider statistical base. From 2019 on, stronger collaboration with regulators (e.g.: WENRA) Safety of nuclear fuel relies on detailed knowledge gained by material preparation, its irradiation and post irradiation examination. Separate effect investigations are an important tool to augment and expand such highly costly studies. This has been recently enabled further by the installation of Spark Plasma Sintering at the JRC, providing samples with hitherto inconceivable microstructures and compositions (nanograins, volatile fission product inclusions, etc.). Advanced powder synthesis and pellet sintering techniques will therefore be used at the JRC to achieve such fuel samples in order to study their safety relevant properties. The main focus is on UO ₂ and U, Pu-mixed oxides. Furthermore, since the accident at Fukushima, a world-wide initiative on accident tolerant fuel was launched. This WPK will thus also consider their preparation and assessment. In	JRC.G.10	3.3.a	ENER	ENER, JRC	DEVCO ENV GROW	ETSON - European Technical Safety Organisation Network IAEA - International Atomic Energy Agency (IAEA) MS EU - Member states EU NEA-OECD - Nuclear Energy Agency (OECD) Nuc Ind - Nuclear Industry - Consejo de Seguridad Nuclear - Federal Agency for Nuclear Control - Slovenian Nuclear Safety Administration BNSA NRA - Агенцията за ядрено регулиране - Bulgarian Nuclear Regulatory Authority ASN - Autorité de sûreté nucléaire BMU - Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit CNCAN - Comisia Nationala pentru Controlul Activitatilor Nucleare (RO) ENSI - Swiss Federal Nuclear Safety Inspectorate HAEA - ORSZÁGOS ATOMENERGIA HIVATAL - Hungarian Atomic Energy - Chalmers University of Technology - AREVA NP GMBH* CEA - Commissariat à l'Energie Atomique et aux Energies Alternatives GRS - Gesellschaft für Anlagen und Reaktorsicherheit MBH IRSN - Institut de Radioprotection et Sûreté Nucléaire KTH - KUNGLIGA TEKNISKA	01/01/2014 31/12/2020	CON-AA, INS-RS	1901 2001 1801 1901 1902 2001 2018D02 50620182 50620201	Scientific/Technical underpinning of EU Nuclear Safety Policy implementation 2019 Scientific/Technical underpinning of EU Nuclear Safety Policy implementation 2020 Top Ten Lessons Learned Review report of Topical studies Topical study Topical study TOER report on topic 2018/2 Scientific publications Synthesis of MOX in SPS	Report(s) providing the technical and scientific evidence and support required to assist Commission policy DGs responsible for the formulation and implementation of EU nuclear reactor safety policy and legislation, including, for example, reports on: a.Nuclear Safety Directive: Compliance review of Member States' transposition measures b.Report in support of the EC contribution to the debate on the applicability of the Espoo Convention to the lifetime extension of nuclear power plants c.EURATOM Treaty Art. 41-43 notifications d.EC participation to IAEA peer review missions (IRRS), obligations under the Convention on Nuclear Safety, contribution to IAEA safety standards, ad hoc requests on emerging issues Report(s) providing the technical and scientific evidence and support required to assist Commission policy DGs responsible for the formulation and implementation of EU nuclear reactor safety policy and legislation, including, for example, reports on: a.Review of the implementation of the Nuclear Safety Directive in EU Member States b.Support to DG ENER for the implementation of the Stress Tests peer review in Iran c.Support to DG ENER for the 8th Review Meeting of the Contracting Parties to the Convention on Nuclear Safety d.EURATOM Treaty Art. 41-43 notifications e.EC participation to IAEA peer review missions (IRRS), contribution to IAEA safety standards, ad hoc requests on emerging issues Web modules containing the most significant lessons learned grouped around a number of «Key topics». Review report of the topical studies performed in 10 years of Clearinghouse operation and their recommendations. The study will highlight those recommendations which could qualify to be proposed as high-level guidance for international organisations (i.e.: WENRA, IAEA, OECD/NEA) In-depth review of operating experience with ageing of structures, systems and components at nuclear power plants. A second report could be added if there is a new topic relevant for the nuclear safety of European nuclear power plants. In-depth review of operating experience with containment buildings at nuclear power plants. A second report could be added if there is a new topic relevant for the nuclear safety of European nuclear power plants. A technical review of operating experience reported by nuclear power plants worldwide regarding events related to a topic to be chosen in 2017 The first nuclear fuel samples synthesized with the newly installed Hot-Pressing/SPS device will be reported in high quality journals and presented at international conferences The results of the experiments will be reported in high quality journals and presented at international conferences	30/06/2019 30/09/2020 30/04/2019 30/06/2019 31/12/2019 30/06/2020 30/06/2019 30/12/2019 31/12/2020	Technical Reports Technical Reports Sci information systems and databases Science-for-policy reports Technical Reports Technical Reports Article contribution to periodicals or to conference proceedings listed in SCOPUS Journal contributions
62 - FUMAGEN JRC.G.I.5	506 - SPECTRE Novel Synthesis technologies for separate effect fuel safety studies and accident tolerant fuels	The thermal properties of fuel are of key importance for the safety assessment of nuclear reactors, as they determine the fuel temperature and thus the margin to fuel melting. A thorough knowledge of these properties and the macroscopic and microscopic mechanisms affecting them is thus required. UO ₂ , (U,Pu)O ₂ and advanced LWR fuels containing additives (Cr, Th, ...) are relevant for the LWR of today. This WP will contribute to the LWR safety by: In the frame of the H2020 project SAMOFAR, the safety of a European design of a molten salt fast reactor (MSFR) will be analysed in a collaboration with European and international organisations. JRC is strongly involved in the analysis of the nuclear fuel, through experimental and modelling studies. Using a unique experimental equipment selected thermal properties of fuel salt and salt behaviour during a clean-up process will be investigated.	JRC.G.I.3	3.3.a	ENER	JRC	ENER RTD	- AREVA NP GMBH* - VUJE - Royal Institute of Technology - Technische Universität München - FORTUM NUCLEAR SERVICES - POLITECNICO DI MILANO - Delft University of Technology CERCA/AREVA - CERCA/AREVA - France CNRS - Centre National de la Recherche Scientifique EDF Energy - EDF Energy	01/01/2016 23/12/2020	CON-AA, CON-TW, INS-RS	202001	Final report of NEA-WGFS	The working group on fuel safety of the NEA has launched two activities that will lead to final reports about fuel under design basis accident conditions. One will provide an update of the state-of-the-art report on fuel behaviour during LOCA conditions. The second report will contain the outcome of the second phase of fuel performance code benchmark for RIA conditions.	23/12/2020	Technical Reports
7465 - SAETEC JRC.G.I.3	2245 - SAMOFAR Safety Analysis of Molten Salt Fast Reactor	In the frame of the H2020 project SAMOFAR, the safety of a European design of a molten salt fast reactor (MSFR) will be analysed in a collaboration with European and international organisations. JRC is strongly involved in the analysis of the nuclear fuel, through experimental and modelling studies. Using a unique experimental equipment selected thermal properties of fuel salt and salt behaviour during a clean-up process will be investigated.	JRC.G.I.3	3.3.a	RTD	RTD	CON-IA	France CNRS - Centre National de la Recherche Scientifique EDF Energy - EDF Energy	01/08/2015 31/07/2019	CON-IA	201901	Final report of SAMOFAR project	Final report summarizing the main JRC contribution to the HORIZON2020 SAMOFAR project.	31/07/2019	JRC technical reports
179 - LTO JRC.G.I.4	3161 - SOTERIA Radiation effects in nuclear structural materials for safe long term operation of LWR	SOTERIA aims to underpin safe long-term operation (LTO, 60 years) of current light water reactors (LWRs) with an improved understanding of degradation phenomena occurring in reactor pressure vessels (RPVs) and reactor internals. The main degradation mechanism of RPVs is irradiation embrittlement, for reactor internals irradiation-assisted stress corrosion cracking (IASCC). SOTERIA combines the use of advanced computational tools to model degradation of RPVs and reactor internals degradation with exploitation of experimental data from tests (irradiation campaigns of RPV steels, SCC and IASCC testing of stainless steels used for reactor internals). The overall aim is to better predict the degradation of RPVs and reactor internals and to build-up a corresponding integrated software platform. Nuclear power plant operators and nuclear regulators (or respective technical safety organisations) are the targeted customers for these computational tools. JRC's contribution to SOTERIA is the development of computational models on SCC/IASCC of reactor internals and thus support the establishment of the integrated software platform. The developed computational tools are validated by corresponding tests (nano-indentation). In 2018	JRC.G.I.4	3.3.a	RTD	RTD	ENER	- Nuclear Research Institute Rez - AREVA NP GMBH* - VATTENFALL AB - UNIVERSITAT POLITECNICA DE CATALUNYA - University of Manchester - Tecnomat AMEC - AMEC Consulting CIEMAT - Centro de Investigaciones Energeticas Medioambientales Tecnologicas CNRS - Centre National de la Recherche Scientifique EDF - Electricité de France HZDR - Helmholtz-Zentrum Dresden-	01/09/2015 31/08/2019	CON-IA	6	Prediction of stress fields and their influence	Prediction of stress fields within a large polycrystalline aggregate and their influence on initialization and growth of irradiation assisted stress corrosion cracking.	31/08/2019	Article contribution to periodicals or to conference proceedings listed in the Thomson-Reuters' Science Citation Index Expanded (SCI-e) or Social Science Citation Index (SSCI)
63 - SEAT GEN-IV JRC.G.I.3	5002 - INSPYRE Investigations supporting licensing of ESNII	INSPYRE, a H2020 RTD supported project endorsed by the EERA JPNM, investigates fast reactor MOX fuel to support the licensing of the core of ESNII prototypes. It joins 14 European main nuclear research organisations and industries and is led by CEA. JRC is the main partner and	JRC.G.I.3	3.3.a	RTD	RTD	CON-IA	INSPYRE2 0201	01/09/2017 30/09/2021	CON-IA	INSPYRE2 0201	Intermediate results of INSPYRE	The intermediate results of the projects will be reported in a peer reviewed scientific publication.	31/12/2020	Journal contributions (Clarivate)

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
63 - SEAT GEN-IV JRC.G.I.3	5135 - PROFARM Properties for Safety Assessment of Advanced Fuels and Reactor Materials	<p>The aim of PROFARM is to provide experimental thermal property data, databases, models and simulation tools for fuels and materials for advanced reactor systems, and to study interactions of fuels with reactor materials in order to provide a basis for safety assessments of advanced nuclear reactors. The results are of key importance to predict the safety limits of reactor concepts. The work includes the study of transmutation of minor actinides to short lived isotopes which is a potential technology for a sustainable nuclear fuel cycle and the transposition of lessons learned from LWR safety to fast reactor systems. The activities also include the finalisation of the JRC contribution to the H2020 project MYRTE and a TPW on METAPHIX fuel and GANEX process.</p> <p>Foreseen activities are:</p> <ul style="list-style-type: none"> - Mercury release from lead-bismuth eutectic into the simulated MYRRHA beamline using the VoRaDeM facility based on laser flash heating. - Reaction kinetic studies of Na-MOX interaction and thermodynamic studies of selected products formed upon the interaction using calorimetric and spectrometric facilities. The results will be coupled with thermodynamic modelling. - Experimental determination of thermodynamic data of binary and ternary mixtures of actinide dioxides (both hypo- and hyperstoichiometric) using laser melting, and heat treatments and KEMS. - Synthesis of representative fuel and fission product compounds and determination of vapour pressure and gaseous speciation using Knudsen effusion mass spectrometry (KEMS) and determination of melting temperature using laser flash method. - Critical review of the thermodynamic data for selected FP compounds in UO₂ and PuO₂, and make recommendations for updated or new data. It will include thermodynamic and electronic structure calculations complemented with spectroscopic studies. - Interaction of B4C with oxide fuel will be studied using a Knudsen cell technique and the obtained results will be coupled with thermodynamic simulations. - Synthesis of corium samples (fuel-concrete interaction during core melt-down) and determine basic thermodynamic data, particularly vapour pressure using KEMS and melting temperature using laser flash method. (complementary to activities in work package MASSA). 	JRC.G.I.3	3.3.a	RTD	JRC,RTD,RTD	<ul style="list-style-type: none"> - Ghent University - FORTUM NUCLEAR SERVICES OY - Delft University of Technology - University of California, Los Alamos National Laboratory - AREVA NP GMBH* - POLITECNICO DI MILANO - Nuclear Research and Consultancy Group - RUSSIAN RESEARCH CENTRE "KURCHATOV INSTITUTE" - IMPERIAL COLLEGE OF SCIENCE, TECHNOLOGY AND MEDICINE - RheinischWestfaelische Technische Hochschule Aachen / Aachen University of Technology - Royal Institute of Technology - CEA - Commissariat à l'Energie Atomique et aux Energies Alternatives - CIEMAT - Centro de Investigaciones Energéticas Medioambientales Tecnológicas - CNRS - Centre National de la Recherche Scientifique - EDF - Electricité de France 	01/01/2017 31/12/2020	CON-IA,CON-IA,CON-TW,CON-TW,CON-TW,INS-RS	DPF12	Other deliverables-scientific publications 2019	This deliverable represents a series of publications, reports and conference proceedings used to disseminate knowledge generated by the JRC in this work package. The achievements will be presented in one or more scientific presentation	31/12/2019	Article contribution to periodicals or to conference proceedings listed in the Thomson-Reuters' Science Citation Index Expanded (SCI-e) or Social Science Citation Index (SSCI)	
										DPF13	Other deliverables-scientific publications 2020	This deliverable represents a series of publications, reports and conference proceedings used to disseminate knowledge generated by the JRC in this work package. The achievements will be presented in one or more scientific presentation.	31/12/2020	Article contribution to periodicals or to conference proceedings listed in the	
										DPF15	Final report on VoRaDem results	Final technical report will cover the description of the VoRaDem facility build in collaboration with SCK-CEN to experimentally prove a detection technique upon window breach of the MYRRHA facility. The results obtained using the facility will be presented in the report and correlated with simulations performed by SCK-CEN.	15/10/2019	Technical Reports	
										DPF16	NEA Thermochemical data base	This deliverable is JRC's contribution to the OECD/NEA book "2nd Update on the Chemical Thermodynamics of Uranium, Neptunium, Plutonium, Americium and Technetium"	29/03/2019	Books	
63 - SEAT GEN-IV JRC.G.I.3	6118 - GEMMA Generation IV Materials Maturity	<p>The GEMMA H2020 collaborative project focuses on resolving key remaining issues concerning the qualification of structural materials and welded joints for systems and components of fast reactor demonstrators/prototypes foreseen in the European Sustainable Nuclear Industrial Initiative (ESNII) (ASTRID, MYRRHA, ALFRED, ALLEGRO). The JRC contribution to the project includes: (i) coordination of WP2, incl. testing of mechanical properties & microstructural characterisation of</p> <p>GEMINI+ supports the demonstration of nuclear cogeneration of process heat and electricity using High Temperature Gas-cooled Reactors. The technology is an efficient means for decarbonization of industry, to enhance security of energy supply and to halt de-industrialization of Europe. The project is a cooperative effort between EU, US, Japan and South Korea and provides support to the energy policies in these countries..</p> <p>Small Modular Reactor (SMR) designs based on Modular High Temperature Gas-cooled Reactors (HTGR) represent a mature technology option with a wide range of applications and a unique intrinsic safety performance. Relying on the knowledge of HTGR technology and experimental data acquired in past programs, the GEMINI+ project targets 4 high level objectives:</p> <ul style="list-style-type: none"> •Establish the basis for a licensing framework in compliance with Nuclear Safety Directive •Define technical specifications of a nuclear cogeneration system with intrinsic safety •Propose a nuclear solution for the production of process heat (Energy Union and SET Plan objectives) •Maximum convergence of concepts between Europe (especially Poland) and the project partners from overseas, in particular with respect to safety and licensing as well as performance and competitiveness <p>The project consists of five work packages:</p> <ol style="list-style-type: none"> 1.Safety Approach and Licensing Framework (WP1) 2.The Configuration for an industrial high temperature nuclear cogeneration system (WP2) (2.5 MM AD) 3.Innovation and long-term perspective (WP3) (5.5 MM AD incl. WP coordination and participation in GEMINI+ Executive Group) 4.Demonstration of industrial high temperature nuclear cogeneration (WP4) (0.8 MM AD); 5.Training of personnel for handling the project and related licensing, recovery of documents, international support for demonstration project, dissemination and communication (WP5) (1.5 MM AD). <p>JRC will co-author, review and approve a number of deliverables from different work packages, coordinate WP3 and contribute to the periodical reporting..</p>	JRC.G.I.4	3.3.a	RTD	RTD		01/06/2017 31/05/2021	CON-IA	1	Weld specimen specifications and characterisations	The technical report includes welding procedure specifications, post-weld material characterisations and certificates of the reference weld mock-ups of 316L and 316L(N) austenitic steels manufactured according to the specifications of the RCC-MRx Design Code, reflecting R&D priorities and needs of ESNII concepts ASTRID, MYRRHA, and ALFRED.	22/12/2019	Reference materials	
7465 - SAETEC JRC.G.I.3	6119 - GEMINI + GEMINI +: Support to the international GEMINI initiative	<p>GEMINI+ supports the demonstration of nuclear cogeneration of process heat and electricity using High Temperature Gas-cooled Reactors. The technology is an efficient means for decarbonization of industry, to enhance security of energy supply and to halt de-industrialization of Europe. The project is a cooperative effort between EU, US, Japan and South Korea and provides support to the energy policies in these countries..</p> <p>Small Modular Reactor (SMR) designs based on Modular High Temperature Gas-cooled Reactors (HTGR) represent a mature technology option with a wide range of applications and a unique intrinsic safety performance. Relying on the knowledge of HTGR technology and experimental data acquired in past programs, the GEMINI+ project targets 4 high level objectives:</p> <ul style="list-style-type: none"> •Establish the basis for a licensing framework in compliance with Nuclear Safety Directive •Define technical specifications of a nuclear cogeneration system with intrinsic safety •Propose a nuclear solution for the production of process heat (Energy Union and SET Plan objectives) •Maximum convergence of concepts between Europe (especially Poland) and the project partners from overseas, in particular with respect to safety and licensing as well as performance and competitiveness <p>The project consists of five work packages:</p> <ol style="list-style-type: none"> 1.Safety Approach and Licensing Framework (WP1) 2.The Configuration for an industrial high temperature nuclear cogeneration system (WP2) (2.5 MM AD) 3.Innovation and long-term perspective (WP3) (5.5 MM AD incl. WP coordination and participation in GEMINI+ Executive Group) 4.Demonstration of industrial high temperature nuclear cogeneration (WP4) (0.8 MM AD); 5.Training of personnel for handling the project and related licensing, recovery of documents, international support for demonstration project, dissemination and communication (WP5) (1.5 MM AD). <p>JRC will co-author, review and approve a number of deliverables from different work packages, coordinate WP3 and contribute to the periodical reporting..</p>	JRC.G.I.4	3.3.a	RTD	RTD	ENER	01/10/2017 30/09/2020	CON-IA	n/a	n/a	n/a	n/a	n/a	
179 - LTO JRC.G.I.4	6167 - MEACTOS Mitigating Environmentally Assisted Cracking Through Optimisation of Surface Condition	<p>Environmentally-Assisted cracking (EAC) is one of the major failure modes occurring in light water reactors (LWRs). The susceptibility of metallic components to EAC depends primarily on the condition of its surfaces that are exposed to the primary coolant. However, many national and international guidelines and nuclear codes & standards do not address surface conditions of critical components in nuclear power plants (NPP) or only provide qualitative recommendations. The goal of MEACTOS is to improve the safety and reliability of LWRs by improving the resistance of critical locations, including welds, to EAC through the application of optimized surface machining and improved surface treatments. The project partners will perform an experimental program to quantify the effect of various surface machining and treatment techniques on EAC behaviour of specific structural materials in the primary circuit of LWRs. The gained knowledge will be summarized in practical guidelines, which can be used for incorporation into nuclear design codes.</p>	JRC.G.I.4 Oliver MARTIN	3.3.a	RTD	RTD	ENER	<ul style="list-style-type: none"> - AREVA NP GMBH* - University of Manchester - UNIVERSITY OF SHEFFIELD - AMEC - AMEC Consulting - CIEMAT - Centro de Investigaciones Energéticas Medioambientales Tecnológicas - IAEA - International Atomic Energy Agency (IAEA) - NEA-OECD - Nuclear Energy Agency (OECD) 	01/09/2017 31/08/2021	CON-IA	2	Data formats for CERT and CL EAC initiation tests	Data formats for constant extension rate tensile (CERT) tests and constant load environmentally assisted cracking (EAC) tests.	31/08/2019	Scientific information systems and
											3	Preliminary EAC data with respect to various test conditions	This deliverable are data sets from environmentally-assisted cracking (EAC) tests performed by JRC within WP6 of H2020 EURATOM funded project MEACTOS at various test conditions. The definition of test conditions is currently still under discussion, but the materials to be tested will be Nickel based Alloy 182 and stainless steel 316L.	28/02/2020	Datasets
											4	Effect of selected surface conditions on EAC initiation, screening test results	This deliverable involves a report and data sets of environmentally-assisted cracking (EAC) tests on Nickel based Alloy 182 and stainless steel 316L for various surface conditions. The exact surface conditions are still under discussion at the moment, but will most probably involved three per material (normally grinded, grinded with cryogenic cooling, grinded and with special surcae treatment, e.g. peening).	31/12/2020	Datasets

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
62 - FUMAGEN JRC.G.I.5	6168 - Trovatore II Trovatore	The Fukushima Daiichi event has demonstrated the need for improved nuclear energy safety, which can be ensured by the development of accident-tolerant fuels (ATFs). ATFs are expected to overcome the inherent technical shortcomings of the standard zircaloy/VO2 fuels, thus relieving the industry from the huge financial penalty associated with beyond-design-basis accidents leading to fuel cladding material failure and release of radioactive fission products to the power plant containment and the environment. The main objective of IL TROVATORE is to identify the best candidate ATF cladding materials for use in Gen-II and Gen-III/III+ Light Water Reactors (LWRs) and to validate them in an industrially-relevant environment, i.e., under neutron irradiation in PWR-like water. Ideally, fuel cladding materials must demonstrate leak tightness and containment of fuel pellets and fission products during the fuel residence in the reactor, even under transient/accidental operation conditions. The innovative ATF cladding material concepts proposed in IL TROVATORE are expected to demonstrate significant improvement in performance when compared to the current fuel cladding materials, thus helping to take a critical step towards an improved energy safety worldwide, in response to the requirements of the amended Nuclear Safety Directive. The development of ATF clads will eliminate redundant safety systems, improving the market profile of current reactor designs, and the overall envisaged innovation will strengthen the competitiveness of European industries in both nuclear and non-nuclear sectors. To achieve its ambitious objectives, IL TROVATORE relies on academic excellence and industrial support, while also involving standardisation bodies and nuclear safety regulatory	JRC.G.I.3	3.3.a	RTD	RTD		SCK-CEN - Belgian Nuclear Research Centre (SCK-CEN)	01/04/2017 31/03/2021	CON-IA	n/a	n/a	n/a	n/a	n/a
226 - REDECAM JRC.G.I.4	6170 - McSAFE High-Performance Monte Carlo Methods for Safety Demonstration - From Proof of Concept to realistic Safety Analysis and Industry-like Applications	Continuing the priority topics of the Nuclear Generation II and III Association (NGOEN) and the achievements of the previous EU project on High Performance Monte Carlo Analysis, the overall objective of the current project is to move the Monte Carlo (MC) based stand-alone and coupled solution methodologies (advanced depletion, optimal coupling of MC-codes to thermal-hydraulic solvers, time-dependent Monte Carlo and methods and algorithms for massively parallel simulations) to become valuable and widespread numerical tools for realistic core design, safety analysis and industry-like applications of LWRs of generation II and III. On one hand, the envisaged developments will permit to predict important core safety parameters with less conservatism than current state-of-the-art methods and on the other hand, it will support	JRC.G.I.5	3.3.a	RTD	RTD	ENER	Nuclear Research Institute Rez CEA - Commissariat à l'Energie Atomique et aux Energies Alternatives EDF - Electricité de France HZDR - Helmholtz-Zentrum Dresden-Rossendorf e.V.	01/09/2017 31/08/2020	CON-IA					
7465 - SAETEC JRC.G.I.3	6376 - SEPSMR Shaping a European Perspective on Small Modular Reactors	Small Modular Reactors (SMRs) promise attractive characteristics such as lower life cycle cost, enhanced safety performance with passive safety features, factory production, flexibility to adapt to small grids, integration with renewables and adaptability for remote locations. SMRs could play an important role in the EU to help achieve the Energy Union objectives of secure, competitive, and sustainable energy. Thus, this work package aims to support the development of strategic policies for a successful commercialization of European SMRs. The key areas of activity include: 1)Identification of European SMR designs and key areas for development to improve safety,	JRC.G.I.4	3.3.a	ENER	JRC	RTD	KIT - Karlsruhe Institute of Technology	01/01/2018 31/12/2020	INS-RS	D20191	Small Modular Reactors: opportunities and challenges from a European perspective	The report will cover: 1)Identification of European SMR designs and key areas for development to improve safety, economics and licensing 2)Assessment of technical maturity and viability of SMR concepts including technology readiness assessments for main systems, components and structures or potential safety and licensing issues 3)Analysis of the development status of European SMR concepts including the existence of domestic supply chains	30/11/2019	Science for Policy Briefs
7465 - SAETEC JRC.G.I.3	6385 - SAMSER Safety assessment of Molten Salt Reactor	The work is focused on experimental studies and modelling on the properties of the below-specified selected molten salt reactor (MSR) fuel salt candidates within the three main topics: (i) thermodynamic properties in normal and off-normal operation conditions in order to provide a database for the fuel salt optimisation and to predict behaviour during accidental scenarios, (ii) electrochemical properties in order to verify and optimise the considered MSR fuel cycle back-end flowsheet and (iii) collaboration with Nuclear Research and Consultancy Group (NRCG) on the irradiation experiment SALIENT of the selected MSR fuel salt mixtures in the HFR Petten, Netherlands. Particularly, the work comprises the following topics: •Methods for synthesis of pure actinide fluorides needed for the experiments on the thermodynamic and electrochemical properties •High temperature properties such as assessment of phase diagrams, heat capacities and thermal conductivities of fluoride salts and development of quality assurance plan of the respective experimental measurements •Electrochemical measurements of the actinides in molten fluoride salts, which are either considered for MSR fuel or which have suitable electrochemical properties for the measurements (e.g., LiF-ThF4, LiF-CaF2 and possibly other) in order to evaluate their basic properties, such as apparent standard red-ox potentials, diffusion coefficients, reduction mechanism, activity	JRC.G.I.3	3.3.a	RTD	JRC		- Chinese Academy of Sciences - Nuclear Research and Consultancy Group - RUSSIAN RESEARCH CENTRE "KURCHATOV INSTITUTE" - POLITECNICO DI MILANO - Nuclear Research Institute Rez - AREVA NP GMBH - Delft University of Technology CEA - Commissariat à l'Energie Atomique et aux Energies Alternatives CNRS - Centre National de la Recherche Scientifique EERA - European Energy Research Alliance ENEA - Agenzia Nazionale per le Nuove Tecnologie, L'energia e lo Sviluppo Economico Sostenibile	01/01/2018 31/12/2020	INS-RS	DSMR04	Other deliverables- scientific publications	This deliverable represents a series of publications, reports and conference proceedings used to disseminate knowledge generated by the JRC in this work package. The achievements will be presented in one or more scientific presentation.	13/12/2019	Article contribution to periodicals or to conference proceedings listed in the Thomson-Reuters' Science Citation Index Expanded (SCI-e) or Social Science Citation Index (SSCI)
7465 - SAETEC JRC.G.I.3	6385 - SAMSER Safety assessment of Molten Salt Reactor		JRC.G.I.3	3.3.a	RTD	JRC			01/01/2018 31/12/2020	INS-RS	DSMR05	Other deliverables- scientific publications	This deliverable represents a series of publications, reports and conference proceedings used to disseminate knowledge generated by the JRC in this work package. The achievements will be presented in one or more scientific presentation.	11/12/2020	Journal contributions (Clarivate)
7446 - ANDANTE JRC.G.2	6410 - FISSION Advanced studies of the nuclear fission process	New experimental data will be produced for a better understanding of the nuclear fission process. The highest priority data are fission product characteristics, i.e. mass and charge yields, kinetic energy, prompt fission neutrons and gamma-rays and their correlations. They are used to improve and adjust parameters of fission models such as the FIFRELIN Monte Carlo model developed at CEA Cadarache and the GEF model developed at CNRS Bordeaux. Improved models for the nuclear fission process are required for criticality safety programs, for the prediction of decay heat, reactivity and neutron and gamma-ray emission rates of spent fuel as well as for the prediction of the heating of core assemblies by prompt fission gamma-rays. The expertise in fission measurements within this WPK will be used to develop a fission chamber for accurate gamma-beam monitoring at the new ESFRI facility ELI-NP (Extreme Light Infrastructure - Nuclear Physics, Magurele, Romania).	JRC.G.2	3.3.a	ENER JRC	JRC	ENER RTD	CEA - Commissariat à l'Energie Atomique et aux Energies Alternatives ELI-NP - Extreme Light Infrastructure - Nuclear Physics (ELI-NP) IAEA - International Atomic Energy Agency (IAEA) NEA-OECD - Nuclear Energy Agency (OECD) US DoE - US Department of Energy (DOE)	01/01/2019 31/12/2020	INS-UR	2	Report on the measurements of prompt fission neutrons and gamma-rays and fission fragment properties	This report describes a method to measure fission fragment characteristics together with prompt fission gamma-ray energy distributions. The data are important to improve nuclear fission models relevant for criticality safety programs, for the prediction of the prompt decay heat calculations, reactivity and neutron and gamma-ray emission rates from spent fuel.	31/08/2020	JRC technical reports
7446 - ANDANTE JRC.G.2	6410 - FISSION Advanced studies of the nuclear fission process		JRC.G.2	3.3.a	ENER JRC	JRC	ENER RTD		01/01/2019 31/12/2020	INS-UR	3	Scientific articles	Scientific publications and conference contributions related to studies of the nuclear fission process published during the period 2018-2019-2020.	13/12/2020	Article contribution to periodicals or to conference proceedings listed in the
179 - LTO JRC.G.I.4	6660 - SACIA Safety Analysis of Cable Insulation Ageing	The SACIA project contributes to the Exploratory Research (ER) Programme. The safe and reliable long-term operation of nuclear power plants (NPP) depends on the integrity of the installed cables in those NPPs. These cables are essential for the operation of critical elements of the NPP as well as transfer of the electrical signals needed to the safe operations. With the recent request to extend the lifetime of the installed NPP up to 80 years (Long Term Operation or LTO), the question of ageing of the cables -initially planned for 40 years- becomes crucial. The exposition of the cables important for safety to environmental stresses, including increased temperature and radiation, results in accelerated ageing of the cables and their performance degradation. Cables degradation may result in partial or full loss of their safety function. The loss of the safety function	JRC.G.10	3.3.a	JRC	JRC	ENER RTD		01/04/2018 31/03/2020	ER-17	D1	Final Report	The Final technical report will summarise the scientific results of the project and provide a summary of the scientific papers originating from the project. A mid-term technical report will be produced at the end of year 1.	31/12/2019	JRC technical reports
179 - LTO JRC.G.I.4	6660 - SACIA Safety Analysis of Cable Insulation Ageing		JRC.G.10	3.3.a	JRC	JRC	ENER RTD		01/04/2018 31/03/2020	ER-17	D2	Peer Review Publications	Peer review publications on polymer characterisation and ageing	31/12/2019	Article contribution to periodicals or to conference proceedings listed in the
63 - SEAT GEN-IV JRC.G.I.3	6740 - IB4N Use of ion beams to emulate the effects of	The IB4N project contributes to the Exploratory Research (ER) Programme. The project aims at developing within the JRC the capacity to study the changes of materials properties under irradiation in view of optimising structural materials, cladding and fuels under levels of irradiation	JRC.G.I.4	3.3.a	JRC	JRC	RTD		16/03/2018 31/03/2020	ER-17	01	Final Report	The Final technical report will summarise the scientific results of the project and provide a summary of the scientific papers originating from the project. A mid-term technical report will be produced at the end of year 1.	31/12/2019	JRC technical reports
63 - SEAT GEN-IV JRC.G.I.3	7362 - MIMIC Miniaturised Mechanical testing and Irradiation-enhanced Corrosion	MIMIC encompasses the EERA JPNM pilot projects M3TS and Insitex (underpinning research), M4F (H2020 indirect action), as well as the TRIAS (proof-of-concept) project. The work package thus combines institutional, competitive and exploratory research activities the common goal of which consists in advancing our understanding of damage interactions of radiation, corrosive coolant environments and high-temperature mechanical loading, through a combination of separate effect and synergistic studies, in order to identify detrimental exposure conditions giving rise to irradiation-accelerated corrosion. This is of cross-cutting relevance to the safe long-term operation of the current LWR fleet, and the safe design for 60 years and beyond operation of advanced nuclear systems. Specifically the WPK aims at delivering the following: •Best practices for conducting small specimen and micromechanical tests, in particular, in high temperature corrosive environments and under irradiation •Self-consistent schemes for the interpretation of miniature test techniques in terms of conventional mechanical properties •Communities of practice and transfer of know-how for the exploitation of analytical equipment, electron microscopy, in-situ testing	JRC.G.I.4	3.3.a	RTD	JRC, JRC RTD	ENER	- Nuclear Research Institute Rez - UNIVERSITAT POLITECNICA DE CATALUNYA - Universidad de Alicante - MIDDLE EAST TECHNICAL UNIVERSITY - UNIVERSITY OF HELSINKI - United Kingdom Atomic Energy Authority CEA - Commissariat à l'Energie Atomique et aux Energies Alternatives CIEMAT - Centro de Investigaciones Energeticas Medioambientales Tecnológicas EERA-JPNM - European Energy	01/01/2019 31/12/2022	CON-IA, INS-PC, INS-UR	D20191	Protocol to generate local stress-strain curves by spherical nanoindentation testing	Depth sensing nanoindentation (NI) using spherical indenter tips is known to probe the stress-strain response of the material indented. Currently, however, conflicting methods have been proposed for the conversion of NI data into stress-strain data. Therefore a robust protocol will be developed by numerical modelling and validation testing to clarify the issue.	28/02/2019	Validated methods, reference methods and measurements
63 - SEAT GEN-IV JRC.G.I.3	7362 - MIMIC Miniaturised Mechanical testing and Irradiation-enhanced Corrosion		JRC.G.I.4	3.3.a	RTD	JRC, JRC RTD	ENER		01/01/2019 31/12/2022	CON-IA, INS-PC, INS-UR	D20192	Commissioning of test facilities for microfabrication and microstructural analysis, material irradiation, and micromechanical and environmental testing	The MIMIC work package foresees major test facilities for microfabrication and microstructural analysis, material irradiation, and micromechanical and environmental testing, the commissioning of which will put Dir.G at the cutting edge of nuclear materials research by enabling multi-scale characterization of structural, functional materials and fuel for nuclear applications: - TRIAS mock-up (10/2019) - Plasma-FIB/SEM (12/2019) - micromechanical test stage (12/2019) - beamline at the basement of Monnet (06/2020) - ETNA irradiation rig for HFR pool-side facility (09/2020) - Radiological lab in 310 (12/2020)	31/12/2019	Technical systems

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category					
179 - LTO JRC.G.I.4	7465 - PLIM-LWR Plant Life Management of Light Water Reactors	PLIM-LWR contributes to activities on maintaining the integrity and functionality of systems, structures and components (SSCs) of light water reactors (LWRs) to ensure their safe long-term operation (LTO). This involves research on open issues concerning the degradation of current and advanced LWRs and enlarging the current knowledge base of the typical degradation mechanisms of current and advanced LWRs. PLIM-LWR also covers licensing issues and regulations of SSCs of LWRs. As such PLIM-LWR contributes to the further development of nuclear design codes & standards and integrity & lifetime procedures of current and advanced LWRs and their harmonisation. PLIM-LWR also looks into supply chain issues (e.g. SSC obsolescence) of the nuclear sector, as these are closely related to the licensing of SSCs of LWRs and nuclear power plants in general, and contributes to harmonisation activities on in-service inspection of current LWRs. The WPK supports the NUGENIA Association at organisational and operational level to coordinate and integrate European research on the safety of nuclear installations. In addition the WPK contributes to PLIM activities of the IAEA (via consolidating relevant knowledge, data exchange and organisation of joint workshops/conferences) and to round-robin exercises on degradation of nuclear materials and integrity assessment of reactor components (e.g. organised by OECD-NEA, ECG-Common and GIF Forum). PLIM-LWR contributes to joint research activities with nuclear organisations of EU member states and the US NRC and US DOE under the I-NERI Program. PLIM-LWR will maintain strong links with the competitive WPKs of the LTO project, SOTERIA, INCEFA+, MEACTOS, and the exploratory research WPK SACCIA, as they are dedicated to degradation of current LWRs. PLIM-LWR will also maintain strong links with the new WPK ELSMOR (part of SAETEC project) on development of a safety methodology for water-cooled small modular reactors (SMRs).	JRC.G.I.4	3.3.a	ENER	JRC	RTD	- Nuclear Research Institute Rez - VATTENFALL AB - FORTUM NUCLEAR SERVICES OY CIEMAT - Centro de Investigaciones Energeticas Medioambientales Tecnologicas ECG-COMON - European Cooperative Group on Corrosion Monitoring of Nuclear Materials GIF - Generation-IV International Forum IAEA - International Atomic Energy Agency (IAEA) NEA-OECD - Nuclear Energy Agency (OECD) NRG - Nuclear Research and consultancy Group, NRG NUGENIA - Nuclear Generation II & III Association SNETP - Sustainable Nuclear Energy Technology Platform (SNETP) USNRC - United States Nuclear Regulatory Commission VTT - Technical Research Centre of Finland	01/01/2019 31/12/2023	INS-RS	20181	NUGENIA Global Vision - 2018 Update	This document is the NUGENIA roadmap and summarises the R&D challenges for present and future LWRs. It is revised every 3 years to include the new R&D challenges and remove old ones, if they have been covered and solved by recent R&D projects running within NUGENIA or other networks or nuclear organisations. The next update of the NUGENIA Global Vision is foreseen for 2018.	31/10/2019	Science for Policy reports					
																20191	ENIQ Recommended Practice 12	ENIQ Recommended Practice 12 will provide guidance on how to write inspection procedures. The latter are often written in a way that they are not easily understandable for inspectors. Thus the purpose of this ENIQ Recommended Practice is to provide guidance on how to write a clear inspection procedure allowing providing the inspector with all relevant information he needs to perform an inspection. The deliverable is a guidance document and not a standard.	31/10/2019	Contributions to standards
																20192	Nuclear Supply Chain situation in Europe	The nuclear industry currently faces a number of challenges concerning the supply of components & equipment: Obsolescence, difficulty to find new suppliers, formal strict quality assurance documentation requirements and the generally difficulty to use modern state-of-the-art technology in nuclear facilities. JRC launched a project (title: Modernisation & optimisation of the European nuclear supply chain) in June 2018 with the aim to tackle these challenges. Feedback from various European utilities showed that not all countries in Europe are equally affected by supply chain issues. Where as the utilities of some European countries are more affected by these issues (e.g. Sweden and Finland) others (e.g. France) are less affected. The report summarises the current nuclear supply chain situation in Europe based on the presentations given during the project kick-off meeting and received answers from a questionnaire sent to the project participants.	30/09/2019	Science for Policy reports
																20193	European Methodology for Qualification of Non-Destructive Testing - Issue 4	The European Methodology for Qualification of Non-Destructive Testing (often referred to as ENIQ Methodology) is a harmonised approach for the qualification of NPP inspections using non-destructive testing (NDT) and thus provides guidance on inspection qualification together with the ENIQ Recommended Practices (ENIQ RPs, see deliverable 20191). Because all ENIQ RPs will be fully revised by the end of 2018 ENIQ members (ENIQ = European Network for Inspection & Qualification) decided to also revise the ENIQ Methodology document.	31/10/2019	Books
																20194	Capabilities of XFEM in solving structural mechanical problems	This report summarises the results of a benchmark project on XFEM organised within the Metallic Subgroup of OECD-NEAs Committee for the Safety of Nuclear Installations. XFEM is an enhancement of the finite element method with significant potential for solving structural mechanical problems. To explore the possibilities of XFEM and to identify any challenges OECD-NEA organises a corresponding benchmark project. The deliverable will be the final report of the benchmark project.	20/12/2019	Technical Reports
																20195	Datasets from EAC tests	This deliverable includes all data sets evolving from environmentally assisted cracking (EAC) tests performed in JRC Petten lab AMALIA in 2019 and mechanical tests performed within STRUMAT-LTO (see deliverable 20196). The EAC tests could be part of GIF activities, NUGENIA projects or joint activities with other nuclear organisations on a bilateral basis.	30/11/2019	Datasets
																20196	First Results of STRUMAT-LTO pilot study	STRUMAT-LTO is a project running within NUGENIA and jointly lead by NRG and JRC. It is related to reactor pressure vessels embrittlement and involves post-irradiation examination of the Lyra-10 specimens (Lyra-10 was joint NRG-JRC irradiation campaign in the HFR Petten). This deliverable provides first results of PIE of the Lyra-10 specimens.	31/10/2019	Journal contributions (Scopus)
																20197	Results of EAC tests	This deliverable encompasses articles for peer-reviewed journals and conference papers on results from environmentally-assisted cracking (EAC) tests performed in JRC Petten lab AMALIA. The results of these articles and conference papers could be from the WPK INCEFA+ (showing results from EA fatigue tests), the WPK MEACTOS (stress corrosion cracking tests in PWR and/or SCWR conditions) or EAC tests performed in SCWR conditions as part of GIF activities.	30/11/2019	Journal contributions (Scopus)
																20198	European Framework Document for Risk-informed In-service Inspection	This document is intended to provide guidance to utilities for developing their risk-informed in-service inspection (RI-ISI) approaches or adapting already established approaches, taking into account utility-specific characteristics and national regulatory requirements. This ENIQ document is the 2nd edition of the European Framework Document for RI-ISI. RI-ISI approaches are used to define inspection programmes based on analysis of consequences and probability for leakage in pressure components important to reactor safety. By using plant specific consequence analysis and detailed review of degradation susceptibility and analysis of failure probability, the risk-informed approaches have the capability to identify the items presenting the highest risks of failure, including inspection locations that might otherwise be overlooked.	31/03/2019	Books
7465 - SAETEC JRC.G.I.3	7484 - ELSMOR European Licensing of Small Modular Reactors	The aim of this WPK is to develop a methodology with qualitative and quantitative recommendations to support the safety demonstration of water-cooled SMRs. The safety case methodology should help regulators in the licensing of water-cooled SMRs and ensure their compliance with the European nuclear safety directive. The following items will be considered in the development of the safety case methodology: Decay heat removal with focus on passive systems, Containment & barriers, protection to hazards, multiple-units issues (common pool, shared control room, severe accident prevention & mitigation strategy including emergency planning zone definition, refuelling, spent fuel management, decommissioning. Two safety features of water-cooled SMRs will be looked into in more detail: Heat removal, i.e. passive safety systems and containments. The developed methodology will be applied to a concrete SMR concept, most probably the new French water-cooled SMRs, currently developed by CEA, EDF, Naval Group, TechnicAtom. ELSMOR is a project proposal currently developed within Technical Area 6 "Innovative LWR concepts & technologies" of NUGENIA with the aim of submitting it to the current H2020 EURATOM call under topic NFRP-3 (deadline: Sep 27, 2018). As ELSMOR is still under development and will undergo evaluation by DG RTD there is no certainty that this competitive WPK will finally be launched. In case ELSMOR will be successful in the H2020 EURATOM 2017/18 call and will be launched missing data (budget, deliverables, legal and policy basis, etc.) will be added. Despite these uncertainties ELSMOR was already included in JPB for information purposes only.	JRC.G.I.4	3.3.a	RTD	RTD,RTD	ENER	01/09/2019 31/08/2023	CON-IA,CON-IA	n/a	n/a	n/a	n/a	n/a						
63 - SEAT GEN-IV JRC.G.I.3	7523 - SOARES Safety Of Advanced REactorS	SOARES focuses on safety-related activities directed at supporting the development of European advanced nuclear reactors with high level of safety, improved economics and enhanced sustainability. In particular, the activities of SOARES aim to support the European and international efforts towards the development of consensus on safety objectives and approaches for advanced reactors including the development of appropriate safety principles and provisions. SOARES contributes to the improvement of the safety of Generation-IV European Sodium Fast Reactor (ESFR) within the competitive ESFR-SMART project (European Sodium Fast Reactor Safety Measures Assessment and Research Tools). The activities covered here include the definition of	JRC.G.I.4	3.3.a	RTD	JRC	- Chalmers University of Technology - ANSALDO NUCLEARE S.P.A. - Universidad Politécnica de Madrid - University of Latvia - UNIVERSITY OF CAMBRIDGE - WOOD - Institut National Polytechnique de Lorraine	01/01/2019 31/12/2023	CON-IA,INS-RS	2019001	Generation IV International Forum Annual Report	The GIF Annual Report highlights the main activities of the forum including progress of projects, methodology working groups and task forces.	31/12/2019	Science for Policy reports						
										2019002	Safety design guidelines for sodium-cooled fast reactors	This report summarizes the safety design guidelines developed by the GIF SFR SDC task-force.	15/09/2019	Technical Reports						
										2019003	Safety Features of ESFR	This report describes the new safety provisions implemented in the core design of ESFR-SMART.	31/10/2019	Technical Reports						
179 - LTO JRC.G.I.4	7527 - microMECH Novel Micromechanical Testing Methods for the Characterization of	The µMech project contributes to the Exploratory Research (ER) Programme. It proposes to develop and validate a new methodology for mechanical testing of structural materials for nuclear applications, in such a way that the activity of the irradiated material is low enough to allow the characterisation be made without hot cell infrastructure. The tests, accompanied by numerical	JRC.G.I.4	3.3.a	JRC	JRC,JRC	RTD	EERA-JPNM - European Energy Research Alliance - Joint Programme on Nuclear Materials NUGENIA - Nuclear Generation II & III	16/11/2018 15/02/2021	ER-17,INS-UR	microMECH	Final report	The Final technical report will summarise the scientific results of the project and provide a summary of the scientific papers originating from the project. A mid-term technical report will be produced at the end of year 1.	15/02/2021	Technical Reports					
7465 - SAETEC JRC.G.I.3	7730 - SAMOSAFER Severe Accident Modeling and Safety Assessment for Fluid-fuel Energy Reactors	The SAMOSAFER proposal aims to develop new safety barriers for more controlled behaviour of Molten Salt Reactors in case of severe accidents based on new assessment and simulation tools validated with advanced experiments, such that the MSR can comply with all new regulations expected to enter into charge in the next 30 years.	JRC.G.I.3	3.3.a	RTD	RTD			01/07/2019 30/06/2023	CON-IA	n/a	n/a	n/a	n/a	n/a					

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
63 - SEAT GEN-IV JRC.G.1.3	8142 - TRANSMEETS TRANSmutation fuels in generation 4 reactors, Modeling, Experimental data and Simulation	<p>Transmutation of Minor Actinides (MA) is a prerequisite for GEN IV reactors to reduce the radiotoxicity and volume of high activity wastes. The compliance of MA incorporation into oxide fuels, (U,Pu,MA)O₂ and (U,MA)O₂, with more stringent safety requirements needs to be demonstrated. TRANSMEETS, a proposal fully supported and endorsed by the Steering Committee of the EERA Joint Programme on Nuclear Materials, addresses research and innovation in the development of fuel performance codes, cornerstones of fuel behaviour evaluation and safety analyses.</p> <p>Specifically, TRANSMEETS will:</p> <ul style="list-style-type: none"> -extend the validation domain of models and codes through an upgraded experimental database from the latest innovative irradiations, -progress in the development of fuel performance codes by improving and developing models at the mesoscopic and macroscopic scales and simulation tools coupling the behaviour of Am-bearing fuels with the reactor environment, for normal and off-normal situations, -pave the way for the future by designing safer pins for transmutation and identifying experimental needs for code validation in off-normal situations, leading to the pre-design of simulation-based transient irradiation. <p>Within TRANSMEETS, a well-balanced consortium of universities, research organizations and industries will collaborate to share and leverage their skills, progress and achievements. In addition, synergies will be sought with other ongoing European projects.</p> <p>Finally, TRANSMEETS will bring to the next step the validation of simulation tools, essential to support GEN IV reactors safety assessment. It will lead to the development and optimization of the design of fuels for transmutation, in line with the strategic research and innovation agenda of the SNETP, notably of its ESNII reactor prototypes. In the longer term, it will facilitate the management of ultimate radioactive wastes and reduce the footprint impact of deep geological repositories, thus improving public acceptance of nuclear energy.</p>	JRC.G.1.3	3.3.a	RTD	RTD		<ul style="list-style-type: none"> - Delft University of Technology - POLITECNICO DI MILANO CEA - Commissariat à l'Energie Atomique et aux Energies Alternatives KIT - Karlsruhe Institute of Technology KTH - KUNGLIGA TEKNISKA HOEGSKOLAN NRG - Nuclear Research and consultancy Group, NRG SCK-CEN - Belgian Nuclear Research Centre (SCK-CEN) 	01/07/2019 30/06/2023	CON-IA	n/a	n/a	n/a	n/a	n/a

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
7465 - SAETEC JRC.G.I.3	8343 - SEAPIKE SEvere Accident Prevention by chemical Immobilisation of Key Elements	The overall objective of this project is to investigate the ability of liquid fluoride fuel salt to retain fission products and actinides (collectively, radioisotopes) under normal and abnormal conditions. This, in turn, aims to verify one of the most central, inherent safety features of most molten salt reactor (MSR) designs: that radioisotopes remain chemically bound to the salt even in serious accidents in which multiple barriers to radiological release are breached. Specifically, this project will experimentally investigate the Radioisotope Retention (RIR) ability of some of the most promising fluoride fuel salt candidates for thermal MSRs. These investigations will consider the salt both in normal operating conditions under a noble gas atmosphere, as well as in contact and mixed in with the environment, and during and after phase transformations (boiling and solidification). The empirical evidence collected will be used both to assess the RIR ability, as well as to build (partly or wholly) empirical models that are able to predict radioisotope solubility as a function of measurable reactor parameters such as temperature, pressure and molecular concentrations.	JRC.G.I.3	3.3.a	RTD	RTD		- University of Manchester - Chalmers University of Technology	01/07/2019 30/06/2022	CON-IA	n/a	n/a	n/a	n/a	n/a
63 - SEAT GEN-IV JRC.G.I.3	8363 - MONICA Model development for Nuclear Innovative Concept Assessment	Due to its low CO2 emission, nuclear power is part of a sustainable energy mix. However, safety and waste issues cannot be taken lightly. New 4th generation fast reactors give a unique opening to drastically improve economy and sustainability by better use of fuel and reduced waste production. At the same time, a fundamental advance in nuclear safety by maximal use of intrinsic passive features is possible. The EU sustainable nuclear initiative SET plan describes a path for the future deployment of GENIV fast reactors in Europe. The main tracks are the development of the sodium cooled reactor ASTRID and the lead cooled fast reactor for which MYRRHA serves as the technical pilot and the ALFRED system is the demo plant. This proposal answers to NRFP2 of the 2017-2018 EURATOM call: Model development and safety assessments for Generation IV reactors. It focusses on model development to improve the practical applicability to numerical models for safety assessment in fields where the stress is put on developments related to the liquid metal coolant. The work involves three technical work packages. The first looks into specific issues in heat transfer using a thermally conducting coolant, and the effects on core cooling in incident scenarios where deformation or blockages have occurred. The second WP on pool thermal-hydraulics investigates modelling of the reactor pool including natural convection stability. This is important to ensure heat removal in all scenarios. The third WP on multi-physics modelling combines thermalhydraulic modelling with other phenomena such as the coolant chemistry, radionuclide release, and material degradation models to allow an investigation of their combined effects. This is of particular importance in accident scenarios. A dedicated work package deals with education focussing on pre-and post-graduate students, and with dissemination where	JRC.G.I.3	3.3.a	RTD	RTD	ENER	EDF Energy - EDF Energy NRG - Nuclear Research and consultancy Group, NRG SCK-CEN - Belgian Nuclear Research Centre (SCK-CEN)	01/04/2019 31/03/2023	CON-IA	n/a	n/a	n/a	n/a	n/a

3.3.b Enhancement of safety of spent fuel, radioactive waste management and nuclear decommissioning:

62 - FUMAGEN JRC.G.I.5	215 - PIE AREVA Post Irradiation Examination of commercial LWR fuel from German reactors	Post irradiation examinations are performed at the JRC (both non-destructive and destructive) of UO ₂ , UO ₂ /Gd ₂ O ₃ and MOX fuel rods irradiated at several European power plants. Fretting and shadow corrosion analysis of cladding, along with ceramography and metallography of fuel and cladding are included in the programme. This WP provides most valuable access to and knowledge about the commercial nuclear fuel of today's generation of reactors operated in the EU, allowing to maintain the necessary level of competence to fulfill the overall objectives of the nuclear fuel safety programmes.	JRC.G.III.8	3.3.b	JRC	n/a		IAEA - International Atomic Energy Agency (IAEA) - AREVA GMBH*	29/08/2012 31/12/2020	CON-TW	2019	Impact tests on BWR (GUN) high burn up spent fuel rods	The results of 3 impact tests performed on spent fuel rods from the NPP Gundremmingen will be reported. The output will contain data on mass release after rod rupturing, particle size distribution analysis of the released fuel, Hydrogen content of the cladding material and if possible metallography observation of the hydrides morphology in the cladding.	31/12/2019	Technical Reports
											2020	Transports of spent fuel rods – welding qualification and encapsulation	After implementation of the "back to the owner" transports of in JRC-KA stored spent fuel rods it will be reported the methodology and gained know how.	31/12/2020	Technical Reports
7298 - SPEND JRC.G.III.8	548 - SPAM Spent fuel alteration mechanisms under long-term storage and disposal conditions	Radionuclide (RN) release from a deep underground repository is governed to a large extent by the source-term (spent nuclear fuel, SNF) and the near-field redox conditions. This WP determines experimentally the SF corrosion rate as a function of the ground water redox potential which itself is mainly controlled by the canister corrosion. Consequently, two crucial variables needed to be investigated: spent fuel and the near-field environment, together with their interdependent reactions (mainly radiolysis (oxidative) and corrosion of iron canister (reducing)). For the main part	JRC.G.III.8	3.3.b	RTD	JRC	ENER	- STUDSVIK NUCLEAR AB - COMMISSARIAT A L ENERGIE ATOMIQUE CEN SACLA - SKB INTERNATIONAL CONSULTANTS AKTIEBOLAG - UNIVERSITAT POLITECNICA DE	01/01/2018 28/12/2021	INS-RS	41	Scientific publications related to spent fuel behaviour under long-term storage and disposal conditions 2018 -2019 -2020	Scientific publications and conference contributions related to spent fuel behaviour under long-term storage and disposal conditions in the period 2018-2020	31/12/2020	Journal contributions (Clarivate)
7298 - SPEND JRC.G.III.8	4386 - DISCO Modern Spent Fuel Dissolution and Chemistry in Container	While the scientific understanding of the dissolution of standard spent uranium oxide fuel has reached a certain mature state, new types of fuels with additives ("doped fuels") have been developed. These fuels are already in use in some reactors, and their use is foreseen to be expanded. Fuel stability data are now required to confirm that the behaviour of such fuels in a	JRC.G.III.8	3.3.b	RTD	RTD	ENER	- POSIVA OY - SVENSK KAERNBRAENSLERANTERING AB - ASSOCIATION POUR LA	01/07/2017 30/06/2021	CON-IA	2	Final Report on the stability of spent Cr2O3-doped UO2 and spent MOX fuel	Progress and results obtained in quantification of long-term matrix stability and radionuclide release from Cr2O3-doped UO2 and (U,Pu)O2-fuels in aqueous model systems under various repository conditions.	31/05/2021	JRC technical reports
4961 - DISARM JRC.G.III.8	5104 - SADARAC Stability, Defueling and Safe Conditioning of Damaged Reactor Cores	The main activities are the assessment of the stability of a damaged core in fresh water, seawater, or water with additives, the characterization of the mechanical properties of corium, which will impact its unloading from the core, and the investigation of corium treatment, conditioning in relation to its ageing and weathering behaviour. The work package takes a pragmatic approach combining "real case" characterization with underlying scientific studies to understand specific relevant mechanisms.	JRC.G.III.8	3.3.b	RTD	JRC	ENER	CRIEPI - Central Research Institute of Electric Power Industry ETSON - European Technical Safety Organisation Network IAEA - International Atomic Energy Agency (IAEA)	01/01/2017 31/12/2020	INS-UR	5	Scientific publications related to stability, defueling and safe conditioning of damaged reactor cores 2018-2019-2020	Scientific publications and conference contributions related to stability, defueling and safe conditioning of damaged reactor cores during 2018, 2019 and 2020	31/12/2020	Journal contributions (Clarivate)
4961 - DISARM JRC.G.III.8	5106 - NUSIRE Nuclear Site Remediation	NUSIRE deals with remediation of contaminated structures and sites, including end of regular operation, or subsequent to accidental conditions where liability and responsibility goes beyond that of the operator. Remediation and the closely associated site clean-up, decommissioning and restoration, refers to actions taken to reduce the impact from contamination in buildings, areas and in the associated groundwater in order to leave the site suitable for further use. Sustainable remediation balances environmental, social and economic impacts of a project, without compromising human health and environmental standards both at a local level, and for the wider community. A risk-based approach to remediation can assist countries with significant legacy clean-up challenges and budgetary constraints to manage effectively their remediation projects. Remediation encounters a series of obstacles, including concurrent activities, inadequate site Improved Nuclear Site characterization for waste minimization in D&D operations under constrained Environment.	JRC.G.III.8	3.3.b	RTD	JRC	ENER	ETSON - European Technical Safety Organisation Network IAEA - International Atomic Energy Agency (IAEA) NUGENIA - Nuclear Generation II & III Association OECD - Organisation for Economic Co-operation and Development (OECD) SNETP - Sustainable Nuclear Energy - BRITISH NUCLEAR GROUP SELLAFIELD LT - CANBERRA INDUSTRIES INC - Czech Metrology Institute - NPL Management Ltd AREVA NP - AREVA NP Main Company CEA - Commissariat à l'Energie Atomique et aux Energies Alternatives CETAMA - Commission	01/01/2017 31/12/2020	INS-UR	2	Establishing a science for remediation network	The report describes the outcome of two years efforts towards establishing a network on basic sciences for improving remediation technologies. The key objective of this report is to assess the outcome in view of how to proceed with the actual implementation of such an international R&D network.	31/12/2020	Technical Reports
											4	Scientific publications related to innovative analytical techniques for waste characterisation for remediation purposes 2018 - 2019 -2020	Scientific publications and conference contributions related to the objectives of NUSIRE WP in the period 2018-2020	31/12/2020	Journal contributions (Clarivate)
7308 - ITSP JRC.G.II.7	5280 - INSIDER Improved Nuclear Site characterization for Waste Minimization D&D under Constrained Environments	Decommissioning and dismantling (D&D) operations are strongly dependent on the facilities history and the inventory of present radionuclides. The D&D processes are a significant source of radioactive waste and their management is a major challenge from a technical, economical, financial and societal point of view. This is recognized in a number of EU and international level reference documents and studies. These challenges also provide an opportunity for further optimisation of processes and the ambition of INSIDER project is to contribute to it. In particular, for constrained environments, new methodologies are necessary for more accurate initial estimation of	JRC.G.III.8	3.3.b	RTD	RTD			01/06/2017 31/05/2021	CON-IA	2	Design of the benchmarking exercise	The development of the benchmarking system will require that the basic parameters to be included in the benchmarking, the basic features of the database and the principal expectations for the output format and content are defined. The importance of establishing industry-wide standards and guidelines for radiological characterization (and eventually waste minimization), including source reduction, reuse, and volume reduction are key parts of the benchmarking exercise.	31/12/2019	Validated methods, reference methods and measurements
											5	INSIDER benchmarking exercise final results	Results on the benchmarking exercise focusing on quantifying productivity of decommissioning physical activities and identifying how productivity is affected by specific working conditions covering the three major usage cases referred in the project.	31/12/2019	Technical Reports
											6	INSIDER State-of-Knowledge	State-of-Knowledge (SoK) for the INSIDER key topics in the JRC open-access Integrated Knowledge Management System (IKMS) under EU Science Hub.	31/12/2020	Sci information systems and

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
7298 - SPEND JRC.G.III.8	6114 - WEIMER Waste Environment Interaction mechanisms by Electron Spectroscopy Research	This workpackage increases knowledge on interaction mechanisms of nuclear waste systems and waste forms with their environment which directly determine the stability of nuclear waste. This basic mechanistic understanding is integrated in models within performance codes to increase confidence in the safety of a waste disposal. JRC's unique PAMEC laboratory incorporating the electron spectroscopy facility (LabStation) is a key asset providing utmost versatility and sensitivity for the study of model systems. Well defined model systems are synthesized as thin films or bulk samples replicating conventional	JRC.G.I.5	3.3.b	JRC RTD	JRC	ENER JRC	- UNIVERSITY OF SHEFFIELD - University of Manchester - SKB INTERNATIONAL CONSULTANTS AKTIEBOLAG KIT - Karlsruhe Institute of Technology KTH - KUNGLIGA TEKNISKA	01/01/2018 31/12/2020	INS-UR	61142018D 2	Scientific publications related to investigations on surface processes involved in spent fuel storage and disposal 2018 - 2019 -2020	Article contributions to peer-reviewed journals and contributions to scientific conferences related to investigations on surface processes involved in spent fuel storage and disposal.	31/12/2020	Journal contributions (Clarivate)
7298 - SPEND JRC.G.III.8	6115 - SPERUS SPent fuel Rods Under Stress	Irradiated nuclear fuel will be stored for time periods far beyond of that originally envisaged and more than 100 years will become a reality. This extended storage period brings with it a host of safety issues, both for the container and the spent fuel pins. In particular, the behaviour of the fuel cladding is of paramount importance as it is the first barrier retaining the fuel. The safety of spent fuel (SF) during storage, handling or transportation requires that certain level of mechanical stability of the fuel-cladding system is retained. In case of an accident the fuel release from rod breakage must not endanger the critically safety. SPERUS includes experimental hot cell studies in conjunction with single effect investigation to extend and deepen the characterization of the spent fuel rod integrity and response to mechanical loading under accidental handling or transportation. The tests will be performed on spent fuel	JRC.G.III.8	3.3.b	RTD	JRC	ENER	- AREVA NP GMBH* AREVA NP - AREVA NP Main Company BAM - Bundesanstalt für Materialforschung und Prüfung (BAM) BMU - Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit CEA - Commissariat à l'Energie Atomique et aux Energies Alternatives CIEMAT - Centro de Investigaciones Energeticas Medioambientales	01/01/2018 31/12/2020	INS-RS	4 D3three	Mechanical loading tests on irradiated LWR fuel rods Destructive mechanical tests of irradiated nuclear fuel rods and control of their stability under accidental handling and	Assessment of the SNF mechanical stability against external stresses, which might be accidentally applied, requires representative reference data. This is accomplished by performing small scale laboratory measurements. Explicit tests singling out individual aspects and ageing mechanisms governing the SNF alternation, contribute to a better evaluation of the fuel-cladding system safety levels under accidental conditions Two devices for mechanical testing on spent nuclear fuel rods have been developed for gravitational impact and 3-point bending tests. Main objective of this work is the investigation of the mechanical integrity of spent nuclear fuel rods in accident scenarios is the main conducted in the hot-cell facilities of JRC Karlsruhe.	30/11/2020 31/12/2019	Journal contributions (Scopus) Article contribution to periodicals or to conference proceedings listed in the
7298 - SPEND JRC.G.III.8	6116 - FASTODI Fuel Ageing in Storage Disposal conditions	Nuclear spent fuel is subject to different types of radiation effects modifying its properties during intermediate storage or disposal. In this WP the radiation damage effects (fission, alpha-decay) and the impact of radiogenic inert gases (helium) accumulation will be assessed using the unique equipment in JRC Karlsruhe (Scanning and Transmission Electron Microscopy for radioactive samples, helium infusion) and suitable materials (alpha-doped UO ₂ , irradiated fuels) in order to be able to predict their long-term behaviour in storage and disposal conditions. For the first time, nano-crystalline material (UO ₂ , ThO ₂) simulating the high burnup structure will be investigated using ion beams to induce radiation damage equivalent to those expected during	JRC.G.I.3	3.3.b	JRC	JRC	ENER		01/01/2018 31/12/2020	INS-RS	D41	Scientific publications related to microstructure investigations of alpha-damaged doped UO ₂ samples stored at different temperatures 2018-2019-2020	Evolution of the lattice parameter of alpha-damaged sample stored at different temperatures: UO ₂ samples doped with 238Pu will be stored and different temperatures (RT, liquid nitrogen and 200°C) and the lattice parameter regularly monitored. The effect of temperature on the formation/annealing of defects will be assessed by microstructure investigations using Transmission Electron Microscopy.	31/12/2020	Journal contributions (Scopus)
7305 - WAIF JRC.G.III.8	6124 - WISMOR Waste management issues specific to Small Modular Reactors (SMR) and Accident Tolerant	The escalating costs and the large capital investment needs to finance the construction of these reactors has also become a major issue. Modular designs with in factory fabrication, rather than on site, provides a means to drive down costs, but naturally limits the size of the reactor. The SMR, which had already been in consideration, has come into vogue, especially since Fukushima as the increased safety of such reactors has also become an important driver.	JRC.G.III.8	3.3.b	ENER	JRC	RTD		01/01/2018 31/12/2020	INS-RS	D201801	Report on the stability of low linear rating UO ₂ fuels specific for SMR conditions in aqueous media.	The state of the art of SMR reactors and resulting nuclear fuel waste will be assessed. The selection and characterisation of surrogates will be described as well as results on its stability.	15/12/2020	Journal contributions (Scopus)
7305 - WAIF JRC.G.III.8	6125 - HICOMA HLW Conditioning Matrices	A closed fuel cycle retains key radioisotopes for further energy production. Several constituents are continuously emitted from the cycle and must be treated and stored. Herein, the mechanical stability of conventional vitrified waste will be assessed with respect to radiation induce alterations in the local atomic structure (NMR) and to helium build up due to alpha decay (TEM/KEMS). A basis on which to build upon exists via recent collaborations with CEA and KIT-INE. These collaborations will be extended, enabling JRC to share and generate new knowledge for the assessment of these materials. Glass has become an industrial standard. Nevertheless, it has been claimed that inorganic materials which exist and are stable in nature could be even better waste forms. These can be pyrochlores and monazites amongst others. Indeed, several early minor actinide transmutation programmes focussed on these materials in a so called "once through and then out (OTTO)" concept for MA transmutation. While the irradiation tests were evaluated in terms of the material performance, knowledge gaps exist in terms of their stability in aqueous media, prohibiting any	JRC.G.I.3	3.3.b	ENER JRC	JRC	ENER		01/01/2018 31/12/2020	INS-RS	D1 D2	High minor actinides loading factor in nuclear glass: helium solubility and mechanisms of helium bubble nucleation Scientific publications related to the study of crystalline matrices for the conditioning of high level waste 2018-2019-2020	To optimize the high level waste flow management, increased loading factors are studied in France. The (mechanical) stability of the waste glass is potentially affected by the radiogenic helium formation. The open structure of the glass could accommodate partly this helium produced in substantial amount and an assessment of the helium solubility would help in determining the critical quantities of (alpha-decaying) minor actinides to be incorporated in the waste glass. The study on solubility will be performed on inert glass in presence of high pressurized helium in a heated autoclave at different pressures and temperatures. Study of crystalline matrices for the conditioning of high level waste: in parallel to glass, crystalline matrices have been proposed to host actinides among HLW due to proven long term stability in equivalent natural minerals (pyrochlores, zirconolites, phosphates). It is proposed here to perform an NMR study of the local order/disorder in synthetic compounds doped with plutonium (or rare earth elements i.e. surrogates of minor actinides like Ce, Nd). RAMAN and XRD analyses will also be performed	30/11/2019 31/12/2020	Journal contributions (Clarivate) Article contribution to periodicals or to conference proceedings listed in SCOPUS
7305 - WAIF JRC.G.III.8	6126 - CONLEWA Conditioning Legacy Waste	Research and other organisations have accumulated "special" legacy wastes in their Hot cells and other facilities, for which no (or few) conditioning solutions exist. Here, sustainable solutions will be sought to alleviate the backlog and provide procedures to deal with special waste in a timely	JRC.G.III.8	3.3.b	ENER JRC	JRC	ENER	CEA - Commissariat à l'Energie Atomique et aux Energies Alternatives IAEA - International Atomic Energy	01/01/2018 31/12/2020	INS-RS	D201901	Recovered radioactive samples from resin embedding matrix	Description of the method applied, treatment of the specimens and reporting of individualities and difficulties encountered.	31/12/2020	Technical Reports
7308 - ITSP JRC.G.II.7	6162 - STANDER Standards in support of decommissioning and environmental remediation	The new Basic Safety Standards (Council Directive 2013/59/EURATOM) defines radionuclides specific clearance levels. Industry needs to change from the widely used gross counting methods to radionuclide specific methods using modern instrumentation such as spectrometric methods. Such methods need to be tested and validated in order to be accepted by regulators. This will require both the development of standards as well as access to reference materials with certified SI-traceable activity concentrations of radionuclides relevant in decommissioning activities. This work package deals with identifying these needs and developing reference materials that can be used for free release measurements and for on-site work. In addition, to support industry to fully exploit new developments in digital electronics, nuclear instrumentation and robotics, the development and use of documentary standards will be further supported. Nuclear decommissioning and environmental remediation are fields where robots may be effectively exploited to assess radiation and contamination levels. The use of data format standards will be stimulated in these areas by the development of a demo system, open source software tools, and training material that may be used by equipment manufacturers, system integrators, the scientific/academic community and developers of software for the analysis of digitally acquired data.	JRC.G.2	3.3.b	ENER	JRC	HOME TAXUD	CENELEC - European Committee for Electrotechnical Standardization (CENELEC) EURAMET - European Organisation of Metrology (EURAMET) IAEA - International Atomic Energy Agency (IAEA) IEC - International Electrotechnical Commission NMIs - National Metrology Institutes	01/01/2018 31/12/2020	CON-AA,INS-RS	50 60 70	Training material to support the use of IEC 63047 Final report on the characterisation of (a) reference material(s) for decommissioning measurement facilities Scientific articles	Provision of training material to support the use of the list-mode data format standard IEC 63047 which was developed under the lead of JRC. The material may consist of e-learning tools and lectures, open-source software for encoding and decoding data to and from the IEC 63047 format, and builds further on the compact spectrometer developed in Deliverable 10. The material is targeted towards equipment manufacturers, laboratories, developers of software for data analysis, universities and research institutes. Report on the characterisation of (a) calibration standard(s) for decommissioning measurement facilities, such as Co-60 in steel disks and/or other relevant materials.. Scientific publications or conference contributions related to research and development of reference materials during the period 2019 – 2020.	31/12/2019 30/09/2020 31/12/2020	Training Reference Material Article contribution to periodicals or to conference proceedings listed in the
7308 - ITSP JRC.G.II.7	6163 - NDADecommissioning Non-destructive analysis for Decommissioning	NDADecommissioning includes two main activities: 1)Tomography of waste drums in the characterisation/clearance stage. The Waste Clearance System (WCS) is intended for characterization of waste that has failed the clearance segregation measurement, or waste that, through historical records, is known to belong to one of the low-level waste categories. The WCS will be used as a benchmark for the experiments present in this WPK. This institutional work is linked to the competitive work package METRODECOM II. Imaging techniques such as gamma tomography applied for waste management have made	JRC.G.II.7	3.3.b	ENER	JRC		IAEA - International Atomic Energy Agency (IAEA)	01/01/2018 31/12/2020	INS-RS	2 i	Upgrade of the Waste Clearance System Characterisation of irradiated fuel under constraint environment	The WCS will be put in operation to investigate its weaknesses then upgraded from hard/software/calculation-models points of view in order to comply with the requirements of G.III.9 for characterisation and clearance of waste drums. Irradiated experimental nuclear material presently in ESSOR pond will be analysed insitu by gamma spectrometry including theoretical calculations using depletion code prior to the measurement. A technical report will be issued.	31/12/2020 31/12/2019	Technical systems Technical systems
7308 - ITSP JRC.G.II.7	6164 - VTMDecommissioning VTM support to Nuclear Decommissioning and Waste Management	JRC has a long experience in providing 3D Laser based verification and identifications systems to Nuclear Safeguards organizations. The work has until recent been focused on Design Information Verification of active or commissioned nuclear installations and on Physical Inventory of nuclear material on nuclear sites. This work-package will, based on a previous analysis, develop optimized tools to assist in decommissioning of Nuclear Sites. The deliverables range from core-level system components to end-user ready systems for management of tagged data into 2D/3D environment as well as specific tools for soil treatment supported by 3D technologies. OBJECTIVES •Create easy-to-use tools for a technician to build large scale accurate 3D models from a large site. •Using a 3D supported model, create easy-to-use application(s) enabling management and visualization of spatially connected links/tags/documents including virtualized operations such as acquiring measurements.	JRC.G.II.7	3.3.b	ENER	JRC			01/01/2018 30/06/2020	INS-RS	10 20 30	Development of a 3D assisted soil-handling system Development of an IT system to assist in planning, management and follow-up of decommissioning activities Evaluation report	The system will use continuous 3D sensors to monitor the movement of an excavator and at the same time keeping an up-to data record of the surface elevation of the selected area. By feeding into the system, a specific map for contaminated soil, it will be possible to indicate to an operator of the excavators where and how much soil needs to be removed. By using this system, it is expected to minimize the amount of removed soil for further decontamination. This is the high-level user applications which is based on the existence of the lower-level application and 3D enabled database as defined in deliverable 30 of year 2017. With this system, a user/operator/contractor/authority can perform virtual visits to a site; perform measurements, accessing linked documents (document management not included in this project). Data can be visualized in different detail levels and selections can be exported to other third party applications (like BIM SW.) for further processing/management Based on the development of a new IT tool for Nuclear Decommissioning, this deliverable will result in a technical report analyzing the positive and negative aspects of using such technologies. The report shall bring up economical, technical and quality-related aspects from the use of the tool in relation to other techniques.	30/11/2019 28/05/2019 30/06/2020	Technical systems Technical systems Technical Reports

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
7308 - ITSP JRC.G.II.7	6165 - MetroDecom-II In-situ Metrology for Nuclear Decommissioning	MetroDecom-II is a 36 months competitive project launched on 1 September 2017 that follows the MetroDecom project concluded in August 2017. This competitive project has four scientific work packages. The scientific contribution of JRC is concentrated in WP3 which concerns characterization of two measurement stations for up to 400 litres waste containers constructed in Area 40 of the JRC Ispra site. The stations include a passive/active neutron station and a tomographic gamma-ray station. The project will be carried out in close cooperation with the Decommissioning Unit (JRC.G.III.9). The aim of WP3 is to validate a new waste characterization system for LLW and ILW. Radionuclide activities are typically higher than those measured in the free release system in WP2 and this work package also includes the non-destructive measurement of fissile materials. Measurement campaigns on both real and simulated waste containers will be carried out and the performance of the systems in terms of detection limits, accuracy, measurement time will be determined.	JRC.G.II.7	3.3.b	RTD	RTD	ENER	EURAMET - European Organisation of Metrology (EURAMET)	01/09/2017 31/08/2020	CON-IA	n/a	n/a	n/a	n/a	n/a
4961 - DISARM JRC.G.III.8	6220 - ADAM Advanced analysis methods for the characterisation of complex nuclear materials	In this work package we will develop and improve non-destructive analysis (NDA) techniques to accurately determine the thermal and radiological characteristics of nuclear materials, avoiding complex chemical analysis. For example, for a safe, secure, economic and ecological storage or final disposal, nuclear materials have to be characterised for decay heat, neutron and gamma-ray emission rate and reactivity. Such a characterisation cannot be done by conventional NDA techniques, such as those used in nuclear safeguards, which primarily focus on the determination of the amount of fissile material. In addition, these conventional techniques will be strongly hampered by the high radioactivity of material such as spent fuel and melted fuel originating from a nuclear accident. One of the innovative techniques under development is Neutron Resonance Analysis (NRA), an accelerator based method. It can be applied to nuclear safety, security, safeguards and	JRC.G.2	3.3.b	ENER	JRC,RTD	RTD	- SKB INTERNATIONAL CONSULTANTS AKTIEBOLAG - COMMISSARIAT A L ENERGIE ATOMIQUE CEN SACL IAEA - International Atomic Energy Agency (IAEA) IGD - TP - Implementing Geological Disposal of Radioactive Waste Technological Platform IRSN - Institut de Radioprotection et Sûreté Nucléaire	01/01/2019 31/12/2020	CON-IA,INS-RS	Deliverable 2	Validated NDA methods to characterise spent nuclear fuel samples	A report will be produced describing validated NDA methods to determine the thermal and radiological characteristics of nuclear materials, avoiding complex chemical analysis. The validation activities include measurements on well documented spent fuel materials that are part of the REGAL project organised by the SCK-CEN.	01/03/2020	Validated methods, Reference methods and measurements
4961 - DISARM JRC.G.III.8	6222 - PreADES Preparatory Study on Analysis of Fuel Debris	PreADES, when fully formulated will be a project running under the auspices of OECD NEA. It is largely triggered by Japan's efforts in the remediation of the Fukushima site, but brings together all major severe accident mitigation players worldwide. It is a platform, within which and from which	JRC.G.III.8	3.3.b	RTD	JRC	ENER	CRIEPI - Central Research Institute of Electric Power Industry ETSON - European Technical Safety	01/01/2018 31/12/2020	INS-RS	1	JRC'S expertise on fuel debris characterisation	JRC technical report summarising the experimental fuel debris characterisation carried out in JRC Karlsruhe in the last decades, with the aim to propose a possible collaborative research plan on the analysis of fuel debris from Fukushima that is envisaged to be shipped to European partners in ca. 2020.	31/12/2020	Technical Reports
4961 - DISARM JRC.G.III.8	6379 - SAMOSA Examination of stability of molten and damaged core materials after LWR severe accidents	Main activities of SAMOSA are to characterize molten and damaged core materials under cooling and storage conditions after LWR severe accidents and obtain the data about their stabilities (leaching of fission products and actinides, microstructural changes that influence the mechanical properties, etc.). The data of this WPK will be effective for LWR severe accident management in the future, and also useful for the clean-up of Fukushima-Daiichi nuclear power plant. This new TPV project is the follow-up and extension of ESMDCM-1.	JRC.G.III.8	3.3.b	RTD	JRC	ENER	CRIEPI - Central Research Institute of Electric Power Industry NUGENIA - Nuclear Generation II & III Association SNETP - Sustainable Nuclear Energy Technology Platform (SNETP)	01/04/2018 31/03/2020	CON-TW	1	Final Report on corium and spent nuclear fuel stability studies in post Fukushima accidental conditions	Main experimental results on corium and spent nuclear fuel stability studies in post Fukushima accidental conditions.	31/03/2020	JRC technical reports
4961 - DISARM JRC.G.III.8	6720 - RADCAS4DEC RADioCarbon ASSessment for	The RADCAS4DEC project contributes to the Exploratory Research (ER) Programme. The aim of this ER project is to design a compact device for on-site, fast, reliable and cost effective detection of radiocarbon with sensitivity comparable to that of accelerator mass spectrometry. 14C is a	JRC.G.III.8	3.3.b	JRC RTD	JRC,JRC	ENER		01/01/2018 31/03/2020	ER-17,INS-RS	1	Final Technical Report	The Final technical report will summarise the scientific results of the project and provide a summary of the scientific papers originating from the project. A mid-term technical report will be produced at the end of year 1	31/03/2020	JRC technical reports
268 - K-NUSP JRC.G.10	6840 - RENEUW Responsible and safe management of EU Nuclear spent fuel and radioactive Waste	The objective of the work-package is to provide the required technical and scientific support to DG ENER for the implementation and monitoring of EU nuclear waste management policy and legislation (EURATOM Treaty, Council Directive 2011/70/EURATOM establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste, Council Directive 2006/117/EURATOM on the supervision and control of shipments of radioactive waste and spent fuel). The activities of the project comprise the required technical support for: •The implementation and follow-up of the EU Directive 2011/70/EURATOM and EU Directive 2006/117/EURATOM including: •Support to the review of national reports and national programmes on spent fuel and radioactive waste management, including evaluation of spent fuel and radioactive waste inventory present in the Community's territory and the future prospects •Support and provision of JRC observers to key peer review missions. •Support to the review of Member States' reports on implementation of Shipment Directive •Support in development of harmonised set of inventory data reporting •Assistance to review and development of IAEA safety standards of interest to DG ENER with participation to the WASSC, TRANSSC Committees •Interface with International Working Groups and Committees (e.g. OECD/NEA) •Support to the Review Meeting of the Joint Convention: review of selected MS reports and	JRC.G.10	3.3.b	ENER	ENER,JRC			01/01/2018 31/12/2020	CON-AA,INS-RS					
7303 - MAWADEK JRC.G.III	7526 - SHARE StakeHolder-based Analysis of REsearch for Decommissioning	The objective of SHARE project is to provide an inclusive roadmap for joint near future decommissioning research for stakeholders to improve safety, reduce costs and minimize environmental impact in the decommissioning of nuclear facilities, A Strategic Research Agenda (SRA) will be set up to define research priorities, develop a roadmap, and suggest joint activities that can actually be achieved in the field of decommissioning aiming at safety improvement, environmental impact minimisation and cost reduction. The SRA will be built through a consultation process taking into account the needs and points of view of different stakeholders and the existing and emerging innovative techniques and solutions together with international best practices and advanced technologies in the decommissioning field. The goal of the roadmap is to organise the topics identified in the SRA in such a way that those relevant for joint activities are addressed in time according to the requirements. It will show how topics should be implemented and deployed. A proposal of deployment plan for this roadmap will also be provided, showing how these joint activities could be implemented. The identification of the most promising research topics will support EU and stakeholders in their understanding and evaluation of the strategic topics to be recommended for financial support in the next decades.	JRC.G.III.8	3.3.b	RTD	RTD	ENER JRC	- Nuclear Research Institute Rez - Bureau de Recherches Géologiques et Minières - BRGM ANDRA - Agence nationale pour la gestion des déchets radioactifs (Andra) CEA - Commissariat à l'Energie Atomique et aux Energies Alternatives ENRESA - Empresa Nacional de Residuos Radioactivos S.A. EPRI - Electric Power Research Institute IAEA - International Atomic Energy Agency (IAEA) IRSN - Institut de Radioprotection et Sûreté Nucléaire KIT - Karlsruhe Institute of Technology SCK-CEN - Belgian Nuclear Research Centre (SCK-CEN) UKNNL - National Nuclear Laboratories of the UK VTT - Technical Research Centre of Finland	03/06/2019 30/11/2022	CON-IA					
7298 - SPEND JRC.G.III.8	7562 - EURAD European Joint Programming on Radioactive Waste Management Disposal	EJP1 pools resources across Europe in the investigation of various aspects of nuclear waste disposal. JRC participates in 3 domains - Verification of nuclear waste inventories in irradiated nuclear fuel using innovative non-destructive detection methods (G2) - Assessment of the response of nuclear fuel during extended interim storage to mechanical solicitations (G.III.8 and G.I.3) - Knowledge Management (G10, G.III.8)	JRC.G.III.8	3.3.b	RTD	RTD	ENER JRC		03/06/2019 31/05/2023	CON-IA					
7308 - ITSP JRC.G.II.7	7864 - μTom Muon Tomography for Nuclear Safeguards,	Muon tomography is an imaging technology that uses the ambient and very penetrating muon charged particles which are created by cosmic rays within the upper atmosphere and preferentially scattered by heavy nuclei e.g. Special Nuclear Materials (SNM). Hence muon tomography has	JRC.G.II.7	3.3.b	JRC	JRC,JRC	ENER		01/01/2019 31/12/2020	ER-18,INS-UR	1	Final report ER μTom	The final report ER μTom will include the literature survey, the workshop minutes and conclusions, the testing results, the prototype design and testing performance and possible related scientific publications.	31/12/2020	Technical Reports
4961 - DISARM JRC.G.III.8	8122 - CONFINÉ Creation of highly active nanoparticle filters for nuclear liquid waste decontamination	The JRC-Ispra site has a legacy of nuclear liquid waste, which should be safely decommissioned. The aim of this project is to develop a novel inorganic filter with very high specific surface area and to apply it for the decontaminating of nuclear wastewater. The filter will consist of cerium oxide (CeO ₂) nanoparticles with very small size (typically below 2 nm), supported on a non-woven tissue made of nanofibers. The particles will be produced with a novel low-temperature method that was recently developed at JRC for the synthesis of monodispersed nanosized actinide oxides for applications in the nuclear fuel cycle. This method can be easily extended towards the direct	JRC.G.I.3	3.3.b	RTD	JRC,JRC	RTD	CEA-LITEN - Commissariat à l'énergie atomique et aux énergies alternatives - Laboratoire d'Innovation pour les Technologies des Energies Nouvelles et les nanomatériaux ETSON - European Technical Safety	01/01/2019 31/12/2020	ER-18,INS-UR	1	Scientific publications related to nanoparticles/nanofibers preparation and testing of the sorbent towards selected applications	Scientific publications and conference contributions related with the objectives of the CONFINÉ WP	31/12/2020	Journal contributions (Clarivate)

JRC 2019 - 2020 DETAILED WORK PLAN

Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
3.3.c Improvement of nuclear emergency preparedness and response (EP&R), environmental monitoring, radiation protection and radioecology:															
226 - REDECAM JRC.G.I.4	482 - NURAM Nuclear Reactor Accident Analysis and	The NURAM WPK aims to develop adequate safety assessment and modelling competences for current Nuclear Power Plants in support of policy DGs and Member States. The work focuses on Reactor Safety, Severe Accidents and Emergency Preparedness and Response Source Term	JRC.G.I.4	3.3.c	ENER	JRC	RTD	- UNIVERSITAET STUTT GART - RUSSIAN RESEARCH CENTRE "KURCHATOV INSTITUTE"	01/01/2014 31/12/2020	INS-RS	SCD2019001	Scientific publications and outreach activities	Scientific output to peer-reviewed papers and contributions to conferences for activities concerning prevention and mitigation of design extension condition in nuclear systems and identification of risk importance measures for their safety assessment.	31/12/2019	Journal contributions (Clarivate)
222 - DRMKC JRC.E.1	713 - N-EP&R Support to Nuclear Emergency Preparedness and Response	This Work Package contributes to the overall objective to improve effective communication in case of Radiological/Nuclear emergencies by enhancing internal JRC coordination, which would revert on a reinforced EC integrated approach able to better support the European Response Coordination Centre among others EC services having a role during RN emergencies. Prior to an incident, coordinated actions, laid down in operational procedures, are needed to identify adequate data and information requirements to improve reporting to different stakeholders. This includes the identification of existing and the determination of missing relevant data/information channels and tools to produce and/or handle data and information. This activity hence focuses on identifying how, within the EC, the protocol for communication during Radiological/Nuclear emergencies can be improved with a more holistic picture to support impact assessment and facilitate the development of strategies for countermeasures. The work done will be closely linked to current EPR related actions already in place and mainly focused on increasing interoperability across different platforms and models such as GDACS, EFAS, EFFIS, Rapid-N, and ADAM among others.	JRC.G.10	3.3.c	ENER	JRC	AGRI ECHO SANTE	Civ Protection EU - Civil Protection Services in Member States EU MS R/N emergencies - EU MS Authorities competent for R/N emergencies Env Rad Mon EU - Radioactivity Environmental Monitoring National laboratories and institutes IAEA - International Atomic Energy Agency (IAEA)	01/01/2019 22/12/2020	INS-RS	1901	Concept study of a holistic communication protocol for Radiological/Nuclear emergencies	A feasibility study will be carried out to -Identify existing JRC models and information systems and defines missing ones; integration into GDACS with Radiological/Nuclear impact assessment capabilities (link source term catalogue with JRodas/ARGOS and then with GDACS, in 2019 and implementation in 2020). -Identify how they should be embedded in a (future) operational emergency framework, taking into account the needs of various internal (JRC) and external (customer DGS, international organizations) stakeholders dealing with Radiological/Nuclear emergency The technical report will focus on: -Identification of data and information requirements from different stakeholders, -Establishment workflows and procedures to provide integrated JRC emergency support to different stakeholders, -Design a communication protocol to deliver the requested information to different stakeholders, -Concept of a potential operational platform to address Radiological/Nuclear emergencies.	22/12/2020	Technical Reports
											1902	Contribution to the Disaster Risk Management Knowledge Centre (DRMKC)	This WPK will complement the activities undertaken by the DRMKC by providing the radiological/nuclear dimension to a number of risk assessment/ impact assessment activities already launched by the KC. These activities are: - Contribution to the collection of Good Practices on Risk Assessment defining a method to identify and assess R/N risks. - Contribution to the DRMKC Risk Data Hub - Contribution to the 2nd Flagship report of the DRMKC: Science for DRM 2020 – Acting today, protecting tomorrow.	22/12/2020	Technical Reports
268 - K-NUSP JRC.G.10	715 - REM Radioactivity Environmental Monitoring	The Work Package supports the European Commission to fulfill its commitments in the implementation of the art.36 of the Euratom Treaty, arrangements for the early exchange of information in the event of a nuclear/radiological emergency (Council Decision 87/600) and in support to the Basic Safety Standards (BSS) Directive (2013/59/EURATOM). It collects and makes sense of knowledge within and outside the JRC, in close collaboration with EU (and non-EU) Member States safety authorities, in support to the EU Nuclear Safety Policy and national data providers. Major activities are centred on: - collecting and evaluating the environmental radioactivity data, developing procedures and software and defining subsequent training needs (in synergy with the DANTE project) - providing development support and data collection to the European Community emergency support information systems, conceiving, developing and testing the ECURIE software and developing and maintaining the EURDEP system which are essential in support to N-EP&R. Particular support is given to the IAEA Emergency Preparedness & Response projects USIE and IRMIS. A new key issue will be to address measures taken to ensure that the applications are in compliance with the current Commission IT security standards. - collecting and organising data on naturally occurring radioactivity, in particular finalising the European Atlas of Natural Radiation, which is intended to familiarize the public with the radioactive environment, to give a balanced view of the annual dose it may receive from natural radioactivity and to provide reference material and generate harmonized data for the scientific community. In addition, this work-package will support DG ENER and EU Member States with implementing the BSS directive and related action plans. A feasibility study will be made to explore additional support activities to DG ENER which will facilitate the transposition of the requirements of the 2013 BSS Directive into EU Member States' national legislation, in particular for environmental radioactivity and NORM (Naturally Occurring Radioactive Materials). A detailed list of priorities for the work to be performed in support to DG ENER is discussed and yearly updated with DG ENER. Under an Administrative Arrangement with DG DEVCO support for the customisation of EURDEP	JRC.G.10	3.3.c	ENER	DEVCO, JRC	AGRI SANTE	EU MS R/N emergencies - EU MS Authorities competent for R/N emergencies Env Rad EU - EU Member State authorities competent for environmental radioactivity Env Rad Mon EU - Radioactivity Environmental Monitoring National laboratories and institutes	01/01/2014 30/12/2020	CON-AA,INS-RS	1801	REM Monitoring Report 2016	Report with quarterly average values of radioactivity levels in airborne particulates, surface water, drinking water, milk and mixed diet for the 28 countries of the European Union (sparse and dense network) for 2016.	31/12/2019	Science for Policy reports
											1901	European Atlas of Natural Radiation	The contents of the Atlas will be based on the natural radioactivity data collected, verified and documented throughout Europe over the past 10 years. It will address the various components that contribute to the natural dose to the population, e.g. cosmic radiation, terrestrial radioactivity, indoor radon. The Atlas will be published as a paper and an electronic version.	31/03/2019	Science-for-policy reports
											1903	Monitoring report production services	First release of IT tool to extract REMdb relevant data from the Environmental Radioactivity Monitoring datapool and import into the REM Data Submission Tool	20/06/2019	Scientific information
											2002	Knowledge management platform for environmental radioactivity monitoring	Restructured web-site containing the current activities of the REM group (REMdb, EURDEP, Atlas,...), training facilities (e.g. webinars on radiation protection related issues (scientific, public, schools), emergency exercise training facilities (see Identifie 2001), access to relevant web-pages, archive of related documents.	31/10/2020	Training
											201702	Monitoring Report 2015	Report with quarterly average values of radioactivity levels in airborne particulates, surface water, drinking water, milk and mixed diet for the 28 countries of the European Union (sparse and dense network) for 2015.	31/12/2019	Technical Reports
											201703	Euratom Article 35-36 Working Group meeting	Manage and organise the Euratom article 35-36 working group meeting(s) (maximum 2 meetings for 2017 depending on the needs of DG ENER D.3 and the EU Member States). The aim of these meetings is to improve the data processing and reporting procedures directly with a representation of the external stakeholders (6 Member States and DG ENER).	30/06/2019	Technical Reports
											201705	Connection flexibility	To improve and maintain the systems software to exchange and report on environmental radioactivity (routine and emergency systems) and provide adequate technical/user documentation	30/09/2019	Sci information systems and databases
											201706	EURDEP workshop	The international scientific workshop intends to bring together the international scientific community in the field to review on what has been achieved so far and to discuss and plan the way ahead to improve the automatic exchange of environmental monitoring data in view of a nuclear/radiological accident.	30/09/2020	Sci information systems and databases
201803	Radon in workplaces	Collection and harmonization of indoor radon data from educational workplaces (universities, schools, kindergartens etc.), by contacting national competent authorities identified through the European Indoor Radon Map effort. Creation of a first map of indoor radon concentration in these sites. This activity supports the implementation of the European Basic Safety Standards Directive.	30/09/2019	Sci information systems and databases											
226 - REDECAM JRC.G.I.4	2217 - FASTNET FAST Nuclear Emergency Tools	The work package contains the JRC contribution to the Euratom H2020-NRFP2-2014 FASTNET project in collaboration with partners from EU, North America and IAEA. The project's target is to develop fast prediction tools (computer codes) for Severe Accident progression and Source Term evaluation. These tools will be used in Regulatory Bodies or TSOs crisis centres. JRC will mainly	JRC.G.I.4	3.3.c	ENER	RTD	ENER	- Swedish Radiation Protection Authority - Norwegian Radiation Protection Authority	01/10/2015 30/09/2019	CON-IA	5	Final scientific report on emergency exercises	In view of the project's target to develop fast prediction tools for Severe Accident progression and Source Term evaluation, the report describes JRC work in preparing emergency exercises and carrying them out. The report will cover (i) exercises definition, (ii) Source Term evaluation exercises and (iii) Emergency management exercises.	30/09/2019	JRC technical reports
226 - REDECAM JRC.G.I.4	2218 - IVMR for LWR Severe Accident Research Activities (SAMRA): In Vessel Melt Retention for	JRC contributions to Severe Accident Research Activities under the EU framework programme for research. Currently, this WPK covers the JRC contribution to the Euratom H2020-NRFP1-2014 IVMR for LWR. The stabilization of molten corium is recognised as essential if a safe and stable state is to be reached. The Joint Research Project (JRP) shall focus on the traceable measurement of low radon activity concentrations and it shall contribute to the creation of a coordinated metrological infrastructure for radon monitoring in Europe. The specific objectives of the JRP are: 1. To develop novel procedures for the traceable calibration of radon (222Rn) measurement instruments at low activity concentrations (100 Bq/m3 to 300 Bq/m3) with relative uncertainties ≤ 5 % (k=1). As part of this, to develop new radioactive reference sources with stable and known radon emanation rates. 2. To investigate and to reduce the influence of thoron (220Rn) and its progeny on radon end-user	JRC.G.I.4	3.3.c	ENER	RTD,RTD	ENER	- IMPERIAL COLLEGE OF SCIENCE, TECHNOLOGY AND MEDICINE - LIETUVOS ENERGETIKOS INSTITUTAS	01/06/2015 31/12/2020	CON-IA,CON-IA	1bis	Scientific Report on extended IVMR methodology	JRC-IET contribution to IVMR WP2.1, scientific report presenting the state of the art IVMR methodology at the end of the project. The related IVMR deliverable D2.7 is due at month 48; JRC-IET has the lead in compiling that report.	31/05/2019	JRC technical reports
268 - K-NUSP JRC.G.10	5145 - MetroRADON Euramet SRT-v03 Metrology for Radon Monitoring	The specific objectives of the JRP are: 1. To develop novel procedures for the traceable calibration of radon (222Rn) measurement instruments at low activity concentrations (100 Bq/m3 to 300 Bq/m3) with relative uncertainties ≤ 5 % (k=1). As part of this, to develop new radioactive reference sources with stable and known radon emanation rates. 2. To investigate and to reduce the influence of thoron (220Rn) and its progeny on radon end-user	JRC.G.10	3.3.c	ENER	RTD	SANTE	EURAMET - European Organisation of Metrology (EURAMET) IAEA - International Atomic Energy Agency (IAEA) NMIs - National Metrology Institutes WHO - World Health Organization	01/06/2017 31/05/2020	CON-IA	1901	A technical report on preparation of radon/thoron emanation sources	A report describing radon and thoron source preparation approaches and their characterization in details.	30/09/2019	JRC technical reports
268 - K-NUSP JRC.G.10	5148 - Preparedness Euramet SRT v18 Metrology for mobile detection of ionising radiation following a nuclear or radiological incident	The Joint Research Project (JRP) shall focus on the traceable measurement and mobile detection of ionising radiation following a nuclear or radiological incident. It shall contribute to the development of the associated joint European metrology infrastructure. The specific objectives of the JRP are: 1. To develop unmanned aerial detection systems installed on drones and helicopters for the remote measurement of dose rates and radioactivity concentrations. In addition, to establish novel methods applicable to core and remote areas of a nuclear or radiological incident for air-based	JRC.G.10	3.3.c	ENER	RTD	ECHO	EU MS R/N emergencies - EU MS Authorities competent for R/N emergencies EURAMET - European Organisation of Metrology (EURAMET) Env Rad Mon EU - Radioactivity Environmental Monitoring National	01/07/2017 30/07/2020	CON-IA	1903	Project Technical Reports	Technical report on the outcome of the work on objective 3 of the project: To investigate the metrological relevance of 'crowd monitoring' data on dose rates and provide recommendations on the usability of such data. Final report of the work of the work-package in contribution to the Joint Research Project.	30/06/2019	JRC technical reports
7448 - SARA JRC.G.2	6345 - SELMER Support to European Laboratories Monitoring Environmental Radioactivity	In this WPK, JRC will support Member States and DG ENER in their efforts of implementing the Health and Safety part (Chapter 3) of the Euratom Treaty. DG ENER can only perform Article 35 verifications to one installation in circa four countries each year. By performing a Proficiency Test (PT) each year, JRC enables the Commission to perform verifications to every MS every year, albeit for a specific measurement type. The work of JRC and ENER thus becomes perfectly complementary. The Article 35 experts and DG ENER encourage JRC to carry out PTs (Proficiency Tests). They also comment on the plans that are fixed several years in advance as it takes long to develop and test suitable reference materials for the PTs. The upcoming Article 35 PTs involve (i) radon in water (ii) gross-alpha/beta in drinking water and/or (iii) radioiodine, ruthenium and radicaesium in air-filters. JRC tries to address the most important issues that the MS expert requests. In recent years this has involved support to Member States' attempts to comply with the new Euratom-Drinking Water Directive and the new Basic Safety Standards.	JRC.G.2	3.3.c	ENER	JRC	ENV JRC SANTE	- Seibersdorf laboratories - IAEA EURAMET - European Organisation of Metrology (EURAMET) Env Rad Mon EU - Radioactivity Environmental Monitoring National laboratories and institutes IAEA-MEL - Marine Environment Laboratory of IAEA ICRM - International Committee for Radionuclide Metrology (ICRM) NMIs - National Metrology Institutes Rad Protect EU - Authorities for radiological protection EU	01/01/2018 31/12/2020	INS-RS	3	Scientific Articles in International journals	Scientific publications or conference contributions related to Proficiency Tests of (and support to) radiological laboratories in Member States in the period 2018 – 2020.	01/12/2020	Article contribution to periodicals or to conference proceedings listed in the Thomson-Reuters' Science Citation Index Expanded (SCI-e) or Social Science Citation Index (SSCI)
											4	Report on the capacity of member state laboratories to monitor radioactivity in Europe.	Reports describing the status of radiological monitoring laboratories in Europe and member State Laboratories' capacity to measure radionuclides in environmental matrices. The reports will identify the troublesome matrices, methods and radionuclides and make suggestions on which focus future technical and legislative actions should have. request from Article 35 experts and DG ENER.	02/12/2020	JRC technical reports

JRC 2019 - 2020 DETAILED WORK PLAN

Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
											6	Report describing a survey on member state laboratories capacity to measure radioactivity in food.	This is the results of a survey requested by the Member States' Article 35 Experts and DG ENER to investigate the diversity of radioanalytical methods used for measurement control of radioactivity in food. The aim of the report is (i) to support DG ENER to assess the situation in Europe and (ii) to help Member States authorities/laboratories to identify best practices and stimulate harmonisation.	20/11/2020	JRC technical reports
226 - REDECAM JRC.G.I.4	6452 - MASSA Materials Science for Severe Accident Analysis	Assessing the nuclear materials behaviour under hypothetical accidental conditions is paramount for the safety of a nuclear power plant, particularly under extreme conditions of temperature, pressure and chemical environment. The main objectives of MASSA are: 1) Experimental studies on degraded and molten irradiated nuclear fuel (corium) from real and simulated severe accidents. 2) Understanding and modelling processes under extreme conditions, to analyse the	JRC.G.I.3	3.3.c	ENER RTD	JRC	DEVCO ENER	- Delft University of Technology - POLITECNICO DI MILANO - UNIVERSITA DEGLI STUDI DI ROMA LA SAPIENZA - AREVA NP GMBH*	01/01/2018 31/12/2020	CON-AA,CON-IA,INS-RS	201901	Investigating the Plutonium corium subsystems	The Pu-oxide corium subsystem evaluates the phase diagrams of the Pu,Zr,O-, Pu,Fe,O- and Pu,Fe,Zr O-systems. Samples for high temperature investigations will be produced by adequate methods (e.g. sol-gel, powder metallurgy, arc-melting) and characterised by XRD, Raman spectroscopy and, where useful, other methods like NMR or XAS. The high temperature (melting and evaporation) behaviour of these subsystems will then be investigated.	30/06/2019	JRC technical reports
3.3.d Assurance and improvement of nuclear safeguards:															
421 - RSFG JRC.G.II.7	674 - PROMO Process monitoring of nuclear facilities	Support to DG ENER (and IAEA) for process monitoring at reprocessing and enrichment plants. This includes: Near Real Time Accountancy (NRTA), technical developments, validation and implementation, integration and improvement of safeguards analysis tools, for instance by making	JRC.G.II.7	3.3.d	ENER	JRC		IAEA - International Atomic Energy Agency (IAEA)	01/01/2014 31/12/2020	INS-RS					
421 - RSFG JRC.G.II.7	688 - SealSys Sealing Systems for Safeguards	Development of sealing systems requested by DG ENER and IAEA for safeguarding nuclear material. The activity consists in a continuous upgrade of existing ultrasonic sealing systems developed by the Seal & Identification Laboratory (SILab).	JRC.G.II.7	3.3.d	ENER	JRC	DEVCO	IAEA - International Atomic Energy Agency (IAEA)	01/01/2014 31/12/2020	INS-RS					
421 - RSFG JRC.G.II.7	691 - NUVER Nuclear Verification Technologies and Approaches	Research and development on verification technologies and methodologies including image and laser based identification and verification systems for containment and surveillance, video review systems; and augmented and mixed reality systems. Application areas covers the design information verification of nuclear facilities, identification of nuclear containers by unique surface maps, verification of containment and closure welds, 3D surveillance, as well as safeguards video reviews. Activities include the support and training to ENER and IAEA on JRC-developed systems.	JRC.G.II.7	3.3.d	ENER	JRC		IAEA - International Atomic Energy Agency (IAEA)	01/01/2014 31/12/2020	INS-RS					
7824 - ENMMS JRC.G.II.6	734 - IPANS Improvements in Particle Analysis for Nuclear Safeguards	This project provides cutting-edge technology required for environmental sample analysis for nuclear safeguards and non-proliferation, in co-operation with DG ENER and IAEA. The methods used are under constant improvements to enhance the abilities in detecting undeclared nuclear activities and to verify declared activities. The project also handles the enhancement and maintenance of analytical laboratories with their equipment, in particular the Large-Geometry-SIMS laboratory with the aim of this being an international reference laboratory for particle analysis. The Project is linked to other work packages mainly due to the provision of analytical work on samples (80-100 samples /year) from DG-ENER, IAEA, ABACC, KINAC and the nuclear forensic group. A key topic in international Safeguards is the prevention of further spread of nuclear materials that can be used for the production of nuclear weapons. In order to detect undeclared nuclear activities high performance analyses are necessary. In the framework of the EU support programme to the IAEA, and TPA agreements to others (ABBAC, KINAC,...). IParticle and bulk nuclear materials are analysed using 15 different analytical techniques accredited by ISO 17025, closely connected to Work Package DA.	JRC.G.II.6	3.3.d	ENER	JRC		- Seibersdorf laboratories - IAEA - Direction of Military Applications (CEA) ABACC - Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials EEAS - European External Action Service	01/01/2014 31/12/2020	INS-RS	734201901	Improving the detection limits, screening methods, instrument control and uncertainties for the analysis of environmental swipe samples.	The main project is a new MMXRF automated swipe screening system that is to be purchased and installed in 2018-2019. This system will result in a significantly improved usage of the LG-SIMS instrument as the sample preparation is optimised. The purchased system is a first prototype of its kind and it will be studied and tested for further technical improvements in particular for optimising the sensitivity in detection of uranium. Another project is the implementation of other substrates like Si planchets for improved 236U detection limits. New measurement methods will be tested in comparison with existing methods to optimise and to improve uncertainty in the current measurements. Continued upgrades of the JRC developed software packages for QC and data reduction will also be made.	31/12/2020	Science for Policy reports
7824 - ENMMS JRC.G.II.6	865 - AnSafe Analytical Support to safeguards authorities	Description: The EU has a particular interest in ensuring the highest standards of nuclear safety, security and non proliferation - Euratom Treaty (2012/C 327/01), Council regulation 1314/2013, Council directive 2009/71/EURATOM. This work package supports the EC as guardian of the Treaties in operating an effective regional nuclear safeguard system, implementing inspections, reporting and providing technical and scientific support to its Member States, in close partnership	JRC.G.II.6	3.3.d	ENER	n/a		- Seibersdorf laboratories - IAEA ABACC - Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials EEAS - European External Action Service	11/03/2014 31/12/2020	CON-TW,CON-TW	86520201	Bulk and particle analysis for international safeguards	U and Pu concentration and isotopic composition on bulk sample, various impurity contents in bulk samples, as well as particle analysis by LG-SIMS requested by the IAEA (contract and EC SP X-1969) are provided to support international safeguards. In addition U isotopic measurements on particles requested by other safeguards authorities to be determined by LG-Secondary mass spectrometry such as ABACC, Argentina and Brasil and KINAC, Korea are provided. Support is given also to JAEA Japan to ensure the highest standard in nuclear safeguards worldwide.	31/12/2020	Validated methods, reference methods and measurements
7824 - ENMMS JRC.G.II.6	3539 - METRO Metrological tools for safeguards	Description: The EU has a particular interest in ensuring the highest standards of nuclear safety, security and non proliferation - Euratom Treaty (2012/C 327/01), Council regulation 1314/2013, Council directive 2009/71/EURATOM. This work package supports the EC as guardian of the Treaties in operating an effective regional nuclear safeguard system, implementing inspections, reporting and providing technical and scientific support to its Member States, in close partnership	JRC.G.2	3.3.d	ENER	JRC	EEAS GROW	- URENCO NEDERLAND BV* - Seibersdorf laboratories - IAEA - AMERICAN NATIONAL STANDARDS INSTITUTE - BRITISH NUCLEAR GROUP	01/01/2019 31/12/2020	INS-RS	353920202	Certified actinide reference materials, reference methods and conformity assessment tools	Certified uranium/plutonium reference materials, reference measurement certificates, document standards and inter-laboratory comparisons provided to DGENER Euratom safeguards on-site laboratories in Sellafield and La Hague, to JNFL-Japan, to the IAEA and to industry	18/12/2020	Reference materials
7824 - ENMMS JRC.G.II.6	5028 - HPTA & DA Analysis_3 HPTA & DA Analysis - Safeguards Analysis for DG ENER of bulk and particle samples	Continuation of the established nuclear analytical support to Euratom Safeguards activities (see previous project 823, 2641 and 3700). Unique analytical capabilities of JRC Karlsruhe are requested.	JRC.G.II.6	3.3.d	ENER	ENER,ENER		- Seibersdorf laboratories - IAEA IAEA - International Atomic Energy Agency (IAEA) NBL - New Brunswick Laboratory (NBL), US	01/10/2017 31/12/2020	CON-AA,CON-AA					
7824 - ENMMS JRC.G.II.6	5031 - OSL-LSS_3 On-Site Laboratories OSL and LSS & COMPUCEA	In 1957, the European Community established under Chapter VII of the Euratom Treaty a nuclear material control system. It assigned to the European Commission the responsibility of satisfying itself that nuclear materials are not diverted from their intended use as declared by the users. These users range from uranium enrichment, fuel fabrication, nuclear power generation and reprocessing plants to holders of small stocks of materials in industry, research or medicine. The overarching safeguards objective is the timely detection of the diversion of one significant quantity of plutonium within the timeliness goal of one month. In the large-scale commercial reprocessing plants various stages contain more than 1 significant quantity of Pu (8 kg). Therefore, it is required to verify at several key measuring points by destructive analysis the Pu content thus the need of sample taking and on-site measurement to assure timeliness. Analysis of samples is	JRC.G.II.6	3.3.d	ENER	ENER,ENER		- BRITISH NUCLEAR GROUP SELLAFIELD LT AREVA NP - AREVA NP Main Company - INTERNATIONAL ATOMIC ENERGY AGENCY*	01/07/2017 30/06/2021	CON-AA,CON-AA	503120191 503120201	Safeguards measurements performed by JRC-Karlsruhe in support of DG ENER 2019 Safeguards measurements performed by JRC-Karlsruhe in support of DG ENER 2020	Summary sheet of the sensitive classified deliverables of the OSL and LSS missions and COMPUCEA campaigns to European fuel production plants. Summary sheet of the sensitive classified deliverables of the OSL and LSS missions and COMPUCEA campaigns to European fuel production plants.	31/01/2019 31/01/2020	Science for Policy reports Science for Policy reports
65 - DANTE JRC.G.10	5122 - ESVR Gamma Measurements, Emulation, Simulation and virtual reality for Nuclear Inspection Support Activities	The purpose of the work is to provide both simulation results and emulation tools to support DG_ENER inspection work. It includes the following main lines of activity: -Upgrading of the hardware of the gamma/neutron emulator, -Simulation of Nuclear material gamma spectra using MCNP, -In field support to inspectors. -Modelling work -Exploring the use of Virtual Reality techniques The WPK concerns the development of alternative solutions to allow nuclear material "measurements" without radiation sources. The work for the emulator has been started in the year 2016 at AS3ML. The hardware of this gamma and neutron emulator is under development. Gamma spectrum simulation is carried out for typical measurement conditions on nuclear material objects. Results will be provided in form of JRC technical reports and scientific publications. The main clients are ENER and IAEA safeguards authorities. Collaborators include research institutions from EU member states and Universities as well as dedicated industrial partners	JRC.G.II.7	3.3.d	ENER	JRC		IAEA - International Atomic Energy Agency (IAEA) JAEA - Japan Atomic Energy Agency	02/01/2017 31/12/2020	INS-RS	1	Spectrum based signal generator / list mode signal generator	Provision of the upgraded hardware to mimic the gamma/neutron pulse generation following the latest specifications mentioned in JRC 111449. Evaluation of test performances with the standard safeguards software (SSS). The gamma emulator development: The gamma emulator requires the use of NM spectra, either experimental or simulated. The purpose of this activity is to be able to generate gamma spectra of measurement configuration setups with NM. The nuclear material may include Np237. All nuclear material might be contaminated with fission products (e.g. 137Cs or other or radioactive sources (e.g. 60Co). Evaluation of the possibility of modelling spectra of U, Pu or other NM for the emulator database. The estimation of uncertainties by simulation: This is of interest in case experimental data are not available for special measurement configurations or material mixtures. Important cases for inspectors are precise wall thickness correction with UF6 cylinders, presence of 232U in reprocessed U or fission products as contamination of reprocessed Uranium, etc. Scripting of MCNP for automation, development of 3D MCNP models and the standardisation of the input file generation and output file data extraction. Application of Virtual Reality techniques for supporting inspectors Based on the results of the VR work performed under the WP2018, the preferred options will be chosen and a VR system will be designed with the purpose of supporting safeguards inspectors to perform their work. In this activity use will be made of the emulator but also 3D imaging with the 3D Laser positioning facility could be used to model the 3D reality into a virtual reality environment. This system will be tailored to the needs of Euratom inspectors.	31/12/2020	Technical systems
											2	Support to DG ENER for 235U enrichment determination in UF6 cylinders with CZT	A new NDA instrument was developed to measure UF6 in 30B and 48Y containers with CZT (NIM A 886 (2018) 40-47). The purpose of the work is to: - Support DG-ENER to deploy in the field the prototype which will be developed by Elektronik GmbH , - Prospect further use of this system for DG_ENER (for instance as fix installed instrument on the blending station of GB II).	31/12/2020	Journal contributions (Scopus)

JRC 2019 - 2020 DETAILED WORK PLAN

Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
421 - RSFG JRC.G.II.7	5134 - ENERC&S Development, delivery and installation of C&S systems for DG ENER	The purpose of this Administrative Arrangement is to provide DG ENER with JRC sealing reading systems for ultrasonic, Cobra & glass seals and ultrasonic seals, as well as 2D/3D laser equipment for Containment & Surveillance (C&S) in la Hague (France), Cernavoda (Romania) & Ignalina (Lithuania), associated with training and infield assistance.	JRC.G.II.7	3.3.d	ENER	ENER, ENER, ENER	DEVCO	IAEA - International Atomic Energy Agency (IAEA)	01/01/2017 31/12/2020	CON-AA, CON-AA, CON-AA					
65 - DANTE JRC.G.10	6459 - STCB Safeguards Training and	The workpackage aims at coordinating the different training courses on nuclear safeguards that are provided by JRC mainly on the sites of Ispra and Karlsruhe. Beside the provision of training	JRC.G.II.7	3.3.d	ENER JRC	JRC	JRC	IAEA - International Atomic Energy Agency (IAEA)	01/01/2018 31/12/2020	INS-RS	1905	STCB trainings 2020	Coherent set specific training courses (programme, teachers, training material, etc.) to be delivered in 2018-2020 period (About 14 training courses are scheduled per year).	31/12/2020	Training
244 - CSPI JRC.E.3	6519 - CSNS Cyber-Security For Nuclear Safeguards	The EURATOM Treaty , dealing with the peaceful use of nuclear energy, in its chapter 7 entitled "Safeguards" sets out rights and obligations of the European Commission, Member States and nuclear operators. In this context, Directorate E (Euratom Safeguards) of DG ENER implements a safeguards system that enables the Commission to discharge itself of the said obligations under the Treaty. The Euratom safeguards system foresees on one side the desk verification of the declarations provided by nuclear operators and/or Member States, on the other the physical verification of the declaration provided through safeguards inspection of the nuclear installations. Finally, the EC fulfil its obligations vis à vis the IAEA and Third States through consolidated reporting and notifications. The information exchanged among the Euratom Safeguards Directorate, the IAEA and other	JRC.E.3	3.3.d	ENER	ENER			15/06/2018 31/12/2019	CON-AA					

JRC 2019 - 2020 DETAILED WORK PLAN																		
Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category			
7824 - ENMMS JRC.G.II.6	6561 - NDA Non Destructive Assay for Nuclear Safeguards	The WPK concerns non-destructive assay (NDA) methods and instrumentation used in nuclear safeguards for the verification of nuclear materials. This includes mass determination of nuclear samples, or the fissile constituents of the samples, and determination of isotopic abundances of the nuclear material, solely based on the radiation signatures emitted from the nuclear materials. Gamma-rays, neutron emission and heat make up the bulk of the signatures applied to NDA for safeguards purposes. The purpose of this WPK is to advance the use of NDA methods and instrumentation in the field of nuclear safeguards through specific R&D tasks carried out in the NDA laboratories in Karlsruhe and Ispra, and to assist the safeguards inspector in optimizing technical solutions in practical safeguards implementations. The work includes the following main lines of activity: 1) Experimental research in NDA methods and instrumentation supported by modelling and the use of well-characterized nuclear and radioactive sealed sources 2) Maintenance and repair, calibration, and characterisation of safeguards instrumentation used under field conditions 3) Advice safeguards authorities on future trends in NDA methods and instrumentation, and possibilities for solutions in specific safeguards applications. Spent fuel verification is a topic of high priority in contemporary safeguards. Experimental investigations of suitable NDA methods are ongoing at Swedish and Finish spent fuel repositories. One method, to be studied in detail, and of high interest to Euratom and IAEA is Passive Gamma Emission Tomography (PGET). Results will be provided in form of JRC technical reports, conference contributions, and scientific publications often in collaboration with research partners. The main clients are ENER and IAEA safeguards authorities and collaborators include research institutions from EU member states and DA develops innovative cutting-edge technology, techniques and scientific instruments required for the safeguardability of fuel cycles in close co-operation with authorities (DG ENER, IAEA). The focus is on radiometric, chemical, and mass spectrometric methods with direct application in the Euratom on-site laboratories, for safeguards analytical measurements in general and for support in detection-oriented safeguards training courses. The experience from present fuel cycles serves to develop safeguards concepts and material analysis strategies for alternative fuel cycles. Included is maintaining the analytical capabilities for safeguards (Analytical Service, ISO 17025). The accreditation serves to demonstrate continuously improving of the analytical capabilities, and providing the transparency essential for safeguards credibility. Technical and methodological developments for enhanced efficiency in the OSL/LSS as well as the support to IAEA in the frame	JRC.G.II.7	3.3.d	ENER	JRC		IAEA - International Atomic Energy Agency (IAEA) JAEA - Japan Atomic Energy Agency NRCN - Nuclear Research Centre Negev, Israel US DoE - US Department of Energy (DOE)	01/01/2018 31/12/2020	INS-RS	656120191	Development and testing of advanced NDA safeguards instrumentation	R&D and performance testing of novel NDA instrumentation with potential to become future safeguards tools. This includes newly developed well-counters, acquisition systems for gamma-ray and neutron detectors. A novel electronics chain for gas proportional counters for neutron detection will be developed and tested. This includes new components in all individual links of the traditional neutron counting chain from the detector pre-amplifier to signal processing and data interpretation. The components include amplifiers based on high performance ADCs, data acquisition in FPGA electronics and a list-mode signal analyser. The new electronics chain will be implemented and demonstrated on the reference neutron counter in the PERLA laboratory. The task also includes maintenance, test campaigns, and infield support of existing Euratom devices such as the Drum Monitor and CNR.	31/12/2020	Technical Reports			
		Optimisation and inter-comparison of software for U and Pu isotopes determination										conditions. The work consists of two parts: 1. Evaluate and improve the capability of algorithms to determine the isotopic composition of shielded Pu items by high-resolution gamma spectrometry. 2. Benchmark performance of software for analysing medium-resolution gamma-spectra within the international U/Pu isotopic codes inter-comparison exercise. The IAEA benefits from this work through the EC-SP task JNT-A-01684.	31/12/2020			Technical Reports		
		International collaborations and support in NDA methods and instrumentation										G.II.6 and G.II.7 have collaborations with various institutions including the US-DOE, IAEA, JAEA, ESARDA and IAEA-Israel. The collaborative tasks with US-DoE include investigations of dead-time correction algorithms for neutron multiplicity counting (Action Sheet 60), investigation of the replacement of AmLi with ²⁵² Cf neutron sources in detection heads such as the AWCC (Action Sheet 51). Another ongoing collaboration concerns investigations of U/Pu mixtures in liquid spent fuel samples by means of Delayed Gamma-ray Spectroscopy following neutron induced fission (Action Sheet 7 under MoU with JAEA). Finally the development of interpretation models for both passive and active neutron correlation counting is undertaken with NRCN under the MoU with IAEA-Israel. A new activity expected to launch in 2019-2020 concerns investigation of the performance of an array of liquid scintillation detectors for Pu mass determination in safeguards applications (under IAEA task sheet EC-SP A-01778).					31/12/2020	Technical Reports
7824 - ENMMS JRC.G.II.6	6584 - DA Destructive Assay for Safeguards	The work package explores the use of Shared Ledger Technologies (SLT) in the context of EURATOM nuclear safeguards. A key element in safeguards is the verification, in nuclear plants, of the presence of declared nuclear materials in order to prevent their diversion for non-peaceful applications. It is of utmost importance that this information is reliable and timely, and that it is	JRC.G.II.6	3.3.d	ENER	JRC	DEVCO	01/01/2018 31/12/2020	INS-RS	6584202001	Method developments to improve the On-Site Laboratories (LIS) and other field campaigns	After 15 years of operation several measurement devices in the LIS are to be upgraded to be fit for providing high quality safeguards results in a timely manner, such as densitometer exchange, improve sample handling in hot cells, HKED hard- and software upgrade. COMPUCEA hardware now used for more than 10 years infield needs to be modernized. Another example for measurement method development is the MCNP modelling of actinide X-ray fluorescence.		30/12/2020	Technical systems			
										6584202002	Improvement in radiochemistry and spiking for analytical safeguards measurements	The JRC provides support to the IAEA (EC SP task A-01806, X 1969, 2003, EC A 1391). Focus: Validation of large dried spikes for nuclear material verification in reprocessing plants. Also under action sheet 63 and 54 support is provided under the JRC-DOE agreement on nuclear safeguards to guarantee the quality of safeguards measurements as well as improving the measurement capabilities needs for safeguards in the future.	30/12/2020			Science for Policy reports		
421 - RSFG JRC.G.II.7	7862 - STL4SFG Shared Ledger Technology for Safeguards	The work package explores the use of Shared Ledger Technologies (SLT) in the context of EURATOM nuclear safeguards. A key element in safeguards is the verification, in nuclear plants, of the presence of declared nuclear materials in order to prevent their diversion for non-peaceful applications. It is of utmost importance that this information is reliable and timely, and that it is	JRC.G.II.7	3.3.d	JRC	JRC,JRC	ENER		01/01/2019 31/12/2020	ER-18,INS-UR	1	Final report ER STL4		The Final technical report will summarise the scientific results of the project and provide a summary of the scientific papers originating from the project. A mid-term technical report will be produced at the end of year 2.	31/12/2020		Technical Reports	
3.3.e Promotion of excellence in the nuclear science base for standardisation:																		
7448 - SARA JRC.G.2	6346 - PRIMER Primary standardisation and equivalence in radioactivity measurements	The JRC promotes a common terminology and measurement system for radioactivity, as laid down in Article 8 of the Euratom Treaty. The PRIMER WPK embodies this work, which i.e. includes establishment of the SI-unit becquerel on which international equivalence and traceability of ALL radioactivity measurements world-wide are based. Such work requires use of primary methods, i.e. methods that do not require a calibration source but rely on physics to determine activity. Since very few laboratories have such methods the impact of this work is significant. As the reference sources decay (a basic feature of radioactivity) there is an everlasting need for primary reference measurements of radioactivity in society. By performing and contributing to key comparisons JRC supports free trade through the Mutual Recognition Agreement in which the signatory countries ensure acceptance of each other's measurements. The WPK also investigates problems encountered by MS laboratories when measuring radioactivity. An important aspect of disseminating information on good practices is through document standards.	JRC.G.2	3.3.e	ENER	JRC	HOME JRC RTD SANTE TRADE		01/01/2018 31/12/2020	INS-RS	1	Scientific articles	Scientific publications on reference measurements of radioactivity, measurements supporting the international reference system for radioactivity and improved decay data. Covering 2018, 2019 and 2020.	15/12/2020	Article contribution to periodicals or to conference proceedings listed in the			
												2	Report describing the impact of radioactive reference measurements performed at JRC-Geel.			There is a delay before reference measurements performed using primary standardisation of radioactivity appears in data-bases and as key-comparison reference values. This report summarises the impact of reference measurements of radioactivity performed at JRC-Geel in support of the common measurements system.	15/11/2019	JRC technical reports
7448 - SARA JRC.G.2	6347 - HUMOR HADES underground measurements of radioactivity	This WPK deals with low-level radioactivity measurements (mBq-level) and chiefly in the underground laboratory HADES (a major research infrastructure). Low-level measurements is a growing field as such measurement can underpin many science fields. This is highlighted by the huge number of projects performed in the underground laboratory HADES in the past years. By measuring mBq levels of radioactivity one can trace processes in nature and industry that previously were not possible to study. Furthermore, by reducing the background in radiological methods to insignificant levels one obtains results that are more robust and will therefore have high impact when e.g. characterising reference materials. It is essential to understand that measurements of low-levels of radioactivity are quite different from measuring higher levels. The new Basic Safety Standards and the Euratom Drinking Water Directive specify levels for radionuclides that in some cases are very low so the notion of the technical challenges needs to be conveyed to Member State laboratories that monitors environmental radioactivity. During the covered time period priority in this WPK will be given to (i) tracer studies of global warming (ii) characterisation of reference materials and (iii) capacity building by giving training in low-level gamma-ray spectrometry. A key task will be to perform low-level projects in support of the SDGs. Therefore environmental tracer studies to provide data for global warming models will be pursued. Such work can generate data on the oceans' capacity to take up CO2 by e.g. elucidating the impact of hydrothermal plumes and shed light on the (poorly known) movement of great water masses. To maximise impact of this work collaboration with the key oceanographic research institutes (IAEA-MEL, WHOI, AWI-Bremerhaven) and similar bodies that organise sampling cruises will be pursued. A crucial part is	JRC.G.2	3.3.e	ENER	JRC	ENV RTD SANTE	- Laboratoire national Henri Becquerel - NPL Management Ltd PTB - Physikalisch-Technische Bundesanstalt BIPM - International Committee on Weights and Measures BIPM CCRI - Consultative Committee for Standards of Ionizing Radiations Comité consultatif pour les étalons de mesure des rayonnements ionisants, CCEMRI	01/01/2018 31/12/2020	INS-RS	1	Articles on science applications of low-level radioactivity measurements	Scientific publications or conference contributions related to development of low-level radioactivity techniques and their science applications. Covering the years 2018-2020.	15/12/2020	Article contribution to periodicals or to conference proceedings listed in the Thomson-Reuters' Science Citation Index Expanded (SCI-e) or Social Science Citation Index (SSCI)			
												3	High level event on Low level radioactivity measurements			Requested by Dir. G, JRC and IAEA will jointly organise (Nov. 2018) a high level event on low-level radioactivity science applications. It should result in a report giving the present situation of underground laboratories and give examples of the different types of science applications being performed. The report should serve to inform decision makers on the benefits from these installations and could therefore be a science for policy report. JEILORA - Joint EC-JRC IAEA workshop on Low-level Radioactivity measurements and Applications.	01/10/2019	Science for Policy reports
7446 - ANDANTE JRC.G.2	6367 - NXS Reference neutron cross section experiments for nuclear energy applications	WPK1 focusses on the production of high quality neutron cross section data that are essential for a safe operation of nuclear power plants, the development of innovative systems, criticality safety programs, spent fuel storage and final disposal and nuclear waste management. They are primarily produced at the GELINA and MONNET facilities. Specific tasks: - Perform cross section measurements of importance for nuclear criticality safety programs (burn-up credits). This involves (n,tot), (n,g), (n,n) and (n,n,g) measurements on fission products and structural material. - Perform measurements to improve the capture cross section of fissile material in the resonance region. This involves complementary measurements at other facilities such as the FRM-II in Munich and the nTOF facility at CERN. - Study the impact of the Doppler effect by transmission measurements at high sample temperatures at GELINA. - Perform cross section measurements for sodium-cooled and molten salt reactor development:	JRC.G.2	3.3.e	RTD	JRC,RTD	ENER	- Nuclear Research Institute Rez CERN - European Organization for Nuclear Research INFN - ISTITUTO NAZIONALE DI FISICA NUCLEARE CEA - Commissariat à l'Energie Atomique et aux Energies Alternatives CNRS - Centre National de la Recherche Scientifique ENEA - Agenzia Nazionale per le Nuove Tecnologie, L'energia e lo Sviluppo Economico Sostenibile IAEA - International Atomic Energy Agency (IAEA) IFIN-HH - Horia Hulubei National	01/01/2019 31/12/2020	CON-IA,INS-RS	2	Results of high temperature transmission measurements at GELINA	A scientific article describing a new experimental set-up at GELINA to study the Doppler broadening effect by high temperature transmission measurements. It also includes final results of high temperature transmission measurements on W-samples	01/07/2020	Article contribution to periodicals or to conference proceedings listed in the Thomson-Reuters' Science Citation Index Expanded (SCI-e) or Social Science Citation Index (SSCI)			
7446 - ANDANTE JRC.G.2	6411 - STANDARDS Measurements and methodologies for nuclear data standards	Nuclear data standards are the basis for accurate nuclear measurements throughout the field of nuclear technology applications. Almost all reaction cross sections in evaluated data libraries are relative to a select number of neutron cross section standards. This work package contributes to improved nuclear data standards by developing standard measurement techniques and standard radiation fields, by providing new experimental data using the JRC Geel accelerator-based facilities GELINA and MONNET and by improving methodologies to derive neutron cross section standards. Specific tasks -Improve the U-235(n,f) and U-238(n,f) cross section standards by new measurements at the GELINA and MONNET facility combined with new measurements at the n_TOF facility at CERN. -Improve the standards for prompt fission neutron spectra (PFNS) by new measurements for U-235(n,f) and Cf-252(sf). -Create standard neutron and gamma-ray fields using the MONNET facility. -Develop a methodology to better account for the impact of correlated data sets obtained at different laboratories on the derived standard. The method will be tested by adding new high	JRC.G.2	3.3.e	ENER JRC	JRC	ENER RTD	CEA - Commissariat à l'Energie Atomique et aux Energies Alternatives IAEA - International Atomic Energy Agency (IAEA) JAEA - Japan Atomic Energy Agency KAERI - Korea Atomic Energy Research Institute NEA-OECD - Nuclear Energy Agency (OECD) US DoE - US Department of Energy (DOE)	01/01/2019 31/12/2020	INS-RS	1	An improved methodology to produce standards for neutron induced reaction cross sections	A method to produce cross section standards from a least squares adjustment to experimental data accounting for correlated data sets obtained at different laboratories will be developed and validate. The method will be illustrated using data for Au-197(n,g), including recent data obtained at GELINA.	01/10/2019	Validated methods, Reference methods and measurements			
												2	Report describing the reference neutron fields at the MONNET facility			This report describes the reference neutron fields that are available at the MONNET facility. It includes the results of a full characterisation using standard reference methods.	01/08/2020	Technical systems
												3	Scientific articles			Scientific publications and conference contributions related to the production of neutron standards during the period 2018-2019-2020.	15/12/2020	Article contribution to periodicals or to conference proceedings listed in the

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category					
7446 - ANDANTE JRC.G.2	6412 - EVALUATION Improvement and validation of evaluated nuclear data libraries	This workpackage aims at providing support to internationally recognised evaluated nuclear data libraries. More in particular recommendations will be given to validate and improve the quality of the JEFF library which is maintained by the OECD/NEA as a service to EU-member states. This input can also be used by other evaluation projects, i.e. ENDF (United States); JENDL (Japan); CENDL (China) and ROSFOND/BROND (Russia), through our participation in WPEC (Working Party on International Nuclear Data Co-operation) activities which are co-ordinated by the OECD/NEA. Specific tasks -Provide recommendations to JEFF to improve evaluated data of interest for criticality safety programs. -Analyse existing covariance data and assess their quality based on available high quality experimental data.	JRC.G.2	3.3.e	ENER JRC	JRC	ENER RTD	CERN - European Organization for Nuclear Research INFN - ISTITUTO NAZIONALE DI FISICA NUCLEARE CEA - Commissariat à l'Energie Atomique et aux Energies Alternatives ENEA - Agenzia Nazionale per le Nuove Tecnologie, L'energia e lo Sviluppo Economico Sostenibile IAEA - International Atomic Energy Agency (IAEA) IFIN-HH - Horia Hulubei National Institute of Physics and Nuclear	01/01/2019 31/12/2020	INS-RS	1	Summary report of validated nuclear data in support to the JEFF-nuclear data project.	A report that describes the present status of the nuclear data libraries for fission products (i.e. Rh-103, Ag-107 and Ag-109) and that provides validated data for these nuclides to improve the JEFF nuclear data library. The present status of the libraries is verified by results of integral measurements at GELINA and the recommendations are based on a combined analysis of integral data and microscopic cross section data available in the EXFOR library (including new GELINA data), at GELINA and the recommendations are based on a combined analysis of integral data and microscopic cross section data available in the EXFOR library.	01/07/2019	Technical Reports					
																3	Scientific articles	Scientific publications and conference contributions related to the production of validated nuclear data during the period 2018-2019-2020	31/12/2020	Article contribution to periodicals or to conference proceedings listed in the
7446 - ANDANTE JRC.G.2	6413 - TARGET Production of targets for nuclear data measurements	This work package supports nuclear data measurements of importance for nuclear reactor safety and for technologies dealing with long-lived nuclear waste with the provision and development of well-characterised nuclear targets. Most of the targets are produced and characterised for measurements carried out by JRC staff at the GELINA and MONNET facility. The work package also provides targets on request for users outside the JRC through open access to JRC Research Infrastructures, (EUFRAAT), through collaboration agreements, such as the JRC-CEA Safety Research agreement, and in contribution to European projects with Member States and partner DGs (RTD).	JRC.G.2	3.3.e	ENER RTD	JRC	EAC ENER GROW	- Department of Radiation Science (Uppsala University) - JOHANNES GUTENBERG UNIVERSITÄT MAINZ CERN - European Organization for Nuclear Research PTB - Physikalisch-Technische Bundesanstalt CEA - Commissariat à l'Energie	01/01/2019 31/12/2020	INS-RS	4	Scientific articles	Scientific publications and conference contributions on preparation and/or characterisation of thin targets for high accuracy nuclear data studies during the period 2018-2019-2020	01/12/2020	Journal contributions (Clarivate)					
																ID1	Well-characterised active and non-active targets	Material information sheets of a number of well-characterised targets for accurate nuclear data measurements at the JRC GELINA and MONNET facilities, at external acceleration sites under respective CAs and via open access to JRC Research Infrastructures, (EUFRAAT).	01/12/2019	Reference Material
																ID2	Well-characterised active and non-active targets	Material information sheets of a number of well-characterised targets for accurate nuclear data measurements at the JRC GELINA and MONNET facilities, at external acceleration sites under respective CAs and via open access to JRC Research Infrastructures, (EUFRAAT).	20/12/2020	Reference materials
7448 - SARA JRC.G.2	6414 - NuDIT Nuclear Data for Innovative Technologies	The work package includes four tasks: 1) Investigation of basic data for production of medical radioisotopes by irradiation of solid and/or liquid targets. Specifically focussing on actinium, this task includes collaboration in target irradiation experiments aiming at determination of effective cross-sections and/or demonstration of innovative production methods. 2) Provision of a well characterised neutron reference standard based on the neutron output from Cm-244. Such a neutron reference standard will be used for accurate calibration of neutron counters and for cross-certification of other neutron sources. The aim is to achieve below 0.5 % uncertainty in the added mass of Cm-244, one order of magnitude better than commercial available Cf-252 neutron sources. Purified Cm will be supplied for other research topics as well, such as Cm chlorides for pyrochemical research and in the prolongation, an accurately known mass of Cm-244 can also be used to investigate and improve basic nuclear properties and data. 3) To measure energy and half-life of the Th-229 nuclear isomer. Th-229 is the only nuclide for which the first excited isomeric state is predicted to be accessible by optical laser excitation. If this is confirmed by experiment, Th-229m could be used for the realization of an overwhelmingly SySTA studies the surface processes on radioactive systems, intervening in important technological applications (nuclear and non-nuclear): fuel handling, nuclear decommissioning and environmental remediation, hydrogen production and hydrogen storage. We provide a specialized laboratory to synthesize those systems at a nano-scale and to study their properties and applications. This laboratory is unique in Europe and is used by member state users to carry out this research in collaboration with us. The work is done in one single instrument (the labstation), where the test systems are synthesised, subjected to reaction conditions (e.g. hydrogen adsorption, water splitting by light) and analysed by surface spectroscopies. Synthesis methods are very flexible, allowing producing classical oxide fuel as thin films, but also advanced fuel types are synthesized (carbides, nitrides). Photoactive	JRC.G.1.5	3.3.e	ENER JRC	JRC	ENER	- University of California, Los Alamos National Laboratory CERN - European Organization for Nuclear Research INFN - ISTITUTO NAZIONALE DI FISICA NUCLEARE IAEA - International Atomic Energy Agency (IAEA)	01/01/2018 31/12/2020	INS-RS	2	Scientific publications 2019 and 2020	Scientific publications related to the tasks described in the workpackage	31/12/2020	Article contribution to periodicals or to conference proceedings listed in the Thomson-Reuters' Science Citation Index Expanded (SCI-e) or Social Science Citation Index (SSCI)					
7448 - SARA JRC.G.2	6507 - SySTA Surface Systems Studies for Technological Applications	The work is done in one single instrument (the labstation), where the test systems are synthesised, subjected to reaction conditions (e.g. hydrogen adsorption, water splitting by light) and analysed by surface spectroscopies. Synthesis methods are very flexible, allowing producing classical oxide fuel as thin films, but also advanced fuel types are synthesized (carbides, nitrides). Photoactive	JRC.G.1.5	3.3.e	JRC	JRC	EAC	- UNIVERSITY OF SHEFFIELD - BenGurion University of the Negev - University of Stockholm - UNIVERSITY OF CAMBRIDGE - COMMISSARIAT A L ENERGIE ATOMIQUE CEN SACLA - Delft University of Technology - SKB INTERNATIONAL CONSULTANTS AKTIEBOLAG CU - Charles University Prague	01/01/2018 31/12/2020	INS-RS	4	Full capacity study with the surface science techniques linked to the Labstation	Scientific publications relating studies of the interaction mechanisms with environment at the surface of nuclear and non nuclear samples linked to the different applications of the project SARA. All the surface techniques available (BIS, TPD and HREELS) on the Labstation will be used to get a complete picture on the electronic properties of the materials.	30/11/2019	Journal contributions (Scopus)					
																5	Scientific articles	Scientific publication on the role of model surfaces in nuclear safety related research. It will be produced in the frame of workshop, organized in house and focussing on the surface electronic structure, reactivity, and interactions of nuclear systems with the environment. The publication will report the results of the workshop and be dedicated to the optimization of experimental data production for theoretical modellers.	25/12/2020	Article contribution to periodicals or to conference proceedings listed in the
3.3.f Development of knowledge management, training and education:																				
65 - DANTE JRC.G.10	504 - OASIS Open Access to JRC Infrastructure for nuclear Safety and Security	This work package co-ordinates open access to EURATOM specialised nuclear facilities of pan-European relevance operated by the JRC. For 2019 - 2020 access to the following installations are offered -GELINA: 150 MeV linear electron accelerator combined with a high-resolution neutron time-of-	JRC.G.2	3.3.f	RTD	JRC,RTD ,RTD		IAEA - International Atomic Energy Agency (IAEA) MS EU - Member states EU NEA-OECD - Nuclear Energy Agency	01/01/2019 31/12/2020	CON-IA,CON-IA,INS-RS	2002	Open access yearly summary report 2020	This summary report describes the global activity and management during a calendar year period: calls for proposals, PAC meetings, summary of proposal, access provided, results of implemented proposals	25/12/2020	Technical Reports					
																9	Open access yearly summary report 2019	This summary report describes the global activity and management during a calendar year period: calls for proposals, PAC meetings, summary of proposal, access provided, results of implemented proposals	27/12/2019	Technical Reports
65 - DANTE JRC.G.10	550 - AEN3AS Attract and Educate students and young professionals in Nuclear Engineering and Applications for Safety, security and safeguards	The aim of this work package is to give a substantial contribution to the revival of interest of young generations in careers in the nuclear sector and to the building and reinforcing of competences of young professionals in the nuclear field. This is done by participating in the H2020 ENEN+ project on the one hand and by organizing education and training (E&T) at nuclear facilities on the other hand. The ENEN+ project pursues the following main objectives: -Attract new talents to careers in nuclear;	JRC.G.2	3.3.f	RTD	JRC,RTD	EAC ENER HOME	CERN - European Organization for Nuclear Research CEA - Commissariat à l'Energie Atomique et aux Energies Alternatives CEN - European Committee for Standardization CENELEC - European Committee for Electrotechnical Standardization	01/01/2014 30/12/2020	CON-IA,INS-RS	AEN3AS2019	Report on activities to attract and educate students and young professionals in 2019	Report describing activities to attract and educate students and young professionals (situation reports, training reports)	02/12/2019	Technical Reports					
																AEN3AS2020	Report on activities to attract and educate students and young professionals in 2020	Report describing activities to attract and educate students and young professionals (situation reports, training reports)	07/12/2020	Technical Reports
7785 - MEDAKNOW JRC.G.II.7	685 - ESARDA ESARDA Operation and Secretariat	Operation and Secretariat of the European Safeguards Research and Development Association, ESARDA. This includes management of Steering Committee and Executive Board's meetings organisation,	JRC.G.II.7	3.3.f	ENER	JRC	DEVCO TRADE	- URENCO NEDERLAND BV* - Nuclear Research Institute Rez - Hungarian Atomic Energy Authority	01/01/2014 31/12/2020	INS-RS	201920	ESARDA journals and proceedings edited by JRC	ESARDA Journals and Symposia proceedings edited by JRC	31/12/2020	Books					
65 - DANTE JRC.G.10	3340 - EHRO-N European Human Resources Observatory for the Nuclear Energy Sector	EHRO-N aims at determining the situation of nuclear-educated Human Resources in Europe, assess the trends and suggest policy options for improvement. It is complemented with an analysis of training & education opportunities in view of preserving and further developing expertise in the nuclear fields. It is a central point for data collection and trend analyses to identify patterns for intra-sectorial mobility, training and education opportunities, identify gaps between competences and skills required among different sectors, evaluate the possible scarcity of resources and bottlenecks in knowledge sharing and knowledge management related to nuclear Human Resources and Nuclear Safety and security expertise in the EU. In this context, the implementation of the ECVET system in the nuclear energy sector plays an important role to achieve results. JRC operates the EHRO-N Steering Board (Community of Practices). The objective are realized through the co-operation between universities, research organisations, regulatory bodies, the industry and any other organisations involved in the application of nuclear	JRC.G.10	3.3.f	ENER	JRC	EAC EMPL NEAR RTD	- University of Birmingham - University of Tartu - SLOVAK UNIVERSITY OF TECHNOLOGY IN BRATISLAVA - SOCIETA' GESTIONE IMPIANTI NUCLEARIPER AZIONI CEA - Commissariat à l'Energie Atomique et aux Energies Alternatives ENEN - European Nuclear Engineering Network IAEA - International Atomic Energy Agency (IAEA) KIT - Karlsruhe Institute of	01/01/2016 30/12/2020	INS-RS	1701	Training Syllabus on GEN IV reactor technology	A training syllabus will be compiled on GEN IV reactor technology and safety features, based on a one-week training given from different expert lecturers, facilitated and organized by the JRC. It will be thoroughly peer reviewed before publication.	30/06/2019	Books					
																1801	3rd EHRO-N survey report	The report will compare results with the previous two surveys and assess trends; it will also be complemented by gender composition of nuclear workforce and include decommissioning activities. On the education side, the focus will be on comparing results with previous two surveys; dimension of exchange students in universities; gender composition of students and graduates.	30/06/2019	Science for Policy reports
																1901	Report on E&T in the nuclear energy field in the EU	Contribution to the COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL ON SITUATION REPORT ON EDUCATION AND TRAINING IN THE NUCLEAR ENERGY FIELD IN THE EUROPEAN UNION. (date to be confirmed with DG ENER)	30/12/2019	JRC contributions to policy documents
																2001	Report on the nuclearised workforce	A report on the nuclearised workforce in view of education level, nuclearization method etc..	30/04/2020	Science for Policy reports
																1803	Briefing / review report on nuclear emerging issue	Briefing note or review report on the status of knowledge and gaps related to an emerging issue of strong policy concern. Topic to be identified in the horizon scanning exercise or during the European Topical Peer Review required under the nuclear safety directive.	31/03/2019	Science for Policy reports
																1901	Horizon Scanning 2019	Horizon scanning report to identify, discuss and communicate to relevant policy makers potential emerging issues in the nuclear field that might have policy and societal implications for Europe.	20/12/2019	Science-for-policy reports
																1902	Pilot information system of topical nuclear issues for policy information	The aim is to develop an information system to have an online repository of "hot issues" in nuclear, including factsheets, infographics, timelines and references to JRC publications on the issues. Horizon Scanning, EMM and Altmetrics are used to identify the issues and to measure the attention given by the media. It is primarily designed for policy makers in relevant customer DGs. The pilot version will be developed on Connected.	31/10/2019	Scientific information systems and databases
																1903	Briefing / review report on nuclear emerging issues for FP9 WP design	Briefing note or review report on the status of knowledge and gaps related to an emerging issue of strong policy concern. Topic to be identified in the horizon scanning 2018 and ad-hoc exercises.	30/06/2019	Science for Policy reports
																2001	Horizon scanning 2020	Horizon scanning report to identify, discuss and communicate to relevant policy makers potential emerging issues in the nuclear field that might have policy and societal implications for Europe.	18/12/2020	Science for Policy reports
																2002	Thematic gap analysis	Produce a gap analysis on JRC activities in a specific topical area (e.g. security and safeguards, non-energy applications). The gap analysis maps the JRC knowledge and activities in the selected topic, and reflects it to the main research and development activities in this domain in Europe and worldwide. The gap analysis aims at serving as background material for decision making in future orientations of JRC in the specific domain.	30/10/2020	Technical Reports
2003	Preparation of H2020 ex-post-evaluation	Gathering, structuring, complementing and making sense of the knowledge production during H2020 for the Euratom evaluation process.	18/12/2020	Technical Reports																

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
7303 - MAWADEK JRC.G.III	6121 - IKMS Integrated Knowledge Management System	IKMS main activity is to establishing a WEB platform for managing the decommissioning and radioactive waste management knowledge, including, structure and access to different areas of information, review feed-back, as well as for example the use of the platform for storing information and implementing knowledge transfer activities. JRC uses its competences and skills to support the MS in the field of nuclear waste management and decommissioning, by (i) implementing a	JRC.G.III.8	3.3.f	JRC	JRC	ENER RTD	MS EU - Member states EU	01/01/2018 31/12/2020	INS-RS	3	Update of the Integrated Knowledge Management System (IKMS)	Administrative framework with WEB platform for managing the IKMS and communicating to the involved experts and a broader interested community. The WEB based system hosts the different IKMS components, i.e. the Knowledge Handbook, the Strategic Studies, the Guides and Knowledge Transfer activities and outcome. It is designed as to maintain and up-date IKMS content and to communicate the overall status and evolution with time.	25/12/2020	Sci information systems and databases
65 - DANTE JRC.G.10	6461 - TCB-NUS Training and Capacity Building in Nuclear Safety and Science Applications	The present workpackage aims at coordinating the different training courses on nuclear safety, radioactivity environmental monitoring, radiation protection that are provided by JRC mainly on the sites of Petten, Ispra, Geel and Karlsruhe. Beside the provision of training courses on applications, methodologies and tools developed by JRC, this workpackage aims at complementing its building capacities through collaborations and agreements with external competent organisations or pool of experts. The latter addressing trainings and education needs complementary to or which are not	JRC.G.10	3.3.f	ENER	JRC	DEVCO ENER RTD	- UNIVERSITAT DE BARCELONA - University of Manchester - RheinischWestfaelische Technische Hochschule Aachen / Aachen University of Technology - Universidad Autónoma de Madrid	01/01/2018 01/01/2021	CON-IA,INS-RS	1910	Trainings in Nuclear Safety and Science Applications	Coherent set specific training courses (programme, teachers, training material, etc.) and public awareness initiatives delivered in 2018 and their organisation.	31/03/2019	Training
											2001	Trainings in Nuclear Safety and Science Applications	Coherent set specific training courses (programme, teachers, training material, etc.) and public involvement initiatives delivered in 2019 and their organisation.	20/03/2020	Training

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
3.3.g Development of nuclear science applications and use of radioisotopes:															
7448 - SARA JRC.G.2	5150 - SMeR Sustainable and Resilient Supply of Medical Radioisotopes in the EU	The supply of radioisotopes for worldwide medical applications is one of the most important aspects of nuclear science. Every year, over 50 million imaging exams are conducted using radiopharmaceuticals; in addition, a growing number of treatments involve radioactive elements combined with specific affinity molecules for targeted therapy. Emerging approaches and technologies, such as personalised medicine, will create an extra burden in the already fragile supply.	JRC.A.7	3.3.g	ENER	JRC	SANTE		01/01/2017 31/12/2019	INS-RS	201901	Survey on the EU market of therapy medical radioisotopes	Survey commissioned to a service contractor to compile information on the market of therapy medical radioisotopes in all EU member states, including current national health service approach, patient access to medical radioisotope therapy, emerging therapy radioisotopes, reimbursement status, and other information found relevant and included in the technical specifications of the tender.	31/12/2019	External study reports
		The production of radioisotopes for medical applications involves a unique, just in time, chain of supply, in which the half-lives of the radionuclides are extremely limited, and which is strongly relying on the availability of nuclear reactors, until now mainly government-subsidized research										Report on the EU market of therapy radionuclides	Summary report and written contributions and presentations on the EU market of therapy radionuclides to be delivered in the plenary sessions of the EU observatory on the Supply of Medical Radioisotopes and of the High-level Group on the Security of Supply of Medical Radioisotopes (HLG-MR) and to the SAMIRA initiative.	31/12/2019	Science for Policy reports
7448 - SARA JRC.G.2	6504 - PANuMA Properties and Applications of Nuclear Materials and Actinides	In this work package, experimental and theoretical studies of actinides and nuclear-fuel related materials are combined in order to expand the knowledge base necessary both for the safety assessment of nuclear fuels and for developing novel functional materials with unexpected properties. Nuclear properties of these materials (heat generation/self decay/isotopes production) will be also examined in purpose of advanced knowledge and technologies development (space battery/ rare isotopes/atomic clocks).	JRC.G.I.5	3.3.g	JRC	JRC	EAC ENER	- EUROPEAN SPACE AGENCY CERN - European Organization for Nuclear Research ESRF - European Synchrotron Radiation Facility ILL - Institut Laue-Langevin Tech Serv - Member States and their Technical Services/type approval authorities Uni Hei DE - University Hospital Heidelberg	01/01/2018 31/12/2020	INS-RS	PANuMA2 01901	Scientific outputs within the Panama activities framework published in open journals	Contributions to the work package to the activities - experimental and theoretical studies - of the SARA project, documented by scientific publications in open journals, conference proceedings, and public communications on topics addressed by the programme.	31/12/2019	Article contribution to periodicals or to conference proceedings listed in the Thomson-Reuters' Science Citation Index Expanded (SCI-e) or Social Science Citation Index (SSCI)
		Emphasis will be given: i) To thermo-electric materials studies with potential application in radioisotope power sources for space missions (collaboration with SPACEPARTY - 6509). ii) To the studies of basic and applied properties of compounds forming in case of accidental fuel-coolant interactions such as conventional (oxides) / non conventional (metallic- molten salt) nuclear fuels for nuclear safety support.. iii) To the synthesis and studies of actinides based organometallic complexes and compounds in aqueous and non aqueous phases supporting advanced processes securing/ improving the waste cycle.										Panuma20 2001	Report on activities and publications issued in Panama	A report summarising activities and publications issued within the WP Panama will be provided on actinides and nuclear-fuel related materials are combined in order to expand the knowledge base necessary both for the safety assessment of nuclear fuels and for developing novel functional materials with unexpected properties.	31/12/2020
7448 - SARA JRC.G.2	6509 - Space-PARTY Space Applications/Third party work	Most of the nuclear power sources for space missions are based Pu-238, a nuclide with high decay heat, but expensive to produce and not readily available in Europe. However, for future European space missions to space regions far away from the sun or into the shadow of planetary bodies, the European Space Agency (ESA) has decided to develop a European radioisotope based power source and to choose Am-241 as power providing nuclide. After the successful completion of the Third Party contract NARCO, which systematically investigated the sinter ability of americium oxides in cooperation with NNL, and the Exploratory Research EPSO-Space, which culminated in a small scale prototype of an Am-241 based Radioisotope Heating Unit at the End of 2017, the research will now be continued in the frame of Space-PARTY.	JRC.G.I.3	3.3.g	GROW	JRC		- German Aerospace Center - DLR - EUROPEAN SPACE AGENCY UKNNL - National Nuclear Laboratories of the UK	01/01/2018 31/12/2020	INS-RS	201901	Summary report on the preparation of a full scale prototype Radioisotope Heating Unit for deep space missions	The report describes the development, qualification and fabrication of a full scale RHU for ESA future exploratory space missions. A full scale americium oxide pellet will be manufactured. A cladding will be developed and welding procedures will be qualified. Finally a full scale prototype RHU will be manufactured.	15/11/2019	JRC technical reports
		The project will be conducted in close collaboration with NNL and ESA and be based on lessons learned from EPSO-Space. In the frame of SPACE-Party pellet manufacturing parameters will be further optimized, a full scale americium sesquioxide pellet will be prepared, systematic interaction										201902	Scientific articles	Scientific publications or conference contributions related to studies of the RHU process published during the period 2018 – 2019.	31/12/2019
7448 - SARA JRC.G.2	7303 - Ac-PSMA Actinium-PSMA	The aim of this project is to develop a protocol for standardized synthesis and stabilization of the radiopharmaceutical 225Actinium-PSMA-617 and to extend its applicability to high activity levels required for multiple patient doses.	JRC.G.I.5	3.3.g	JRC SANTE	JRC	GROW JRC	- Medical University of Warsaw - Technische Universität München Uni Hei DE - University Hospital Heidelberg	01/03/2018 28/02/2019	INS-PC	1	Stabilized formulation of Actinium-225-PSMA-617	Report on the development of a formulation for Actinium-225-PSMA-617 with a shelf-life of several days.	28/02/2019	Article contribution to periodicals or to conference proceedings listed in the Thomson-Reuters' Science Citation Index Expanded (SCI-e) or Social Science Citation Index (SSCI)
7448 - SARA JRC.G.2	7789 - TAT Targeted Alpha Therapy	In its communication (COM(2010)423) the European Commission has identified the securing of supply of radioisotopes for nuclear medicine and the improvement of radiation protection of patients and staff as key challenges. In its 3053rd meeting the European Council has stressed the need for continued efforts to actively investigate economically feasible alternatives to the current radioisotope production methods and the isotopes currently used.	JRC.G.I.5	3.3.g	SANTE	JRC	GROW JRC	- Institut de recherches subatomiques - Technische Universität München - INSTITUTE OF NUCLEAR CHEMISTRY AND TECHNOLOGY - Czech Technical University in Prague - ERASMUS MEDICAL CENTER ROTTERDAM - INSTITUT NATIONAL DE LA SANTE ET DE LA RECHERCHE	01/01/2019 31/12/2020	INS-RS	1	Standardization of clinical protocols	The aim of this deliverable is to transfer successful developments in targeted alpha therapy into standardized clinical protocols and routine use in close collaboration with regulatory bodies. Furthermore it will contribute to the development of recommendations and guidelines for safe clinical use of radionuclides on European level. In this context data on therapeutic efficacy and tolerability of radiolabeled compounds will be accrued, evaluated and disseminated in peer-reviewed journals.	15/12/2019	Journal contributions (Clarivate)
		This WP will accrue and evaluate data on novel technologies for production and use of radiolabeled compounds in nuclear medicine and support the transfer of successful developments into standardized clinical protocols and routine use for the benefit of cancer patients in Europe and worldwide. In close collaboration with regulatory bodies it will contribute to the development of recommendations and guidelines for the safe use of radiolabeled compounds in nuclear medicine										2	JRC-IAEA support to South Africa and other countries	Transfer of knowledge on targeted alpha therapy to South Africa and other countries with focus on TAT of prostate cancer; provision of training to hospital staff; cooperation with IAEA on organisation of training events and workshops on securing supply of actinium-225 and knowledge transfer to hospitals	15/12/2019
4. A deeper and fairer internal market with a strengthened industrial base															
4.1. Internal market, industry, entrepreneurship and SMEs															
4.1.a Strengthening the industrial base in the EU single market - provide support to industrial policy development, notably to support standardisation, including the development and implementation of the next generation of the Eurocodes, reference measurements and materials (including nanomaterials); support the set-up and running of the EU Product Compliance Network (knowledge building, benchmarking of country performance, expertise in product testing, training and technical support to coordinated enforcement); contribute to material efficiency, scientific and technical support to the implementation of the Plastics Strategy (linked with the key orientation 1.3.2.a); analyse advanced manufacturing and key enabling technologies; analyse industrial sectors (e.g. steel and process industries) to improve their environmental efficiency, energy performance, resilience to climate change, and achieve reductions in GHG and pollutant emissions; identify and monitor the main technological and industrial strategic areas where the EU can have strong competitive advantage potential as a contribution to a vision 2030 for the EU industry.															
326 - EE JRC.C.2	189 - SILC Crosscutting Valorisation of SILC	The aim of this W/Pk (Administrative Arrangement) is to provide support to DG GROW for the valorisation and dissemination of the results of projects funded by the Sustainable Industry Low Carbon (SILC) initiative. SILC aims to help industrial sectors to achieve reductions in the intensity of greenhouse gas emissions while maintaining the European industrial competitiveness.	JRC.C.7	4.1.a	GROW	GROW	CLIMA ENER ENV RTD		01/09/2012 02/04/2019	CON-AA					

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category	
219 - Photovoltaic Energy JRC.C.2	579 - PVREF Photovoltaics Standards, Performance and EU Research Infrastructure	<p>This work package targets a series of themes of high relevance to the implementation of EU policies on renewables, on innovation and on competitiveness:</p> <p>a) Develop European and international standards to promote a transparent market of manufacturers and investors, and to promote innovative PV technologies.</p> <p>b) Pre-normative R&D to improve accuracy of the technical measures of the performance and reliability of PV products, which underpin investments, EU electricity markets, trade regulations and other legal measures.</p> <p>c) Provide a hub for European PV research efforts, providing training, promoting best practices in performance assessment using round robins and intercomparison, hosting of trainees and visiting scientists</p> <p>d) Provide independent reference measurements for EU research projects, national laboratories and industry.</p> <p>e) Studies on Electric Vehicle charging with dedicated Photovoltaic charging stations</p> <p>f) Technical coordination of the annual European Photovoltaic Solar Energy conference (EU PVSEC)</p> <p>The European Solar Test Installation (ESTI) provides the platform for the experimental research and focal point for JRC's support to developing our largest and most competitive source of sustainable electricity.</p> <p>Key collaborations with the AIST Japan , NREL, USA, CSIR South Africa and ESA ESTEC NL among others are being prepared.</p>	JRC.C.2	4.1.a	GROW	JRC	ENER RTD	CENELEC - European Committee for Electrotechnical Standardization (CENELEC) EERA - European Energy Research Alliance IEC - International Electrotechnical Commission PV Ind EU - Photovoltaic industry EU R&D Inst Int - Governmental and independent R&D institutions SET-Plan Com - SET-Plan Community	01/01/2014 31/12/2020	INS-UR		1901	PV Standards Status 2019	Standardisation activities lead by the JRC in support of policies on Growth. Annual report on technical standards for PV products and systems, based on JRC contributions to: - International Electrotechnical Commission Technical Committee 82 activities - European Committee for Electrotechnical Standardisation (CENELEC) TC-82 activities - IECRE (IEC System for Certification to Standards Relating to Equipment for Use in Renewable Energy Applications) - International PV Quality Assurance Forum.	02/12/2019	Science for Policy reports
												1902	Pre-normative R&D on PV Performance Measurement	Scientific papers on improved methods for measurement of power and energy yield for new and emerging PV technologies, including smart modules (i.e. with in-built power electronics for DC-DC or DC-AC control) and on building integrated products. Research will also address advanced methods for solar radiation measurements, including inter-comparisons. Results will also be communicated to relevant standards committees. Results of international inter-comparisons and round robins.	30/11/2019	Journal contributions (Scopus)
												1903	Levelised Cost of Electricity Generation from Small PV Systems in the EU 2019	2019 Update the analysis of the distribution of the levelised cost of electricity generated by small PV systems over the EU (in collaboration with work package RSD and Self Cities) . The report will address other factors affecting deployment, including land availability and suitability, storage options and also administrative barriers . Finally it will provide a summary assessment for each Member State.	30/06/2019	Science for Policy Briefs
												1904	State of the Art for Solar Energy Production	This is an annual report that a) provides an update on the adequacy of measurement methods used to assess the electrical performance of PV products and prototypes. b) verifies the status of ESTI's unique independent traceability chain for irradiation measurements c) summarises results of calibrations performed for EU industry and research organisations, as well as benchmarking activities with peer external organisations.	02/12/2019	Science for Policy reports
												2001	PV Standards Status 2020	Standardisation activities lead by the JRC in support of policies on Growth. Annual report on technical standards for PV products and systems, based on JRC contributions to: - International Electrotechnical Commission Technical Committee 82 activities - European Committee for Electrotechnical Standardisation (CENELEC) TC-82 activities - IECRE (IEC System for Certification to Standards Relating to Equipment for Use in Renewable Energy Applications) - International PV Quality Assurance Forum.	01/12/2020	Science for Policy reports
												2002	Pre-normative R&D on PV Performance Measurement	Scientific papers on improved methods for measurement of power and energy yield for new and emerging PV technologies, including smart modules (i.e. with in-built power electronics for DC-DC or DC-AC control) and on building integrated products. Research will also address advanced methods for solar radiation measurements, including inter-comparisons. Results will also be communicated to relevant standards committees. Results of international inter-comparisons and round robins.	30/11/2020	Journal contributions (Scopus)
												2003	Levelised Cost of Electricity Generation from Small PV Systems in the EU 2020	2020 Update the analysis of the distribution of the levelised cost of electricity generated by small PV systems over the EU (in collaboration with work package RSD and Self Cities) . The report will address other factors affecting deployment, including land availability and suitability, storage options and also administrative barriers . Finally it will provide a summary assessment for each Member State.	30/06/2020	Science for Policy Briefs
												2004	State of the Art for Solar Energy Production	This is an annual report that a) provides an update on the adequacy of measurement methods used to assess the electrical performance of PV products and prototypes. b) verifies the status of ESTI's unique independent traceability chain for irradiation measurements c) summarises results of calibrations performed for EU industry and research organisations, as well as benchmarking activities with peer external organisations.	30/11/2020	Science for Policy reports
437 - SAFE&CLEAN-CONSTRUCT JRC.E.4	610 - ELSALab ELSA Laboratories: Reaction Wall and HOPLAB facilities	<p>To design, set up and carry out large-scale experimental test campaigns for scientific and policy support projects ensuring high standards of management, safety and quality. Perform tests for work packages SLA4FE, BUILD-PROTECT and the Exploratory research iRESIST+. Give Transnational and Open Access to Research Projects within work packages SEERIA 4 EU and ELSA OPEN, respectively.</p> <p>To maintain, operate efficiently and keep up to date the Reaction Wall and HOPLAB facilities. This includes regular and improved maintenance, strategic planning for new investments, Following the Digital Single Market priority and considering the current ICT adoption level of the European construction sector, this WP targets to support and link up initiatives for the digital transformation in construction. Building industry must accelerate take up of digital technologies regardless of a company's size and develop its full potential to remain globally competitive as well as give a new boost for jobs, growth and investment. The speed up of development and adoption of common standards in key areas, such as BIM (Building Information Modelling) is ensured also by the support and contribution to the CEN Technical Committee 442 on BIM standardization work. Adoption of digital technologies opens doors for digital public services such as e-procurement as laid out in the Directive on Public Procurement (2014/24/EU) setting the digital agenda for public works contracts and design. Another field of study is how digital technologies could enable better resilience assessment and disaster risk management of built environment.</p> <p>Furthermore, pre-normative research focuses also on developing safety standards, exploiting the A competitive and fair internal market with a strengthened industrial base (Juncker's priority Number 4) requires high standards of European products. Mutual recognition of compliance with standards in the global as well as the internal market for goods needs to be effective, as it avoids duplication of compliance checks and enhances trust between trade partners. The availability of (Certified) Reference Materials (CRMs) as measurement standards and quality benchmarks is the main scope of MET ET, part of the Resilience project, is to assess the EU resilience to the supply of materials required for the growing needs to deploy Low Carbon Technologies (LCT) in order to achieve climate goals. Several EU MS have conducted independently similar studies aiming to evaluate the vulnerability of their economy on Raw Materials (RM) supply. However, these studies remain at country level and do not represent the common EU stand point needed for streamlined actions and common policies to increase the EU resilience. They also do not address specifically the needs of the global EU energy and transport sector, as well as integrated supply chain approach.</p>	JRC.E.4	4.1.a	GROW	JRC	ENER ENV HOME RTD	01/01/2014 31/12/2021	INS-RS		10	ELSLab operation and strategic report 2019	Experiments planning and control, review of strategic planning for new investments, implementation of safety standards, successful re-certification according to ISO 9001 quality management assessment of the effects of planning and control, as well as on the implementation of protocols for qualification, of the performance of the Laboratory.	15/12/2019	JRC technical reports	
											11	ELSLab operation and strategic report 2020	Experiments planning and control, review of strategic planning for new investments, implementation of safety standards, successful re-certification according to ISO 9001 quality management assessment of the effects of planning and control, as well as on the implementation of protocols for qualification, of the performance of the Laboratory.	15/12/2020	Technical Reports	
437 - SAFE&CLEAN-CONSTRUCT JRC.E.4	615 - INNOBUILD Pre-Normative Research in Support of Innovation in Buildings and Construction	<p>Digitization of buildings and BIM (Building Information Modelling) technologies can be used to enhance the disaster resilience performance of the built environment. The study will focus on potential BIM's contribution to the assessment of resilience in the pre and post-disaster phases. We will study the theoretical background needed for the numerical modelling and review the potential influence of performance of the supply chain, construction process, asset management and rescue operations.</p> <p>To proceed with the adaptation of the European standards for buildings and infrastructures to the implications of climate change, the expected evolution of the climatic loads shall be assessed in terms of the Eurocodes concept for characteristic values of variable climatic actions. The JRC coordinates European network on adaptation of structural design to climate change, which produces pilot studies on the trends of evolution of different climatic actions on buildings and infrastructures. The deliverable presents the results of the pilot studies and the identified scientific, standardization and regulatory needs for adaptation of structural design to climate change.</p>	JRC.E.4	4.1.a	GROW	JRC	CLIMA ENER ENV RTD	CEN - European Committee for Standardization ESFRI - European Strategy Forum on Research Infrastructures	01/01/2017 31/12/2021	INS-RS		11	Building Information Modelling (BIM) for Disaster Risk Management	Digitization of buildings and BIM (Building Information Modelling) technologies can be used to enhance the disaster resilience performance of the built environment. The study will focus on potential BIM's contribution to the assessment of resilience in the pre and post-disaster phases. We will study the theoretical background needed for the numerical modelling and review the potential influence of performance of the supply chain, construction process, asset management and rescue operations.	20/12/2019	Science-for-policy reports
												12	Needs for adaptation of structural design to climate change	To proceed with the adaptation of the European standards for buildings and infrastructures to the implications of climate change, the expected evolution of the climatic loads shall be assessed in terms of the Eurocodes concept for characteristic values of variable climatic actions. The JRC coordinates European network on adaptation of structural design to climate change, which produces pilot studies on the trends of evolution of different climatic actions on buildings and infrastructures. The deliverable presents the results of the pilot studies and the identified scientific, standardization and regulatory needs for adaptation of structural design to climate change.	20/12/2020	Contributions to standards
341 - Reference Materials JRC.F.6	650 - NIRM Reference Materials for nanotechnologies and industrial applications	<p>A competitive and fair internal market with a strengthened industrial base (Juncker's priority Number 4) requires high standards of European products. Mutual recognition of compliance with standards in the global as well as the internal market for goods needs to be effective, as it avoids duplication of compliance checks and enhances trust between trade partners. The availability of (Certified) Reference Materials (CRMs) as measurement standards and quality benchmarks is the main scope of MET ET, part of the Resilience project, is to assess the EU resilience to the supply of materials required for the growing needs to deploy Low Carbon Technologies (LCT) in order to achieve climate goals. Several EU MS have conducted independently similar studies aiming to evaluate the vulnerability of their economy on Raw Materials (RM) supply. However, these studies remain at country level and do not represent the common EU stand point needed for streamlined actions and common policies to increase the EU resilience. They also do not address specifically the needs of the global EU energy and transport sector, as well as integrated supply chain approach.</p>	JRC.F.6	4.1.a	GROW	GROW, JRC	CNECT ENER ENV RTD SANTE	CEFC - European Chemical Industry Council (CEFC) CEN - European Committee for Standardization Chem Cos Pharm Food Agri EU -	01/01/2014 31/12/2020	CON-AA, INS-RS		192	Validation of methods for construction materials	In the frame of the administrative arrangement with DG GROW the JRC will coordinate the validation of methods developed by CEN/TC351. A report with the validation data (stage II) will be delivered to the technical committee and a final report will be delivered to DG GROW.	10/09/2019	Contributions to standards
												201	Certified Reference Materials	Reference Materials and Certified Reference Materials for the implementation of EU legislation related to nanomaterials and industrial products, including the related certification reports and scientific papers.	31/12/2020	Reference materials
443 - Raw Materials JRC.D.3	660 - MET ET Materials for energy technologies	<p>A tailored methodology is developed to assess the EU resilience to supply of materials and components/systems for the roll-out of clean technologies (2030 timeframe). Series of indicators are used for the purpose, which among others, are assessing how reliable and politically stable are the main global suppliers along the full supply chain. Special attention is given to materials /component substitution and recycling potential as important mitigation measures to increase resource efficiency and enhance EU resilience. The MET ET will produce scientific studies, factsheets, analysis briefs etc. and will contribute to other WPK such as Resilience Community of Practice (WPK 6434), Energy storage system integration (WPK 518) and communication and The work consists in development of a knowledge tool for assessing the global performance of buildings in terms of safety (including collapse and explosion), energy efficiency and environmental impact. The tool will provide a unique performance indicator, expressed in economic/monetary terms, for qualifying the global performance of buildings or building typologies, to be used as an input for strategic decisions at urban and regional scales.</p> <p>The tool might be used by stakeholders (local or regional authorities and investors) to derive decisions about the development, maintenance and upgrading the existing building stocks to achieve a global improvement of safety, energy efficiency and sustainability with reference to available resources and investment plans.</p> <p>In practice, the tool could be used to study the different alternative scenarios, i.e., the options for</p>	JRC.C.7	4.1.a	GROW	JRC	CLIMA ENER ENV MARE MOVE RTD TRADE	SET-Plan - Strategic Energy Technology Plan (SET Plan)	01/01/2017 31/12/2020	INS-RS		10	Materials for energy and transport	One deliverable consisting of three outputs: Output 1: A science-for-policy report analysing the global and European supply and demand trends of rare earths to fulfil the needs of deployment of low carbon technologies and electric vehicles. The study will reassess the importance of rare earths in such technologies, their need in the transition to electric mobility and renewable energy systems until 2030, while comparing it with the projected supply over an equivalent period. The effects of their substitution will be also analysed. Output 2: A technical report analysing the importance of raw materials for the European energy intensive industries (EIs) and the strategic importance of materials produced by the EIs to current European value chains enabling low carbon solutions. Output 3: Inputs to policy documents, technical notes, reports, briefings, scientific presentations/papers etc. addressing materials issues.	30/11/2020	Science for Policy reports
												3	Materials issues for low carbon technologies	The deliverable consists of three outputs: Output 1: A science-for-policy report analysing the global and EU demand trends to 2030 for relevant raw and processed materials needed for the deployment of low carbon energy technologies such as PVs and wind turbines. Output 2: Inputs to policy documents, technical notes, ad-hoc requests from policy DGs, briefings, scientific presentations/papers etc., addressing specific emerging materials issues in low-carbon technologies. Output 3: Contributions to the development of an interactive communication tool to increase awareness among the EU citizens and policy makers to issues related to critical materials used in low carbon energy technologies. This tool could contribute to the RMIS (Raw Materials Information System) platform.	30/11/2019	Science for Policy reports
437 - SAFE&CLEAN-CONSTRUCT JRC.E.4	813 - SAFESUST Impact of sustainability and energy efficiency requirements on building design and retrofit	<p>A partner or group of partners interested in applying the tools developed for implementing the methodology will be identified. The partner(s) will provide the necessary information for the pilot implementation. The roadmap for a holistic retrofit of a class of existing buildings will be defined.</p> <p>The guidelines for implementing the proposed holistic approach for the integrated retrofit will be derived for a specific class of buildings. The guidelines will be assessed against the specific needs of the users. The release of the guidelines will pave the way to further applications of the method.</p>	JRC.E.4	4.1.a	GROW	JRC	ENER ENV REGIO	CEN - European Committee for Standardization	01/01/2017 30/12/2020	INS-RS		A	Roadmap for a sustainable integrated retrofit of building structures under accidental loads	A partner or group of partners interested in applying the tools developed for implementing the methodology will be identified. The partner(s) will provide the necessary information for the pilot implementation. The roadmap for a holistic retrofit of a class of existing buildings will be defined.	16/12/2019	JRC technical reports
												B	Guidelines for a sustainable integrated retrofit of existing structures under accidental loads	The guidelines for implementing the proposed holistic approach for the integrated retrofit will be derived for a specific class of buildings. The guidelines will be assessed against the specific needs of the users. The release of the guidelines will pave the way to further applications of the method.	16/12/2020	Technical Reports
190 - PRESERVE JRC.C.4	2248 - LowBraSys A Low environmental impact Brake System	<p>The LOWBRASYS H2020 project aims at demonstrating a novel and low environmental impact brake system that will reduce micro and nanoparticles emissions by at least 50% both in number (PN) and in mass, whilst improving the measurement and understanding of their effects on health and the environment and providing recommendations to policy makers.</p> <p>In the LOWBRASYS project JRC will be responsible for the task regarding the definition of real drive brake patterns and consequently the definition of a laboratory tests procedure to assess real ELSA will make available to researchers and industry the Reaction Wall and HOPLAB facilities and will associate to the European Strategic Forum for Research Infrastructures. Access will be granted through open calls and proposals will be evaluated by a Selection Panel, considering the priority topics defined by a Steering Committee. Depending on the proposal, ELSA will provide technical assistance, testing of specimens, data acquisition, support in the use of analytical tools, a</p>	JRC.C.4	4.1.a	GROW	RTD	ENV	CEN - European Committee for Standardization ESFRI - European Strategy Forum on Research Infrastructures	01/09/2015 31/03/2019	CON-IA		1	New real-drive brake cycle for chassis dynamometer	As responsible for Task 2.5 on Standards & Technology Requirement, JRC will steer the definition of real drive brake patterns and of a laboratory tests procedure to assess real drive brake emissions. JRC will also collect the inputs on strengths and weaknesses raised during the project with the aim of defining recommendations for future European Legislation, including emissions of brake particles and measurement procedure	31/03/2019	JRC technical reports
												5	Progress Report on ELSA Open - 2019	The deliverable will include the results of the evaluation by a User Selection Committee, according to the evaluation criteria and priority topics. It will present the final detailed design of the specimens, experimental set-up, testing sequence, instrumentation and data acquisition system for the selected projects. It will report on the progress of execution and technical results of the selected projects, depending on the time schedule and the type of project.	20/12/2019	JRC technical reports

JRC 2019 - 2020 DETAILED WORK PLAN

Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
219 - Photovoltaic Energy JRC.C.2	6407 - PV Standard Standardization Activity on testing and/or calculation methods for	The aim of the work package is to develop and finalise a reference document in agreement with stakeholders detailing requirements of testing and/or calculation methods (either from already published standards, or from standards under developments or proposing transitional methods developed in this study) regarding the energy performance of solar photovoltaic panels and	JRC.C.2	4.1.a	GROW	GROW	ENER ENV		01/09/2017 31/12/2020	CON-AA	1802	Transitional method for PV modules, inverters, components and systems	This document contains proposal for the establishment of transition methods in order to facilitate the introduction of regulations governing ECODESIGN, ECOLabel, Energy Label and GPP.	30/09/2019	Technical Reports

JRC 2019 - 2020 DETAILED WORK PLAN															
Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
5090 - Employment & Skills JRC.B.4	6429 - SNE Social networks & entrepreneurship	The WP will design and implement a pilot project to foster entrepreneurship by creating a vibrant virtual network of entrepreneurs across different regions of Europe. On top of the social network capacity building qualities, the entrepreneurs will be supported through business training and facilitated access to venture capital. The impact of the intervention will be assessed through a Randomised Control Trial (RCT) that can significantly reduce bias in the estimation of treatment effects. The concept of the project has been validated in a RCT in Africa (2015-17) with the involvement of JRC B7 staff (http://www.adansonina.net). The rationale underlying the project is that peer social network play a key role in the development of ideas which in turn translate into as sound and successful businesses. The important advantage of harnessing assets of IT technology is that it allows creating distant and thus heterogeneous communities and it allows for cross-pollination of ideas. What is more, it renders the mechanism easily scalable, thus efficient and capable of involving a large number of entrepreneurs. It would aim at creating a large virtual social network of 2000 social entrepreneurs across Europe supported by the network of seasoned venture capitalists. It would promote knowledge diffusion and cooperation in the area of social	JRC.B.7	4.1.a	GROW	GROW,J RC	EAC SG		01/01/2018 31/12/2020	CON-AA,INS-RS	3	Final policy report	The final policy report will contain a summary of the context, aims, methodology, implementation and results of the research project. It will also point to a potential future research agenda with focus on institutional strategy building for a wider application and study of the policy instrument	30/06/2019	Technical systems
											1	First interim progress report	This report will take stock of all activities up to month 6 of the study. It will provide details on the management of the work and finances in the reference period. In particular, it will indicate: the quantity of the work performed during the reference period; changes occurred to previous planning; the estimated work programme for the next reference period; the financial situation of the study.	30/06/2019	Technical systems
											2	Second interim progress report	Second interim progress report This report will take stock of all activities up to month 12 of the study. It will provide details on the management of the work and finances in the reference period. In particular, it will indicate: the quantity of the work performed during the reference period; changes occurred to previous planning; the estimated work programme for the next reference period; the financial situation of the study.	31/12/2019	Technical Reports
437 - SAFE&CLEAN-CONSTRUCT JRC.E.4	6480 - Eurocodes Balkan Adoption and implementation of the Eurocodes in the Balkan region	The interest in the Eurocodes adoption and implementation in the non-EU Balkan countries is based on the opportunity for an advanced common standardization environment. Moreover, adoption and implementation of the Eurocodes will help the Candidate Countries to fully implement EU acquis at the time of accession and support Potential Candidate Countries to progressively align with the EU acquis. The JRC has offered scientific and technical support to non-EU Balkan countries within the E&I Action in 2013-2016. All countries in the region reported significant progress in the Eurocodes adoption at the workshop at Skopje in 2016. However, they face challenges, as there is a lack of relevant institutional support for the adoption and implementation of the Eurocodes. As a result, further effort and technical assistance is necessary to support the introduction of the Eurocodes into the national regulatory environment which is a basic step in full implementation. EU experts can share knowledge with competent organizations in non-EU Balkan countries on technical methods and techniques underpinning EU policy implementation. Additionally, there is a need for creating a regional platform to enhance collaboration within the Balkan countries on the adoption and implementation of the Eurocodes. Of particular importance is the harmonization of seismic hazard, snow, wind and thermal maps. This will be supported by the establishment of a Eurocodes Community of Practice at the Balkan region.	JRC.E.4	4.1.a	GROW	JRC	NEAR	CC EU - Candidate Countries EU Reg Aut Entr - Candidate Countries / Members States regulatory authorities on Enterprise	01/01/2018 31/12/2021	INS-E&IA	2	Open source training material on seismic design of building and bridge structures with Eurocodes	The training material, the presentations and eventually audio-visual material from the summer school on the seismic design with the Eurocodes will be made available on the Eurocodes website for free download, thus spinning-off the impact of the event worldwide. The event will provide an opportunity to build on the experience, initiatives and difficulties concerning the implementation of the European standards and policies for construction in the Balkan Region. A JRC Report with a summary of the training material and impact assessment of the event and conclusions will be prepared.	16/12/2020	Technical Reports
											3	Roadmap for maintaining the existing Eurocodes and preparing for the second generation of the Eurocodes	The material presented at the workshop in 2020 with the representatives of the National Authorities and National Standardization Bodies will form a basis of a JRC report/manual on the roadmap for maintaining the existing Eurocodes and keeping pace with the coming-up of second generation of the Eurocodes. The experience and results of creating a regional platform (Community of Practice) to enhance collaboration within the Balkan countries on the adoption and implementation of the Eurocodes will be disseminated. Particular attention will be paid on the harmonization of seismic hazard, snow, wind and thermal maps of the Balkan countries with the support of the established regional Community of Practice. The report is aimed to build administrative capacities in the respective authorities/regulators in the Balkan countries and other interested parts of the world (e.g. Horizon 2020 associated countries, Sri-Lanka).	16/12/2021	Technical Reports
437 - SAFE&CLEAN-CONSTRUCT JRC.E.4	6501 - SPSS-C1 Support to policies and standards for sustainable construction	The work planned is under Administrative Arrangements DG GROW on support to policies and standards for sustainable construction. The planned tasks are focused on: 1. Further harmonization and evolution of policies and technical tools in the field of sustainable construction: •IT support for the implementation and monitoring of the Eurocodes and other policies/tools •Facilitating the practical implementation and harmonized use of the Eurocodes and other policies/tools •New fields of application (adaptation of structural design to climate change, design of underground structures, technical needs for resource efficient construction,...) •Development of a fire engineering approach to be incorporated in the fire safety regulations of the EU Member States 2. Promotion of the construction sector outside the EU: 2. Fostering and coordinating promotion of the Eurocodes, European energy efficiency and resource efficiency policies and tools outside the EU The work will be performed in synergy with E.1 Unit and in collaboration with Disaster Risk Management Knowledge Centre and the Knowledge Centre for Territorial Policies. The activities contribute to the JRC transversal initiatives on Cities, SDGs, Resilience and Climate change adaptation.	JRC.E.4	4.1.a	GROW	GROW,G ROW,GR OW	CLIMA DEVCO ENV NEAR		01/07/2018 30/06/2021	CON-AA,CON-AA,CON-AA	2	Progress report on the work on support to policies and standards for sustainable construction during Year 1	The deliverable reports main results achieved during the work on the administrative arrangement in the period 1.07.2018 - 30.06.2019. It brings to the attention of DG GROW issues and discoveries which need to be considered in the policy assessment and policy design stages (e.g. state of harmonized use of the Eurocodes, state of international adoption and use, needs for standardization, needs for adaptation to climate change, etc.).	31/07/2019	Contributions to standards
											3	Progress report on the work on support to policies and standards for sustainable construction during Year 2	The deliverable reports main results achieved during the work on the administrative arrangement in the period 1.07.2019 - 30.06.2020. It brings to the attention of DG GROW issues and discoveries which need to be considered in the policy assessment and policy design stages (e.g. state of harmonized use of the Eurocodes, state of international adoption and use, needs for standardization, needs for adaptation to climate change, etc.).	31/07/2020	Contributions to standards
											4	Report on the state of policies and standards for sustainable construction 2021	The deliverable summarises the main achievements in the JRC work on the three-year programme of Administrative Arrangements with DG GROW (2018 - 2021). It encompasses the four contractual deliverables: Report on the maintenance of the Eurocodes IT tools; Report on the state of implementation and harmonized use of the Eurocodes; Report on the activities and findings in the new fields of application; Report on the activities and state of the promotion of the construction sector outside EU.	30/06/2021	Contributions to standards
											5	Progress report on the development of fire engineering approach in Year 2	The deliverable encompasses the achievements in the development of fire engineering approach in Year 2 (1.07.2019 - 30.06.2020) with a focus on : - exploring the content and the feasibility of a European fire safety code, - assessing standardization needs for incorporation of fire safety engineering in the regulatory frameworks of the Member States, - definition of needs for guidance and training for engineers.	31/07/2020	Technical Reports
											6	Report on the state of fire safety engineering in the EU in 2021	The deliverable reports main results on the development of European fire safety engineering approach, achieved during the work on the Administrative Arrangement in the period 1.07.2019 - 30.06.2021 (Year 2 and Year 3). It brings to the attention of DG GROW issues and discoveries which need to be considered in the policy assessment and policy design stages (e.g. , the feasibility of a European fire safety code; standardization needs (justification and scope of a new standardization Mandate to CEN for development of necessary fire safety standards, or, alternatively - recommendation to use ISO work in the regulations of the Member States), needs for guidance and training for engineers).	30/06/2021	Technical Reports
433 - SciNANO JRC.F.2	7539 - OUTREACH Training and research activities to support innovation and education in EU and Near neighbouring countries including Western Balkans countries	This WPK will ensure the implementation of an outreach strategy to promote effective communication, dissemination and education on scientific/technical progress and related regulatory practice developed in the NanoGovernance WPK. The goal is to support relevant EC stakeholders, i.e. regulators, industry (in particular SMEs) and scientists on regulatory science and innovation in the domain of advanced (nano)materials by organising dedicated training and providing open access to the JRC's Nanobiotechnology laboratory. Emphasis will be put on the use of nanotechnology (NT) and nanomaterials (NMs) in health products (including medical devices) and on the developing field of personalised medicine. This will be supported by JRC participation in the Horizon 2020 project "European Nanomedicine Characterisation laboratory".	JRC.F.2	4.1.a	GROW	JRC,JRC ,RTD,RT D	ENV NEAR RTD SANTE	CEFIC - European Chemical Industry Council (CEFIC) Chem Cos Pharm Food Agri EU - Competent Authorities of EU Member States Chemicals, Cosmetics, Pharmaceuticals, Food, and Agrochemicals Industry ECHA - European Chemicals Agency (ECHA)	01/01/2019 31/12/2022	CON-IA,CON-IA,INS-PC,INS-RS	1	Scientific publications of joint research activities with stakeholders and strategic partners	This deliverable consists in scientific publications related to collaborative scientific activities performed in the frame of the open nanobiotechnology laboratory, Memorandum of understanding and H2020 projects.	30/11/2019	Journal contributions (Clarivate)
											2	Contributions of the SCINANO project to the Open Science policy	The deliverable will summarize the training activities performed for institutions from EU member states, H2020 associated and EU neighbourhood countries, EU micro-regions and with world leader Strategic partners. Activities including dedicated training sessions and summer schools. Institutions include national competent authorities, regulators, academia and research centres.	30/11/2019	Training
204 - Compliance JRC.F.5	7782 - PCN Support to EU Product Compliance Network	On request of DG GROW scientific and technical support is provided on "preparatory actions for the EU product compliance network and market surveillance cooperation", based on Regulation 765/2008 and in the context of the Commission's proposal for a Regulation on Compliance and Enforcement COM(2017)795. Part of the work will be performed on the basis of experiences acquired by the JRC-hosted EU Reference Laboratories in monitoring the quality of national official control authorities. The activities requested here in the area of market surveillance of non-food products include:	JRC.F.5	4.1.a	GROW	GROW		Cust Aut MS - MS Customs Authorities MS EU - Member states EU	01/01/2019 31/12/2020	CON-AA	2019	Support to DG GROW in 2019 on an EU product compliance	Non-public overview about the support provided to DG GROW in 2019, related to the identification of key analytical methodologies and mapping of testing facilities in the Members States to aid the consolidation of an 'EU product compliance network'.	30/11/2019	Technical Reports
											2020	Support to DG GROW in 2020 on an EU product compliance network	Non-public overview about the support provided to DG GROW in 2020, related to the further development actions for advancing the 'EU product compliance network'.	30/11/2020	Technical Reports

JRC 2019 - 2020 DETAILED WORK PLAN

Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
<p>4.1.b Space strategy - continuously monitor and assess the European Global Navigation Satellite System (EGNSS) industrial supply chains; provide technical support for applications, implementation and further development of services, including Galileo Public Regulated Service and security, spatial information analysis and data dissemination tools for Copernicus and EU contributions to civil and international space dialogues taking place primarily through CEOS (Committee on Earth Observation Satellites) and GEO (Group on Earth Observation). Services and products of the Copernicus programme also contribute to common agriculture policy implementation (key orientation 1.1.a), marine environment monitoring (key orientation 1.3.1.a), atmosphere monitoring (key orientation 1.3.3.b), the monitoring of greenhouse gas emissions (key orientation 3.1.1.b) and other climate change-related information and climate services (key orientation 3.1.3.a), indices and quantitative analyses of economic, social and environmental cohesion and development (key orientation 1.6.b), maritime security (key orientation 1.4.b), the fight against irregular migration and trafficking in human beings (key orientation 8.1.a), disaster resilience, emergency and crisis management (key orientation 9.1.1.a) and international cooperation and development (key orientations 9.2.2.a and 9.2.3.b), including in the Arctic region (key orientation 3.1.3.a). Expand the collaborative big data analytics platform for all the aforementioned key orientations in combination with other relevant data sources.</p>															
564 - EOC JRC.D.6	750 - EOSS Earth Observation Support to Copernicus Climate and Marine Services	EOSS supports the EU long-term objective to guarantee accuracy and reliability of information on marine environment and security. It consequently contributes to benefiting from the huge Copernicus investment in Earth Observation (EO) technology and space missions. Specifically, within the context of the Copernicus Marine Environment Monitoring Service and of the marine component of the Climate Change Service, EOSS ensures policy support and science deliverables through: I. Access and application of highly accurate in situ reference data for the permanent calibration and validation (cal/val) of marine EO data products by relying on consolidated know-how, laboratories and distributed infrastructures allowing to perform autonomous measurements at a number of fixed sites in European seas and manned measurements through oceanographic campaigns in collaboration with Member States; II. Standardization of field and laboratory measurement methods for the generation of highly accurate in situ data by focusing on the reduction of uncertainties through the comprehensive characterization and calibration of instruments; III. Generation of EO state-of-art ocean colour reference data sets of Essential Climate Variables (ECV) by composing multi-mission EO data products accounting for carefully quantified uncertainties; IV. Assessment of EO marine data candidate to the creation of Climate Data Records (CDR) through direct comparisons of EO and in situ data, and with the aid of radiative transfer simulations; V. Development and application of advanced statistical methods to evaluate ocean biosphere variability and trends through the application of EO data products. EOSS activities at large will benefit of the JRC representation in international organizations and in application of the Reg. (EU) No 1285/2013, DG GROW, Dir J, is responsible for the management of the EU GNSS programmes, Galileo and EGNOS. JRC will continue to develop its know-how and expertise to support these two Programmes carrying out technical studies and measurement campaigns to support the development of services and of technologies relevant to Galileo and EGNOS. This WPK will be developed in close collaboration with the partners of DG GROW, Dir J, and will include specific support to activities such as the study of robust approaches for improving GNSS resilience. An additional objective of the WPK is the anticipation of future policy needs in the EU GNSS programmes. In this respect, targeted studies assessing innovative methods/techniques improving	JRC.D.2	4.1.b	GROW	JRC	CLIMA ECHO ENV	- EUROPEAN SPACE AGENCY NIST - National Institute of Standards and Technology CEOS - Committee on Earth Observation Satellites (CEOS) EUMETSAT - European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) GCOS - Global Climate Observing System (GCOS) NASA - NASA - National Aeronautics and Space Administration NOAA - National Oceanic and Atmospheric Administration	01/01/2016 31/12/2020	INS-RS	201901	Fitness-for-Purpose of Copernicus EO Marine Climate Data	In agreement with the need for continuous calibration and validation of Copernicus EO data, a Technical Report will further address the fitness-for-purpose of ocean color climate and environmental data products. Specifically, it will summarize achievements on the assessment of EO data at different geographic scales for the European Seas and the Arctic Ocean. The deliverable will include achievements on: i. inter-comparisons of EO data products and time-series of in situ reference measurements performed in various European seas; ii. statistical analyses of merged EO multi-mission data addressing the fulfillment of accuracy requirements for climate applications; iii. radiative transfer simulations targeted to investigate uncertainties affecting system vicarious calibrations of ocean color sensors; iv. bio-optical algorithms for EO products in optically complex coastal regions; v. experimental and theoretical quantification of uncertainties affecting both EO and in situ reference data.	31/12/2019	Technical Reports
564 - EOC JRC.D.6	750 - EOSS Earth Observation Support to Copernicus Climate and Marine Services	EOSS supports the EU long-term objective to guarantee accuracy and reliability of information on marine environment and security. It consequently contributes to benefiting from the huge Copernicus investment in Earth Observation (EO) technology and space missions. Specifically, within the context of the Copernicus Marine Environment Monitoring Service and of the marine component of the Climate Change Service, EOSS ensures policy support and science deliverables through: I. Access and application of highly accurate in situ reference data for the permanent calibration and validation (cal/val) of marine EO data products by relying on consolidated know-how, laboratories and distributed infrastructures allowing to perform autonomous measurements at a number of fixed sites in European seas and manned measurements through oceanographic campaigns in collaboration with Member States; II. Standardization of field and laboratory measurement methods for the generation of highly accurate in situ data by focusing on the reduction of uncertainties through the comprehensive characterization and calibration of instruments; III. Generation of EO state-of-art ocean colour reference data sets of Essential Climate Variables (ECV) by composing multi-mission EO data products accounting for carefully quantified uncertainties; IV. Assessment of EO marine data candidate to the creation of Climate Data Records (CDR) through direct comparisons of EO and in situ data, and with the aid of radiative transfer simulations; V. Development and application of advanced statistical methods to evaluate ocean biosphere variability and trends through the application of EO data products. EOSS activities at large will benefit of the JRC representation in international organizations and in application of the Reg. (EU) No 1285/2013, DG GROW, Dir J, is responsible for the management of the EU GNSS programmes, Galileo and EGNOS. JRC will continue to develop its know-how and expertise to support these two Programmes carrying out technical studies and measurement campaigns to support the development of services and of technologies relevant to Galileo and EGNOS. This WPK will be developed in close collaboration with the partners of DG GROW, Dir J, and will include specific support to activities such as the study of robust approaches for improving GNSS resilience. An additional objective of the WPK is the anticipation of future policy needs in the EU GNSS programmes. In this respect, targeted studies assessing innovative methods/techniques improving	JRC.D.2	4.1.b	GROW	JRC	CLIMA ECHO ENV	- EUROPEAN SPACE AGENCY NIST - National Institute of Standards and Technology CEOS - Committee on Earth Observation Satellites (CEOS) EUMETSAT - European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) GCOS - Global Climate Observing System (GCOS) NASA - NASA - National Aeronautics and Space Administration NOAA - National Oceanic and Atmospheric Administration	01/01/2016 31/12/2020	INS-RS	202001	Fitness-for-Purpose of Copernicus EO Marine Climate Data	With reference to the Copernicus Sentinel-3A and 3B missions (i.e., S3A and S3B), the fitness-for-purpose of ocean color data to support global environmental and climate applications will be further documented in a Technical Report concurring with the need to ensure continuous calibration and validation to Copernicus EO data products. The Report will summarize advances on the assessment of combined S3A and S3B data products, and in agreement with best practices, it will include: i. comparisons of EO data with in situ geographically distributed measurements; ii. statistical analyses of S3A and S3B data aimed at quantifying mission-specific biases in data products; iii. radiative transfer simulations targeted to support multi-mission system vicarious calibrations; iv. bio-optical modelling centered on the improvement of regional EO data products; v. advances on the experimental and theoretical quantification of uncertainties affecting both EO and in situ reference data.	31/12/2020	Technical Reports
346 - GALILEO JRC.E.2	848 - GALINNOVA Innovative Solutions to Support the EU Navigation Programmes	EOSS supports the EU long-term objective to guarantee accuracy and reliability of information on marine environment and security. It consequently contributes to benefiting from the huge Copernicus investment in Earth Observation (EO) technology and space missions. Specifically, within the context of the Copernicus Marine Environment Monitoring Service and of the marine component of the Climate Change Service, EOSS ensures policy support and science deliverables through: I. Access and application of highly accurate in situ reference data for the permanent calibration and validation (cal/val) of marine EO data products by relying on consolidated know-how, laboratories and distributed infrastructures allowing to perform autonomous measurements at a number of fixed sites in European seas and manned measurements through oceanographic campaigns in collaboration with Member States; II. Standardization of field and laboratory measurement methods for the generation of highly accurate in situ data by focusing on the reduction of uncertainties through the comprehensive characterization and calibration of instruments; III. Generation of EO state-of-art ocean colour reference data sets of Essential Climate Variables (ECV) by composing multi-mission EO data products accounting for carefully quantified uncertainties; IV. Assessment of EO marine data candidate to the creation of Climate Data Records (CDR) through direct comparisons of EO and in situ data, and with the aid of radiative transfer simulations; V. Development and application of advanced statistical methods to evaluate ocean biosphere variability and trends through the application of EO data products. EOSS activities at large will benefit of the JRC representation in international organizations and in application of the Reg. (EU) No 1285/2013, DG GROW, Dir J, is responsible for the management of the EU GNSS programmes, Galileo and EGNOS. JRC will continue to develop its know-how and expertise to support these two Programmes carrying out technical studies and measurement campaigns to support the development of services and of technologies relevant to Galileo and EGNOS. This WPK will be developed in close collaboration with the partners of DG GROW, Dir J, and will include specific support to activities such as the study of robust approaches for improving GNSS resilience. An additional objective of the WPK is the anticipation of future policy needs in the EU GNSS programmes. In this respect, targeted studies assessing innovative methods/techniques improving	JRC.E.2	4.1.b	GROW	JRC, JRC	CNECT ENER HOME	- EUROPEAN SPACE AGENCY EUROCONTROL - European Organisation for the Safety of Air Navigation (EUROCONTROL) GSA - European GNSS Agency	01/01/2017 31/01/2020	INS-PC, INS-RS	D4	ESA/JRC International GNSS summer school - 2019	The JRC will continue co-organizing the ESA/JRC summer school on GNSS. The deliverable will consist of the organization of this annual event and of the preparation of lectures and labs.	30/09/2019	Training
346 - GALILEO JRC.E.2	848 - GALINNOVA Innovative Solutions to Support the EU Navigation Programmes	EOSS supports the EU long-term objective to guarantee accuracy and reliability of information on marine environment and security. It consequently contributes to benefiting from the huge Copernicus investment in Earth Observation (EO) technology and space missions. Specifically, within the context of the Copernicus Marine Environment Monitoring Service and of the marine component of the Climate Change Service, EOSS ensures policy support and science deliverables through: I. Access and application of highly accurate in situ reference data for the permanent calibration and validation (cal/val) of marine EO data products by relying on consolidated know-how, laboratories and distributed infrastructures allowing to perform autonomous measurements at a number of fixed sites in European seas and manned measurements through oceanographic campaigns in collaboration with Member States; II. Standardization of field and laboratory measurement methods for the generation of highly accurate in situ data by focusing on the reduction of uncertainties through the comprehensive characterization and calibration of instruments; III. Generation of EO state-of-art ocean colour reference data sets of Essential Climate Variables (ECV) by composing multi-mission EO data products accounting for carefully quantified uncertainties; IV. Assessment of EO marine data candidate to the creation of Climate Data Records (CDR) through direct comparisons of EO and in situ data, and with the aid of radiative transfer simulations; V. Development and application of advanced statistical methods to evaluate ocean biosphere variability and trends through the application of EO data products. EOSS activities at large will benefit of the JRC representation in international organizations and in application of the Reg. (EU) No 1285/2013, DG GROW, Dir J, is responsible for the management of the EU GNSS programmes, Galileo and EGNOS. JRC will continue to develop its know-how and expertise to support these two Programmes carrying out technical studies and measurement campaigns to support the development of services and of technologies relevant to Galileo and EGNOS. This WPK will be developed in close collaboration with the partners of DG GROW, Dir J, and will include specific support to activities such as the study of robust approaches for improving GNSS resilience. An additional objective of the WPK is the anticipation of future policy needs in the EU GNSS programmes. In this respect, targeted studies assessing innovative methods/techniques improving	JRC.E.2	4.1.b	GROW	JRC, JRC	CNECT ENER HOME	- EUROPEAN SPACE AGENCY EUROCONTROL - European Organisation for the Safety of Air Navigation (EUROCONTROL) GSA - European GNSS Agency	01/01/2017 31/01/2020	INS-PC, INS-RS	D9	GNSS Resilience against Natural and Man-made Threats	This deliverable will gather scientific/technical publications, training activities other than the GNSS Summer School, and organization of sessions at international conferences, all of them addressing the issue of improving resilience of GNSS services against natural (e.g., ionospheric disturbances) and man-made (e.g., spoofing and jamming) threats. A follow-up of the discussions in expert groups such as the US/EU WG-C subgroup on Resilience will be made.	31/12/2019	Article contribution to periodicals or to conference proceedings listed in the
564 - EOC JRC.D.6	900 - SPACE-CIS Space Policy and support to the Implementation of the Copernicus Climate and Global Land Services	The Copernicus Programme (Regulation (EU) No 377/2014), defined as "Europe's eyes on Earth", aims to monitor the global environment for civil protection and security, and to maximise socio-economic benefits and growth (Art. 4). Fully supporting the role of the Commission in the governance of Copernicus (Art. 9), this WPK ensures the implementation and further evolution of the Global Land Component of the Copernicus Global Land Service, especially addressing needs for the Sustainable Development Goals (SDGs), food security and international initiatives such as Reducing Emissions from Deforestation and Forest Degradation+ (REDD+) as well as applications and analysis tools. The WPK maintains and reinforces relationships with third countries and international organisations (as required by the Regulation), and contributes to the development of the new "European Strategy for International Relations in Space".	JRC.D.6	4.1.b	GROW	JRC	AGRI CLIMA DEVCO ECHO ENV	FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) CEOS - Committee on Earth Observation Satellites (CEOS) GCOS - Global Climate Observing System (GCOS) GEO - The Group on Earth Observations UNCCD - United Nations Convention to Combat Desertification (UNCCD) UNEP - United Nations Environment Programme (UNEP) WMO - World Meteorological Organization (WMO)	02/01/2017 31/12/2020	INS-RS	201801	Implementation of Copernicus products	Consolidation of the Global Land Component of the Copernicus Land Service, in line with the sub-delegation agreement between DG GROW and the JRC, in support of Art.9 of Reg.(EU)No377/2014. This includes (i) ad hoc support to DG GROW, (ii) fostering synergies between the Copernicus services and beyond, and with ESA, (iii) evaluation of the policy use and of the Copernicus uptake by policy units. This deliverable is linked to WPKs Copernicus2, CLEO, GMES&Africa in D.6 but connects also within directorate D to D2 (EOSS) and D5 as well as to directorates E (E1, E7) and I (EO&SS Big Data project).	20/12/2019	Science-for-policy reports
564 - EOC JRC.D.6	900 - SPACE-CIS Space Policy and support to the Implementation of the Copernicus Climate and Global Land Services	The Copernicus Programme (Regulation (EU) No 377/2014), defined as "Europe's eyes on Earth", aims to monitor the global environment for civil protection and security, and to maximise socio-economic benefits and growth (Art. 4). Fully supporting the role of the Commission in the governance of Copernicus (Art. 9), this WPK ensures the implementation and further evolution of the Global Land Component of the Copernicus Global Land Service, especially addressing needs for the Sustainable Development Goals (SDGs), food security and international initiatives such as Reducing Emissions from Deforestation and Forest Degradation+ (REDD+) as well as applications and analysis tools. The WPK maintains and reinforces relationships with third countries and international organisations (as required by the Regulation), and contributes to the development of the new "European Strategy for International Relations in Space".	JRC.D.6	4.1.b	GROW	JRC	AGRI CLIMA DEVCO ECHO ENV	FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) CEOS - Committee on Earth Observation Satellites (CEOS) GCOS - Global Climate Observing System (GCOS) GEO - The Group on Earth Observations UNCCD - United Nations Convention to Combat Desertification (UNCCD) UNEP - United Nations Environment Programme (UNEP) WMO - World Meteorological Organization (WMO)	02/01/2017 31/12/2020	INS-RS	201802	Evolution of the Copernicus Global Land service	Supporting the Commission on the appropriate evolution and development of Copernicus Services, Reg.(EU)No377/2014-Art.9.4; Potential near-mature products are ramped up to pre-operational stages, building value-chain approaches. Including HR land surface water occurrences, phenological variables, land system productivity and degradation and land cover dynamics. Products support SDGs and international partners such as UNCCD. This deliverable is linked to WPKs CLEO and GMES&Africa in D.6.	20/12/2019	JRC technical reports
564 - EOC JRC.D.6	900 - SPACE-CIS Space Policy and support to the Implementation of the Copernicus Climate and Global Land Services	The Copernicus Programme (Regulation (EU) No 377/2014), defined as "Europe's eyes on Earth", aims to monitor the global environment for civil protection and security, and to maximise socio-economic benefits and growth (Art. 4). Fully supporting the role of the Commission in the governance of Copernicus (Art. 9), this WPK ensures the implementation and further evolution of the Global Land Component of the Copernicus Global Land Service, especially addressing needs for the Sustainable Development Goals (SDGs), food security and international initiatives such as Reducing Emissions from Deforestation and Forest Degradation+ (REDD+) as well as applications and analysis tools. The WPK maintains and reinforces relationships with third countries and international organisations (as required by the Regulation), and contributes to the development of the new "European Strategy for International Relations in Space".	JRC.D.6	4.1.b	GROW	JRC	AGRI CLIMA DEVCO ECHO ENV	FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) CEOS - Committee on Earth Observation Satellites (CEOS) GCOS - Global Climate Observing System (GCOS) GEO - The Group on Earth Observations UNCCD - United Nations Convention to Combat Desertification (UNCCD) UNEP - United Nations Environment Programme (UNEP) WMO - World Meteorological Organization (WMO)	02/01/2017 31/12/2020	INS-RS	201803	Relationships with third countries & international organisations	Supporting the Commission's role on the governance of Copernicus, Reg.(EU)No377/2014-Art.9.2.: reporting & advice to the EU's space dialogues provided through partnerships with space agencies and EO users outside the EU. Input to CEOS, GEO, WMO, GCOS, promoting and providing feedback to the Copernicus Programme on appropriate international engagement. Contributes to the Africa project and the SDG project of directorate D by establishing roadmaps to implement thematic action plans & workshops.	20/12/2019	JRC contributions to policy documents
564 - EOC JRC.D.6	900 - SPACE-CIS Space Policy and support to the Implementation of the Copernicus Climate and Global Land Services	The Copernicus Programme (Regulation (EU) No 377/2014), defined as "Europe's eyes on Earth", aims to monitor the global environment for civil protection and security, and to maximise socio-economic benefits and growth (Art. 4). Fully supporting the role of the Commission in the governance of Copernicus (Art. 9), this WPK ensures the implementation and further evolution of the Global Land Component of the Copernicus Global Land Service, especially addressing needs for the Sustainable Development Goals (SDGs), food security and international initiatives such as Reducing Emissions from Deforestation and Forest Degradation+ (REDD+) as well as applications and analysis tools. The WPK maintains and reinforces relationships with third countries and international organisations (as required by the Regulation), and contributes to the development of the new "European Strategy for International Relations in Space".	JRC.D.6	4.1.b	GROW	JRC	AGRI CLIMA DEVCO ECHO ENV	FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) CEOS - Committee on Earth Observation Satellites (CEOS) GCOS - Global Climate Observing System (GCOS) GEO - The Group on Earth Observations UNCCD - United Nations Convention to Combat Desertification (UNCCD) UNEP - United Nations Environment Programme (UNEP) WMO - World Meteorological Organization (WMO)	02/01/2017 31/12/2020	INS-RS	201901	Consolidation of the Global Land Service within the Copernicus Umbrella	Exploit the Copernicus Global Land Service component in line with the sub-delegation agreement between DG GROW and the JRC and in support of Art.9 of Reg.(EU)No377/2014. This includes (i) ad hoc support to DG GROW, (ii) fostering synergies between the Copernicus services and beyond, and with ESA, (iii) preparing for continuation and extension of the Copernicus Land Service for the Horizon Europe framework under the MFF 9. This deliverable is linked to WPKs Copernicus2, CLEO, GMES&Africa in D.6 but connects also to D2 (EOSS) and directorates E (E1, E7) and I (EO&SS Big Data project).	15/12/2020	Technical Reports
564 - EOC JRC.D.6	900 - SPACE-CIS Space Policy and support to the Implementation of the Copernicus Climate and Global Land Services	The Copernicus Programme (Regulation (EU) No 377/2014), defined as "Europe's eyes on Earth", aims to monitor the global environment for civil protection and security, and to maximise socio-economic benefits and growth (Art. 4). Fully supporting the role of the Commission in the governance of Copernicus (Art. 9), this WPK ensures the implementation and further evolution of the Global Land Component of the Copernicus Global Land Service, especially addressing needs for the Sustainable Development Goals (SDGs), food security and international initiatives such as Reducing Emissions from Deforestation and Forest Degradation+ (REDD+) as well as applications and analysis tools. The WPK maintains and reinforces relationships with third countries and international organisations (as required by the Regulation), and contributes to the development of the new "European Strategy for International Relations in Space".	JRC.D.6	4.1.b	GROW	JRC	AGRI CLIMA DEVCO ECHO ENV	FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) CEOS - Committee on Earth Observation Satellites (CEOS) GCOS - Global Climate Observing System (GCOS) GEO - The Group on Earth Observations UNCCD - United Nations Convention to Combat Desertification (UNCCD) UNEP - United Nations Environment Programme (UNEP) WMO - World Meteorological Organization (WMO)	02/01/2017 31/12/2020	INS-RS	201902	Evolution of the Copernicus Global Land Service	Supporting the Commission on the appropriate evolution and development of Copernicus Services, Reg.(EU)No377/2014-Art.9.4. with: (i) Potential near-mature products are ramped up to pre-operational stages, building value-chain approaches, (ii) further developing the global water surface explorer, the land surface water occurrences, phenological variables, land system productivity & degradation, land cover dynamics, (iii) continued support to the planned development of the ground infrastructure of the European operational CO2 Monitoring and Verification Support capacity with the CO2 monitoring Task Force. Products support SDGs and international partners such as UNCCD and the Paris Agreement. Preparing for the evolution of the Copernicus service within the next MFF under the Horizon Europe framework programme. This deliverable is linked to WPKs CLEO and GMES&Africa in D.6.	15/12/2020	Journal contributions (Scopus)
564 - EOC JRC.D.6	900 - SPACE-CIS Space Policy and support to the Implementation of the Copernicus Climate and Global Land Services	The Copernicus Programme (Regulation (EU) No 377/2014), defined as "Europe's eyes on Earth", aims to monitor the global environment for civil protection and security, and to maximise socio-economic benefits and growth (Art. 4). Fully supporting the role of the Commission in the governance of Copernicus (Art. 9), this WPK ensures the implementation and further evolution of the Global Land Component of the Copernicus Global Land Service, especially addressing needs for the Sustainable Development Goals (SDGs), food security and international initiatives such as Reducing Emissions from Deforestation and Forest Degradation+ (REDD+) as well as applications and analysis tools. The WPK maintains and reinforces relationships with third countries and international organisations (as required by the Regulation), and contributes to the development of the new "European Strategy for International Relations in Space".	JRC.D.6	4.1.b	GROW	JRC	AGRI CLIMA DEVCO ECHO ENV	FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) CEOS - Committee on Earth Observation Satellites (CEOS) GCOS - Global Climate Observing System (GCOS) GEO - The Group on Earth Observations UNCCD - United Nations Convention to Combat Desertification (UNCCD) UNEP - United Nations Environment Programme (UNEP) WMO - World Meteorological Organization (WMO)	02/01/2017 31/12/2020	INS-RS	201903	Space policy support	(i) Supporting the Commission's role on the governance of Copernicus, Reg.(EU)No377/2014-Art.9.2.: reporting & advice to the EU's space dialogues provided through partnerships with space agencies and EO users outside the EU. (ii) Input to CEOS, GEO, WMO, GCOS, promoting and providing feedback to the Copernicus Programme on appropriate international engagement, and reaching out to WHO. (iii) Contributes to the Africa platform with data products on the land-use. (iv) Contributes to the Copernicus Climate Service and in particular to the European operational CO2 Monitoring and Verification support capacity.	15/12/2020	Science for Policy Briefs
222 - DRMKC JRC.E.1	3805 - FLOODS Supporting resilience to floods at local, national, European and global level	The main aims of the work package FLOODS are (1) to contribute to the evolution and management of the flood early warning component of the Copernicus Emergency Management Service through its European and Global Flood Awareness Systems (EFAS & GloFAS), and (2) to enhance the EU's capacity for managing and adapting to flood risks through the analytical support to DG ECHO's Emergency Response Coordination Centre, assessments for DG REGIO's Solidarity Fund or the support to the implementation of the Floods Directive. The work spans the entire risk management cycle (prevention, preparedness, crisis management and recovery) and throughout different stages of the policy cycle (anticipation, implementation and ad hoc support). The strengthening of European response capacities through rescEU and the stepping up of disaster prevention and preparedness as outlined in the new legislative proposal of the Union Civil Protection Mechanism represent new and increasing challenges to the work package FLOODS. New research such as big data assimilation of satellite observations into flood early warning systems, linking to other systems such as the Global Disaster Alert Coordination System (GDACS), integration of coastal flood risk, or the integration of social media information using artificial intelligence will be done considering the feedback of a large variety of stakeholders through expert meetings, workshops and collaborations. The WP will also perform underpinning research to develop impact-based early warning tools as a measure to increase preparedness for severe flood events and thus reduce the associated risks for the citizens, property and economy. The stakeholders range from policy and decision makers (e.g. DG ECHO, ENV, national civil protection), to national and local authorities (e.g. hydro-meteorological authorities), international organizations (e.g. ECMWF, Red Cross/Red Crescent Climate Center, ICPDR) and research institutions (e.g. CEMADEN, Dartmouth Flood Observatory, University of Reading, NCAR, NASA).	JRC.E.1	4.1.b	GROW	JRC	CLIMA ECHO ENV REGIO	- RIJKSINSTITUUT VOOR KUST EN ZEE, RIJKSWATERSTAAT - NASA HEADQUARTERS - EUROPEAN CENTRE FOR MEDIUM-RANGE WEATHER FORECASTS - National Center for Atmospheric Research - UNIVERSITY OF READING - Swedish Meteorological and Hydrological Institute - Ministerio de Medio Ambiente - Slovak Hydrometeorological Institute - Deutscher Wetterdienst FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) ICPDR - International Commission for the Protection of the Danube River DFO - Dartmouth Flood Observatory Deltares - Stichting Deltares FRONTEX - European Agency for the Management of Operational Cooperation GEO - The Group on Earth Observations	01/01/2016 31/12/2021	INS-RS	201901	Management and new developments for the Copernicus flood EWS	This deliverable contains two main tasks: 1.) Research & development of new products for the Copernicus flood early warning systems: To ensure the further evolution of the Copernicus flood EWS new products will be developed based on feedback from various end-users such as the ERCC, national authorities and the Copernicus user forum. This includes new data assimilation algorithms, improved hydrological models, integration of social media data, integration of coastal flooding as well as the development of impact based forecasts. 2.) Management of the Copernicus flood early warning systems: The JRC is the entrusted entity to manage the Copernicus Emergency Management Service (CEMS) of which the European and Global Flood Awareness Systems (EFAS & GloFAS) are part. This task contains drafting and follow up of framework & specific contracts, quality control of the delivered services, regular reporting and the ensuring of linkages with other Copernicus services or other relevant initiatives	31/12/2019	Article contribution to periodicals or to conference proceedings listed in SCOPUS
222 - DRMKC JRC.E.1	3805 - FLOODS Supporting resilience to floods at local, national, European and global level	The main aims of the work package FLOODS are (1) to contribute to the evolution and management of the flood early warning component of the Copernicus Emergency Management Service through its European and Global Flood Awareness Systems (EFAS & GloFAS), and (2) to enhance the EU's capacity for managing and adapting to flood risks through the analytical support to DG ECHO's Emergency Response Coordination Centre, assessments for DG REGIO's Solidarity Fund or the support to the implementation of the Floods Directive. The work spans the entire risk management cycle (prevention, preparedness, crisis management and recovery) and throughout different stages of the policy cycle (anticipation, implementation and ad hoc support). The strengthening of European response capacities through rescEU and the stepping up of disaster prevention and preparedness as outlined in the new legislative proposal of the Union Civil Protection Mechanism represent new and increasing challenges to the work package FLOODS. New research such as big data assimilation of satellite observations into flood early warning systems, linking to other systems such as the Global Disaster Alert Coordination System (GDACS), integration of coastal flood risk, or the integration of social media information using artificial intelligence will be done considering the feedback of a large variety of stakeholders through expert meetings, workshops and collaborations. The WP will also perform underpinning research to develop impact-based early warning tools as a measure to increase preparedness for severe flood events and thus reduce the associated risks for the citizens, property and economy. The stakeholders range from policy and decision makers (e.g. DG ECHO, ENV, national civil protection), to national and local authorities (e.g. hydro-meteorological authorities), international organizations (e.g. ECMWF, Red Cross/Red Crescent Climate Center, ICPDR) and research institutions (e.g. CEMADEN, Dartmouth Flood Observatory, University of Reading, NCAR, NASA).	JRC.E.1	4.1.b	GROW	JRC	CLIMA ECHO ENV REGIO	- RIJKSINSTITUUT VOOR KUST EN ZEE, RIJKSWATERSTAAT - NASA HEADQUARTERS - EUROPEAN CENTRE FOR MEDIUM-RANGE WEATHER FORECASTS - National Center for Atmospheric Research - UNIVERSITY OF READING - Swedish Meteorological and Hydrological Institute - Ministerio de Medio Ambiente - Slovak Hydrometeorological Institute - Deutscher Wetterdienst FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) ICPDR - International Commission for the Protection of the Danube River DFO - Dartmouth Flood Observatory Deltares - Stichting Deltares FRONTEX - European Agency for the Management of Operational Cooperation GEO - The Group on Earth Observations	01/01/2016 31/12/2021	INS-RS	201902	Knowledge sharing and ad-hoc support related to floods	Knowledge sharing with other international networks to foster uptake of science into decision and policy making on a better flood risk management is essential. Therefore, this deliverable includes the fostering of networks such as the Global Flood Partnership or the EFAS partnership, the collaboration with key partners under numerous JRC collaboration agreements such as the EU-Brazil dialogue, the JRC-NCAR collaboration, and JRC-Angola-EU Joint Action Plan and the contribution to DG ENV WG-F meetings, the ICPDR flood expert group and contributions to the DRMKC. In addition, DG ECHO's ERCC and DG REGIO's EUSF will be provided with specific scientific ad-hoc support in the case of exceptional floods.	31/12/2019	JRC technical reports
222 - DRMKC JRC.E.1	3805 - FLOODS Supporting resilience to floods at local, national, European and global level	The main aims of the work package FLOODS are (1) to contribute to the evolution and management of the flood early warning component of the Copernicus Emergency Management Service through its European and Global Flood Awareness Systems (EFAS & GloFAS), and (2) to enhance the EU's capacity for managing and adapting to flood risks through the analytical support to DG ECHO's Emergency Response Coordination Centre, assessments for DG REGIO's Solidarity Fund or the support to the implementation of the Floods Directive. The work spans the entire risk management cycle (prevention, preparedness, crisis management and recovery) and throughout different stages of the policy cycle (anticipation, implementation and ad hoc support). The strengthening of European response capacities through rescEU and the stepping up of disaster prevention and preparedness as outlined in the new legislative proposal of the Union Civil Protection Mechanism represent new and increasing challenges to the work package FLOODS. New research such as big data assimilation of satellite observations into flood early warning systems, linking to other systems such as the Global Disaster Alert Coordination System (GDACS), integration of coastal flood risk, or the integration of social media information using artificial intelligence will be done considering the feedback of a large variety of stakeholders through expert meetings, workshops and collaborations. The WP will also perform underpinning research to develop impact-based early warning tools as a measure to increase preparedness for severe flood events and thus reduce the associated risks for the citizens, property and economy. The stakeholders range from policy and decision makers (e.g. DG ECHO, ENV, national civil protection), to national and local authorities (e.g. hydro-meteorological authorities), international organizations (e.g. ECMWF, Red Cross/Red Crescent Climate Center, ICPDR) and research institutions (e.g. CEMADEN, Dartmouth Flood Observatory, University of Reading, NCAR, NASA).	JRC.E.1	4.1.b	GROW	JRC	CLIMA ECHO ENV REGIO	- RIJKSINSTITUUT VOOR KUST EN ZEE, RIJKSWATERSTAAT - NASA HEADQUARTERS - EUROPEAN CENTRE FOR MEDIUM-RANGE WEATHER FORECASTS - National Center for Atmospheric Research - UNIVERSITY OF READING - Swedish Meteorological and Hydrological Institute - Ministerio de Medio Ambiente - Slovak Hydrometeorological Institute - Deutscher Wetterdienst FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) ICPDR - International Commission for the Protection of the Danube River DFO - Dartmouth Flood Observatory Deltares - Stichting Deltares FRONTEX - European Agency for the Management of Operational Cooperation GEO - The Group on Earth Observations	01/01/2016 31/12/2021	INS-RS	202001	Management and new developments for the Copernicus flood EWS	This deliverable contains two main tasks: 1.) Research & development of new products for the Copernicus flood early warning systems: To ensure the further evolution of the Copernicus flood EWS new products will be developed based on feedback from various end-users such as the ERCC, national authorities and the Copernicus user forum. This includes new data assimilation algorithms, improved hydrological models, integration of social media data as well as the development of impact based forecasts. 2.) Management of the Copernicus flood early warning systems: The JRC is the entrusted entity to manage the Copernicus Emergency Management Service (CEMS) of which the European and Global Flood Awareness Systems (EFAS & GloFAS) are part. This task contains the drafting and follow up of framework & specific contracts, quality control of the delivered services, regular reporting and the ensuring of linkages and synergies with other Copernicus services or other relevant initiatives.	31/12/2020	Journal contributions (Scopus)

JRC 2019 - 2020 DETAILED WORK PLAN

Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category	
		The WP contributes to the Disaster Risk Management Knowledge Centre and underpins contractual work (PESETA and ERCC series of AA) and contributes to international frameworks such as the UNISDR Sendai Framework for Disaster Risk Reduction and the Global Flood Partnership.						Hydro Met Serv - National and regional hydrological and meteorological services IFRC - International Federation of Red Cross and Red Crescent Societies (IFRC) UN ISDR - United Nations				202002	Knowledge sharing and ad-hoc support related to floods	Knowledge sharing with other international networks to foster uptake of science into decision and policy making on a better flood risk management is essential. Therefore, this deliverable includes the fostering of networks such as the Global Flood Partnership or the EFAS partnership, the collaboration with key partners under numerous JRC collaboration agreements such as the EU-Brazil dialogue, the JRC-NCAR collaboration, and JRC-Angola-EU Joint Action Plan and the contribution to DG ENV WG-F meetings, the ICPDR flood expert group and contributions to the DRMKC. In addition, DG ECHO's ERCC and DG REGIO's EUSF will be provided with specific scientific ad-hoc support in the case of exceptional floods.	31/12/2020	Technical Reports
346 - GALILEO JRC.E.2	4869 - GALGROW Technical and policy support to EU Satellite Navigation Programmes	In application of the Regulation (EU) No 1285/2013 of the European Parliament and of the Council of 11 December 2013 on the implementation and exploitation of European Global Satellite Navigation Systems (GNSS) (OJ L 347, 20.23.2013, p.1), DG GROW, Directorate J, is responsible for the European GNSS (EGNSS) programmes, Galileo and EGNOS. Through this project JRC is supporting the EU Satellite Navigation Programmes both at DG GROW and the GSA, ensuring continuity with the support activity already provided in the last few years in response to the increasing demand for scientific/technical support on GNSS coming from GROW.	JRC.E.2	4.1.b	GROW	GROW,G ROW,GR OW,GRO W	GSA - European GNSS Agency	01/01/2019 31/12/2020	CON- AA,CON- AA,CON- AA,CON- AA,INS-RS	GROW01	Scientific and Technical Support in the context of Galileo Enhanced Services	Following the declaration of Early services in 2017, within the timeframe 2018-2019 a new milestone is planned for Galileo to increase its commitment in terms of user performance. In this context JRC will support GROW through measurements and performance analysis first to shape the new commitment targets and second to verify that the commitments are kept. New figures of merit will be defined and verified, including Position Dilution of Precision and Position Accuracy. Several Technical and Policy reports will be prepared under this deliverable.	31/12/2019	Technical Reports		
		GROW02								Galileo Signals, Compatibility and Interoperability	With this deliverable JRC will contribute to the design of Galileo Second generation signals and to the assessment of their compatibility and interoperability with other GNSS.	31/12/2019	Science for Policy reports			
		GROW03								Technical Conduct of H2020 Galileo Mission and Service	JRC is appointed by GROW as technical officer for various H2020 procurements on Galileo Mission and Service, funded by GROW. These include procurements on Galileo Services definition, development of models, innovative ideas, specific tools, and many others. Within this deliverable such activity will be performed in 2019 and 2020	31/12/2020	Technical Reports			
		GSA01								Support on Galileo Second Generation Development	With this deliverable JRC will support the Galileo department of the GSA under various tasks related with the development of the second generation of Galileo	31/12/2019	Science for Policy reports			
		GSA02								Galileo Receivers Testing and Measurement Campaigns	Within this deliverable JRC will report the results of various testing and measurement campaign that are carried in support to GSA in order to verify the maturity of Galileo user segment technology and to foster the development of new applications and services. The work will be performed under various different campaigns in 2019 and 2020	31/12/2020	Technical Reports			
		GrowReport								Support to EU GNSS Programmes	As agreed in the technical annex to the GALGROW AA, GALGSA SLA and the GALPRS SLA, JRC has to produce half-yearly progress reports. With this deliverable JRC will document the activities performed in 2019 and 2020, providing an overview of the tasks and of all the produced outputs. Project management aspects will be also covered.	31/12/2020	Technical Reports			
		GrowSupplyChain								Prototype report on EGNSS supply chains monitoring	The report will include the preliminary results of the EGNSS supply chains monitoring (ESCM). The methodology for ESCM will follow the approach used by DG GROW.J.1 in 2017. The format of the report (document, ppt) will be decided together with DG GROW.J.1 during 2019. Apart from the results themselves, the report will also include assessment of the methodology, recommendations for further methodology development, resource allocations, time management and forward planning. The report will be classified EU RESTRICTED.	31/12/2019	Technical Reports			
		GsaReport								Support to European GNSS Agency	As agreed in the technical annex to the GALGSA SLA, JRC has to produce half-yearly progress reports. With this deliverable JRC will document the activity performed in 2019 and 2020, providing an overview of the tasks and of all the produced outputs. Project management aspects will be also covered.	31/12/2020	Technical Reports			
		PRS01								Support to the Development and Testing of PRS User Segment	As agreed in the technical annex to the GALPRS SLA, JRC will perform a number of critical support activities to GSA and GROW in the context of Galileo PRS user segment development. On one side technical support will be provided in the conduct of GSA projects aiming to the development of PRS equipment. On the other side through the new Galileo PRS User Segment lab established within JRC we will perform testing activities in order to validate solutions developed under GSA and GROW procurement.	31/12/2019	JRC technical reports			
		PRS02								PRS User Segment Test Vectors	Within this deliverable JRC will document the work performed to develop and distribute Galileo Test Vectors (GTV) for PRS receivers. GTV are an essential element to test PRS receivers security modules and need to be prepared and customized depending on the specific equipment to be tested. Potentially all European Competent PRS authorities will be interfaced within this task, depending on the specific needs. all this will be done under the supervision and coordination of GSA.	31/12/2020	Reference materials			
PrsReport	Scientific and Technical Support on PRS	As agreed in the technical annex to the GALPRS SLA, JRC has to produce half-yearly progress reports. With this deliverable JRC will document the activity performed in 2019 and 2020, providing an overview of the tasks and of all the produced outputs. Project management aspects will be also covered.	31/12/2020	Technical Reports												

JRC 2019 - 2020 DETAILED WORK PLAN															
Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
564 - EOC JRC.D.6	4871 - CLEO Copernicus Land Observation quality assurance	This work package (WP) aims to assess the quality assurance of space- and ground-based land products and their retrieved methodologies. Fitness for purpose of the Copernicus data records will be ensured, meaning that the expected users quality requests are verified in order to establish fundamental priorities for the long term of Copernicus implementation. Specifically, the goals are to evaluate the overall performance of Copernicus products, mainly with regard to users' information needs and high level requirements and translate findings into recommendations into programmatic and technical requirements. CLEO contributes to the the JRC contractual obligations for the long term support to the overall Copernicus fitness for purpose linked to (EU)N0377/2014 regulation. The tasks include 1) a state-of-the-art 3D-Radiative Transfer model-based approach for achieving reference data used for product and algorithm validation, 2) benchmark with international outputs and 3) assessment of physical consistency between products. Web-based quality assurance tools will be developed. In addition, uncertainty framework for fossil fuel emissions developed in the framework on CHE project is proposed.	JRC.D.6	4.1.b	GROW	JRC	CLIMA ENV	ESA - European Space Agency - Italia CEOS - Committee on Earth Observation Satellites (CEOS) GCOS - Global Climate Observing System (GCOS) UN FCCC - UN Framework Convention on Climate Change (UN-FCCC) WMO - World Meteorological Organization (WMO)	01/01/2017 31/12/2020	CON-IA,INS-RS	201901CL EO	Quality Control of Copernicus Data	This deliverable aims at presenting the results of Copernicus land products' quality control including benchmark against third-party data. This report include Sentinel 3A and 3B and Copernicus Service products.	31/12/2019	Technical Reports
											201902CH E	Development of a new Copernicus service to monitor human CO2 emissions.	Development of the ground infrastructure component of a European operational CO2 monitoring and verification support capacity: assessment of the uncertainty of bottom-up CO2 human emissions estimate and spatial representativeness of gridded input for the inverse modeling (second year report of chair as result of H2020 CO2 Human Emissions WP3 in collaboration with external partners)	31/12/2019	Journal contributions (Scopus)
											202001CL EO	Assessment of ECVs uncertainties during Copernicus first phase	This deliverable will summarize the findings during the first years of Copernicus program with emphasizes on assessment of uncertainties progress over terrestrial surfaces.	31/12/2020	Journal contributions (Scopus)
											202002CH E	Uncertainty evaluation of the human CO2 emissions part monitored under a new Copernicus service	Assessment of the uncertainty trade-off for fossil fuel emissions in the human CO2 monitoring and verification support capacity buildup (final report of WP3 chair on the CO2 Human Emissions H2020 project, in collaboration with external partners).	31/12/2020	Technical Reports
153 - DT&AI JRC.B.6	4884 - EOValue Socio-economic value of EO Research and Innovation	This work package will support DG RTD in the coordination and support of the evolution of the (GEOSS) Common Infrastructure (GCI) and address the needs of GEOSS users particularly in the GEOSS initiatives or "flagships". These new developments in the GCI will include its adaptation in view of the delivery of Earth Observation (EO) services and products in the different GEO Societal Benefit Areas (SBAs) in particular by the commercial sector. The developments will include measures to sustain the GCI in the long term, and coordination between the European GEOSS Data Hub (Horizon 2020 project), the initiative of the 2017-2019 GEO Work Programme (GEOSS-	JRC.B.6	4.1.b	RTD	RTD	CNECT DIGIT GROW		15/12/2017 14/12/2020	CON-AA	20191	Private sector exploitation of Open GEO data	This technical report analysis the opportunities and perceived limitations in the exploitation of open Earth Observation (EO) and GEOSS open data CORE by the European private sector, and SMEs in particular. This activity is based on the results of a survey focus group and workshop held to elicit the views of the private sector and make recommendations to DG RTD and the GEO Programme Board.	02/09/2019	JRC technical reports
											20201	Evolution of the GEOSS Common Infrastructure	A final report on the evolution of the GEOSS Common Infrastructure.	01/09/2020	JRC technical reports
564 - EOC JRC.D.6	5045 - Copernicus 2 Administrative Arrangement on Technical support to Copernicus Programme	Multi-annual Administrative Arrangement with DG GROW on the JRC technical support to the Copernicus Programme. Including: management of the Copernicus operational services for Emergency Management and Global Land; detached staff to the Copernicus Units in DG GROW, data information architecture support, quality control and evaluation of Copernicus Services, in-situ reference datasets for calibration and validation, fitness for purpose of Copernicus Products and Services for EU Policy	JRC.D.6	4.1.b	GROW	GROW	AGRI CLIMA CNECT DEVCO ECHO ENER ENV HOME		01/10/2017 30/09/2020	CON-AA	2019	Yearly Report	Copernicus 2 AA 2019 report	30/10/2019	JRC technical reports
											2020	Yearly Report	Copernicus 2 AA 2020 report	30/10/2020	JRC technical reports
564 - EOC JRC.D.6	5600 - METEOC 3 Metrology for Earth Observation and Climate 3	The overall objective of this project is to build on the successes of the previous MetEOC projects (http://www.emceoc.org) and contribute to the establishment of the necessary metrology infrastructure, tailored to climate needs in readiness for its use in climate observing systems. Within the framework of a European metrology 'centre of excellence' network, the research in this project will help to facilitate uncertainties at levels needed to monitor Essential Climate Variables (ECV) and climate change mitigation. To maximise impact the objectives will be addressed through case studies aligned & coordinated with the priorities and activities of the international community, WMO, CEOS, GCOS, and in partnership with organisations such as ESA, EU (Copernicus) & EUMETSAT. METEOC-3 responds to a EURAMET (European Association of National Metrology Institutes) European Metrology Programme for Innovation and Research (EMPIR).	JRC.D.2	4.1.b	GROW	RTD	CLIMA ENV	ESA - European Space Agency - Italia NIST - National Institute of Standards and Technology CEOS - Committee on Earth Observation Satellites (CEOS) EUMETSAT - European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) GCOS - Global Climate Observing System (GCOS) NASA - NASA - National Aeronautics and Space Administration NOAA - National Oceanic and Atmospheric Administration	01/09/2017 31/08/2020	CON-IA	D201901	Uncertainty estimates of marine reflectance	The activity will provide revised uncertainty estimates of marine reflectance for reference sites and available satellite missions. The results will be analyzed as a function of a certain number of elements (wavelength, season, water type) to achieve progress in producing space- and time-resolved uncertainty estimates for marine reflectance.	31/07/2019	Article contribution to periodicals or to conference proceedings listed in the Thomson-Reuters' Science Citation Index Expanded (SCI-e) or Social Science Citation Index (SSCI)
											D202001	Definition of calibration performances tests	Building on results from the assessment analysis of hyper-spectral absolute radiometric calibrations, the activity will provide guidelines aiming at standardizing calibration performance tests for in situ hyperspectral radiometers with the final objective to minimize lengthy and expensive laboratory efforts, still ensuring high quality to in situ reference measurements for the validation of satellite ocean color products. This includes investigating differences in absolute calibration performance of single- versus multi-point optical radiometric calibrations.	15/08/2020	JRC technical reports
											D202002	Uncertainty analysis of atmospheric correction	The activity will build a proper software environment to analyze the different modules of a standard atmospheric correction scheme. This will allow the construction of uncertainty budgets for OC atmospheric correction, with application to SVC and in general an improved assessment of uncertainty in the measurement of the OC ECV.	15/08/2020	JRC technical reports
346 - GALILEO JRC.E.2	6382 - GALQUANTUM Potential use of quantum technologies in the EU GNSS Programmes	A study of the potential of quantum key distribution for Galileo Quantum key distribution (QKD) as a possible means to improve security elements of the Galileo system has been mooted in discussions between JRC and DG GROW Directorate D, within the framework of the existing collaboration. GROW have stated that it is strategically valuable as QKD can become a very relevant differentiator for Galileo in comparison with other GNSS. Interest is especially in QKD's potential for the Galileo Batch 4 and the Second Generation (G2G) after 2025. For example, one question is whether a QKD experimental payload could be integrated in a Galileo spacecraft. Another example could be to introduce QKD in the ground segment secure communications infrastructure. The analysis will address the potential for QKD in both the space and ground segments, including the types of satellite and fibre infrastructure used. The motive for JRC carrying out this work is that GROW has expressed a clear need to have technical and scientific support from us on this subject.	JRC.E.2	4.1.b	GROW	GROW, JRC	GSA - European GNSS Agency	01/01/2018 31/12/2020	CON-AA,INS-UR	1	An assessment of the risks and benefits of quantum technology for Galileo system and services	Use of quantum key distribution (QKD) in Galileo is under discussion between the Commission, the European GNSS agency (GSA) and the European Space Agency, motivated by the desire to give Galileo a high-quality feature which would give it an advantage over other GNSS. QKD could potentially be used to secure elements of the system, or services it provides. Significant technical challenges and risks are involved, and there is also the question of what real advantages the technology will offer. Work in 2018 has focused on possible deployment of quantum hardware on the transition batch of satellites, for launch in 2025, for evaluation purposes. This report will enlarge on the work conducted so far to consider the longer term policy questions, including with regard to deploying QKD operationally in Galileo second generation.	31/12/2019	Science for Policy reports	
										2	Potential for quantum key distribution (QKD) in European public satellite systems	As part of AA 35185, JRC will conduct conceptual studies of the potential for quantum key distribution (QKD) in European public satellite systems including, but not limited to, Galileo, GovSatCom and Copernicus. Deliverable 2 will consist of one or more Science for Policy reports describing in detail the results of these studies. The different purposes of the systems, the broad engineering feasibility of implementing QKD in each and the possible security advantages versus alternatives will be addressed. Possible links with the QKD testbed being funded by DG CNECT as topic SU-ICT-04-2019 of H2020, and any future larger scale pilot will be taken into consideration.	31/12/2020	Science for Policy reports	
225 - BDA JRC.I.3	7702 - P4BDA Platform for Big Data Analytics	Evolve, benchmark, extend, and optimise the JRC Big Data Platform (JEODPP) to enable the efficient and effective transformation of big data streams into relevant indicators and information. Special attention is given to data associated with a geolocation and their combination with other data sources. The platform will offer up-to-date data collections and processing/analysis capabilities required by the relevant projects from the Knowledge Production and Knowledge Management units as well as from partners within and beyond the Commission. The platform shall provide a versatile environment for discovery, processing, analysis, and visualisation of the available data and produced information. It will foster data and knowledge sharing and thus facilitate collaborations between Knowledge Production and Management units. Competences and expertise in data science including artificial intelligence and machine learning are further developed to serve the increasing demand for intelligent data exploration and analysis. Wherever applicable, the spatial and temporal dimensions of the data will be exploited to capture the spatial distribution and temporal evolution of the studied phenomena. This workpackage contributes also to the H2020 openEO project that aims at providing a common interface between Earth Observation user frontends and backends such as the JEODPP and the Copernicus DIAS.	JRC.I.3	4.1.b	GROW	JRC,JRC	AGRI CLIMA CNECT DEVCO ECHO ENER ENV ESTAT JRC MARE REGIO SANTE	- German Aerospace Center - DLR CERN - European Organization for Nuclear Research ESA - European Space Agency - Italia ENEA - Agenzia Nazionale per le Nuove Tecnologie, L'energia e lo Sviluppo Economico Sostenibile EUSC - European Union Satellite Centre	01/12/2019 31/12/2020	CON-IA,INS-UR	1	openEO API	Contribution to the specification, testing, and optimisation of the common and open application programming interface between various front-end users and back-end platforms for the analysis of Earth Observation data at scale and for a variety of use-cases. Contribution to cross-testing to ensure that reproducible results are obtained when performing the same data analysis on two or more platforms equipped for this analysis.	30/09/2020	Technical systems
											201804	Scaling-up the user basis and enlarging the JEODPP scope	Following the successful integration of the pilot use-cases, this deliverable will scale-up the scope, functions, and user basis of the JEODPP platform. This will widen the data portfolio of the platform and open an avenue for the generation of novel indicators taking advantage of the diversity of the available and shared data holdings. In parallel, information extraction methods including those based on machine learning will be deployed on the platform to provide intelligent data exploration and analysis capabilities. The users will originate from the JRC projects related to geospatial data or any other type of big data not involved in the pilot phase. Other users from entities collaborating with JRC will also be considered with tailored interfaces for non-scientific partners. The suitability of deploying selected applications on private and public clouds will also be investigated. For Copernicus data, the deployment on the Copernicus DIASes will be tested.	31/12/2020	JRC technical reports
											201805	Big Data Analytics Node	A JRC Big Data Analytics Node is established as part of the emerging international network of Big Data nodes ((COM(2016) 178 final)). Networking/resources sharing with other big data centres including those envisaged in the Communication from the Commission on the European Cloud Initiative (COM(2016) 178 final) will be considered.	31/12/2020	Technical systems
											201901	Big Data from Space conference cycle	Co-organise the Big Data from Space conference cycle with the European Space Agency and the EU Satellite Centre (to be hosted by DLR in Muenchen in Spring 2019).	01/05/2019	Books and monographs with JRC
246 - GALILEO JRC.E.2	7767 - CNECT Arctic	The EU space programmes each have their own specificities and contribution to make to the Arctic. The orbit characteristics of Copernicus and Galileo are such that their services cover the Arctic. However, for satellite communications the typical geostationary orbit does not allow for a coverage north of 70 degrees latitude. This also means that EGNOS services, which are provided using a hosted payload on geostationary satellites, does not cover the Arctic. At the moment, satellite communication in the Arctic is only provided by one US company (Iridium) with a LEO constellation. Galileo plans to activate a high accuracy positioning service in the E6 band without	JRC.E.2							D1	Interim Report of the study on synergies of the EU space programmes in the Arctic Region	An interim report presenting the results of the stakeholders consultation carried out in the second half of 2018, and also an inventory of present and future space missions covering the Arctic Region, an inventory of the synergies of the EU Space Programmes in the Arctic, and a set of recommendations on the future actions to be taken to improve the connectivity in the Arctic. The results of this interim report will be presented at the Spring Meeting of the Task Force on Improved Connectivity of the Arctic Council in May 2019. This report will be public and will not address the defence and security dimension of the study, which are to be included in a separate report with limited distribution.	30/04/2019	Science for Policy reports	

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JRC.E.2	CNECT-ARCTIC	<p>relying on corrections received via GEO satellites, and this shall become an important differentiator in the Arctic Region. But also for Copernicus and Galileo the services that can be provided for the Arctic may be subject to improvements.</p> <p>The study will cover the EU space programmes in the field of communication, navigation, earth observation, and Space Situational Awareness (in particular the Space Weather component) as well as national space programmes in Europe where appropriate. It will focus on the space/ground segments of the upstream infrastructures as well as on the services provided in the downstream</p>		4.1.b	GROW	GROW	EEAS MARE	<p>EUROCONTROL - European Organisation for the Safety of Air Navigation (EUROCONTROL) GSA - European GNSS Agency</p>	30/06/2020	CON-AA	D2	Final Report of the study on synergies of the EU space programmes in the Arctic Region including the security and defence dimension.	Final report presenting the results of the 2nd stakeholders consultation carried out in the first half of 2019, with a reviewed version of the inventories of the present and future space missions covering the Arctic Region and that on present and future synergies of the EU Space Programmes in the Arctic, and the final recommendations on the future actions to be taken to improve the connectivity in the Arctic. This report will additionally address the defence and security dimension of the study and will have a limited distribution within the interested Commission Services.	30/06/2019	Science for Policy reports

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4.1.c Medical devices and cosmetics - provide scientific and technical support in regard to the medical devices and in vitro diagnostic medical devices regulatory framework; provide technical support to the cosmetics regulatory framework which includes promoting alternative methodologies to animal testing (linked to key orientation 1.3.3.a).															
341 - Reference Materials JRC.F.6	625 - Health RM Health diagnostics Reference Materials	This work package develops certified reference materials (CRMs) for crucial biomarkers used for the monitoring of the health status of patients. The European in-vitro diagnostics (IVD) medical device regulation (EU) 2017/746 asks for using CRMs for establishing clinical traceability of diagnostics further specified in ISO 17511 and ISO 15194. The development of IVD CRMs is carried out in close collaboration with the International Federation for Clinical Chemistry and	JRC.F.6	4.1.c	GROW	JRC	SANTE	IFCC - International Federation of Clinical Chemistry and Laboratory Medicine EDQM - European Directorate for the Quality of Medicines and HealthCare	01/01/2014 31/12/2020	INS-RS	201	Reference materials for Regulation (EU) 2017/746	Development of commutable Certified Reference Materials of higher order for in-vitro diagnostics as stipulated in EU legislation, demanding traceability of clinical IVD kits to be established with higher order reference materials (reference material which fulfil the requirements stipulated in the International Standards ISO 17511 and ISO 15194). For the coming years a major focus is on projects in the area of Alzheimer's disease, autoimmune disease, cancer and cardiac disease markers.	31/12/2020	Reference materials
275 - Medical Technology JRC.F.2	7582 - MD-POLICY Support to implementation of the medical device regulation and the in vitro diagnostic medical device regulation	This WPK addresses the establishment of expert bodies required by the MDR/IVDR and scientific needs for improved medical device management, impacting also on the effective work of expert bodies. WPK focus is to establish novel scientific advisory bodies and define, in collaboration with MS and stakeholders, relevant workflows, templates and guidance ensuring their smooth operation. The Regulations foresee (1) expert panels, (2) EU reference laboratories and (3) expert laboratories. The Commission is obliged to set up the former two, but is under no immediate obligation regarding expert laboratories. Expert panels will routinely assess clinical evaluations of specific high-risk medical devices in the context of premarket conformity assessments. Similarly, EURLs will routinely test batches/samples of IVDs and verify performance of high risk IVDs. Both bodies have additional advisory roles. To ensure establishment of panels and EURLs, we will: (1) employ a participatory approach based on surveying Member States and stakeholders in order to collect data, views and preferences regarding technical, scientific, economic and managerial aspects; (2)	JRC.F.2	4.1.c	GROW	GROW	COMP RTD SANTE	COCIR - European Coordination Committee of the Radiological, Electromedical and Healthcare IT Industry (COCIR) EDMA - European Diagnostic Manufacturers Association (EDMA) EPF - European Patients Forum (EPF) EUUCOMED - Eucomed represents the Medical Technology industry in Europe Medtech Europe - Medtech Europe	01/01/2019 31/12/2020	CON-AA	1	Establishment of Scientific Advisory Bodies under the new legislative framework, including tools for their operation and underpinning scientific aspects	Possible outputs: 1. Surveys among MS & stakeholders and survey report 2. Technical sections of secondary legislation 3. Calls for expression of interest of advisers and calls for application of EURLs 4. Shortlist of experts for expert panels; shortlist of compliant candidate EURLs 5. IT requirements for MDR EUDAMED concerning operation and management of expert panels 6. Workflows, procedures, templates & guidance documents ensuring smooth operation of scientific advisory bodies 7. Procedures to support the operations & networking of EURLs 8. Document outlining a conceptual framework for signal detection/management to serve as a EU model approach for MS CAs and for expert panel decision making in the context of their assessments of clinical evaluation dossiers 9. Contributions to the development of a globally applicable terminology for adverse event reporting 10. Advice on an EU medical device nomenclature for categorising devices/in vitro diagnostics	15/12/2020	Science for Policy reports
4.1.d Raw materials - help to implement actions and EU policies on raw materials and support the management of the EU knowledge base by further developing the Commission's Raw Materials Information System in collaboration with other Commission's services and EU and global stakeholders; monitor and analyse primary and secondary raw materials at European and global levels, as well as their supply chains, contributing to the raw materials scoreboard and circular economy indicators; develop methodologies and provide data for assessing the raw material flows in the economy and the trade flows for raw materials and products along their supply chains; contribute to the criticality assessment for raw materials and to the analyses of the security of raw materials supply, addressing in particular applications such as for dual-use technologies; analyse and contribute to the assessment of security of supply of raw materials for the EU economy, including effects of global trade barriers and responsible sourcing; assess the circularity and sustainability of raw materials in specific supply chains of critical raw materials (e.g. for batteries, in support of the Commission's involvement in the European Battery Alliance); assess the potential to substitute and recycle materials and components as important mitigation measures to increase resource efficiency and increase EU resilience.															
443 - Raw Materials JRC.D.3	3818 - RMIS Raw Materials Information System	The secure and sustainable supply of raw materials is essential to EU competitiveness and growth. The Raw Materials Initiative, the European Innovation Partnership, and the Circular Economy Action Plan therefore foresee the necessity of a Knowledge Base and of Monitoring to support related EU policy needs. This work package, facilitates the commitment of the JRC to develop the Raw Materials Information System (RMIS) and, thus, monitoring indicators. The RMIS has a central role in the EU's Knowledge Base on Raw Materials. It acts as the Commission's reference web-based knowledge platform on non-fuel, non-agricultural raw materials from primary and secondary sources for key sectors. Principally, the RMIS will facilitate the knowledge required by EU policy in the context of raw materials. Focus is mainly on abiotic materials, but some biotic materials are equally addressed, e.g. in terms of security of supply and resilience. Knowledge will account for trade, social, and environmental considerations. Complementing this principle role, the RMIS will provide direction on key knowledge needs for policy, as well as facilitate coherent inputs, from organisations such as the Geological Surveys of Europe (EGS), the European Institute of Innovation and Technology – Raw Materials, and selected Horizon 2020 projects and COST Actions. International interactions are foreseen with the UNEP International Resource Panel and the United State Geological Survey, amongst other key knowledge providers.	JRC.D.3	4.1.d	GROW	JRC	DEVCO ENV ESTAT RTD TRADE	EGS - Eurogeosurveys UNEP - United Nations Environment Programme (UNEP) USGS - U.S. Geological Survey	01/01/2016 31/12/2021	INS-RS			The JRC has launched the Raw Material Information System to support EU policy needs, to highlight needs to the broader community, and to facilitate interaction and coherence. A key element of this development is interaction with stakeholders, in particular with member states and with industry. This includes knowledge supporting multi-disciplinary knowledge needs for the security and sustainability of supply of raw materials to many sectors, both from primary sources via extraction as well as from secondary sources through e.g. recycling. Targeted workshops will therefore present the main developments in the RMIS. They will bring together knowledge from JRC and other DGs, member states, industry, and key European/International organisations. Focus will be during 2019 on the further development of country profiles, raw materials profiles and gateway to knowledge providers, as well as to secondary and critical RM.	29/11/2019	JRC technical reports
													The "Raw Materials Knowledge Gateway" (RMKG) tile of the RMIS 2.0 provides an overview of relevant knowledge in the broad context of the National, European and International raw materials sector. The RMKG, by engaging relevant knowledge providers, aims at acting as a central European gateway of knowledge on raw materials. Based on guidelines developed by the JRC and in close cooperation with the Executive Agency for Small and Medium-sized enterprises (EASME), the content of this tile will be progressively provided by: national level data providers, within and outside Europe; EU level data providers, such as EU institutions, Eurogeosurveys, EIT Raw materials, EU industry associations and selected R&I projects; Global level data providers, such as international organisations, global data services, global industry associations. These stakeholders will form a potential future Community of Practice. Priority to projects having a global dimension (eg. MND Platform).	18/12/2020	Sci information systems and databases
													Raw Materials' Profiles is a key building block of RMIS, as it provides a summary of highly relevant quantitative information at raw materials level. Raw materials' profiles provide access to quantitative and qualitative knowledge relative to the supply chains of raw materials such as the broad group of materials analysed in the context of the 2017 and 2020 EC criticality analysis, base metals, and selected biotic materials. Raw materials' specific information includes sections related to production, reserves, import reliance, criticality, trade, consumption and sustainability (economic, social and environmental). The supply chain viewer will be further developed.	18/12/2020	Sci information systems and databases
													The RMIS will expand and strengthen its interactions with networks, initiatives and activities related to data, information and expertise exchange. This includes organization of events, such as the Annual International Raw Materials Information System Workshop, the Third in 2019, and the Fourth in 2020, respectively. In the frame of the EU Raw Materials Week that is usually held in Brussels in November each year, JRC is invited to organize the EU Raw Materials Knowledge Base Day. In 2019 it will be the Third and in 2020 the Fourth such event which attracts usually 150-200 participants from all over the world. With a linkage to Deliverable 2020001, specific efforts will be paid on networking with selected sustainable H2020 consortia, also as a follow up to the ORAMA project WP5.3, in order to maintain the cluster built in course of the ORAMA project with the active partnership of JRC. Starting 2020, efforts will be made to strengthen collaboration with MNDP EU-financed project.	18/12/2020	Technical Reports

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443 - Raw Materials JRC.D.3	6089 - RM-EIP II Supporting the monitoring and evaluation of the European Innovation Partnership (EIP) on Raw Materials	<p>Technical assistance supporting the monitoring and evaluation of the European Innovation Partnership (EIP) on Raw Materials;</p> <p>This action shall cover the delivery of the following items:</p> <ul style="list-style-type: none"> the EIP Annual Monitoring Report on "Raw Materials Commitments", for 2018-2021; the completion of the third EIP Call for commitments (preparation of the call and analysis of proposals), the preparatory work and the finalisation of the EIP Strategic Implementation Plan (SIP) Implementation Document 2018-2021 (e.g. involving stakeholder consultation/meetings, via a Europe-wide questionnaire), the preparatory work (e.g. data extraction, development of new indicators) and the finalisation of the Raw Materials Scoreboard 2020 (e.g. involving stakeholder consultation/meetings), support to the selection process for the 2020 List of CRMs, support to further development of information and standardization aspects on secondary market for critical raw materials, integrating and developing the elements of the EU Raw materials Knowledge base in the Raw materials Information System. 	JRC.D.3	4.1.d	GROW	GROW			01/07/2018 01/10/2021	CON-AA	1	Technical assistance supporting the monitoring and evaluation of the European Innovation Partnership (EIP) on Raw Materials	This action shall cover the delivery of the following items, on an annual basis (at least three deliverables, one in each year, covering this function): <ul style="list-style-type: none"> the EIP Annual Monitoring Report on "Raw Materials Commitments" for years 2018, 2019,2020, the preparatory work and the finalisation of the EIP Strategic Implementation Plan Implementation Document (SIPID) 2018-2020 (e.g. involving stakeholder consultation/meetings, via a Europe-wide questionnaire), support to the completion of the third EIP Call for commitments (preparation of the call and analysis of proposals); 	26/02/2021	JRC contributions to policy documents
											3	Integrating the elements of the EU RM Knowledge Base in the EC JRC Raw Materials Information System	Integrating of results from Horizon 2020 projects related to raw materials into the JRC-maintained RMIS; further development of the raw materials profiles and of country profiles, based on information collected from publicly available sources, European and EU national official statistics, projects financed by Horizon 2020 programme.	13/12/2019	Science-for-policy reports
											A	Critical raw materials	Within the Raw Materials Initiative, particular attention is given to "Critical Raw Materials" (CRMs) . CRMs' are raw materials of a high importance to the economy of the Union and whose supply is associated with a high risk of disruption. Based on the methodology used in 2017 assessment, DG JRC will support DG GROW in updating the list of Critical Raw Materials expected to be published in 2020. In particular, the JRC will support GROW by gathering required information and performing calculations of the criticality parameters, contributing to the stakeholders' consultations in relation to the data used for the assessment, participating in selected meetings with the adhoc working group on Critical raw materials (AhWG), inter-service groups (ISG), and other meetings as specified in this AA. This work is represented by WPK1 in the AA.	31/05/2020	Whole parts of policy documents
											B	Trade - International and Country-related data	Trade-related information is crucial in determining a country's position in the value chain and its competitiveness; it is relevant to a wide spectrum of stakeholders and can strengthen the systemic understanding of raw material supply chains. Through the process of economic globalization, the economies of industrial societies increasingly rely on imports to satisfy their material needs and the revenue generated from export of highly manufactured technology goods. This Task consists of further development of trade-related country fiches for 27 priority countries, based on the template fiche developed in Deliverable 14 of AA N° SI2.738536 and the update of four Pilot Country Fiches developed under AA's N° SI2.738536 to ensure coherence. All 31 country fiches will be made available online via the RMIS. This activity is WPK2 in the AA.	30/06/2021	Technical Reports
											C	Raw Materials Scoreboard 2020	The Raw Materials Scoreboard provides quantitative data related to the EIP-RM's main objectives and, hence, on key overarching issues related to raw materials policy. The overall objective of the EIP-RM is to contribute to the 2020 objectives of the EU's Industrial Policy and the objectives of the flagship initiatives 'Innovation Union' and 'Resource Efficient Europe', by ensuring the sustainable supply of raw materials to the European economy whilst increasing benefits for society as a whole. Tasks will start with a review of the 2018 version of the Scoreboard in order to define a streamlined development process, while keeping the content as stable as possible. The 2020 Scoreboard will include updates of the data for the indicators in the 2018 Scoreboard.	31/05/2020	Whole parts of policy documents
											D	Material System Analyses	The Material Substance Analysis (MSA) data sets investigate the flows of materials through the EU-28 economy in terms of entry into the EU, flows through the economy, stock accumulation, incl. end-of-life management. They contain key material specific data and information. They represent a solid pillar to support (1) development of the list of CRMs, (2) development of the RM scoreboard and (3) monitoring of the circular economy; as well as providing useful information for other activities. The MSAs support the RM policy development, and in the mid-term provide a basis for developing sound sustainable resource management strategies. New MSAs will be conducted in two groups: First, MSAs will be conducted for selected materials relevant for the production of batteries and for decarbonising technologies. Secondly, MSAs will be conducted for the materials that are currently listed as CRMs, but so far are not covered by MSAs.	30/06/2021	Technical Reports
											E	Raw materials-support to the Circular Economy Action Plan	Resource efficiency has been an important pillar of the European raw material policy for a long time. The Circular Economy Action Plan (COM(2015)614/2) published in December 2015 has given an important revitalisation of resource efficiency and many actions have already been implemented. The aim of this work is to support the implementation of two remaining raw materials-related activities in the Action plan: one concerning sharing of good practices on recovery of Critical Raw Materials from mining waste and landfills; the other related to deployment of material efficient processes in recycling facilities, in particular through standardisation. The WP also aims at exploring the potential supply of primary and secondary raw materials to the battery sector in Europe based on thorough analysis of material flows in the context of the strategic action plan for batteries (COM(2018) 293 final, Annex 2).	01/10/2021	Technical Reports
											F	Implementation of framework conditions for primary raw materials (non-energy minerals)	The sustainable production of raw materials from EU sources is one of the three pillars of the RMI. The EIP-RM SIP Implementation document (2016) included a qualitative assessment of the level of implementation of each of the specific action areas, indicating that this was "very limited" for Priority area II.A. Following the specific action areas in the EIP-RM SIP, an assessment will be done of those deliverables under different initiatives that have the potential to be published as recommendation guidelines and, if relevant, as preliminary recommendations for legislative proposals.	30/04/2021	Technical Reports
443 - Raw Materials JRC.D.3	6310 - MDU Materials for Dual Use AA	The EU resilience to supply of materials along the whole supply chain - from raw materials (RM) to components and systems – is standing high in the political agenda today. The strong EU dependency on supply of RM and components from beyond Europe, particularly from China, Japan and Korea, can become a serious bottleneck in the long-term transition towards low carbon EU. If	JRC.C.7	4.1.d	GROW	GROW			07/03/2018 06/03/2019	CON-AA	1	Bottlenecks and supply risks to dual use materials	Report on the bottlenecks and supply risks linked to raw materials and advanced processed materials that are needed for the development of key emerging technologies, such as advanced batteries, fuel cells, solar modules, robotics and sensors required in both defence and civil applications.	06/03/2019	Science-for-policy reports
											G	Monitoring and Evaluation of the EIP	The European Innovation Partnership (EIP) on Raw Materials is a stakeholder platform that brings together representatives from the entire research and innovation value chain, namely from industry, public services, academia and NGOs. Its mission is to provide high-level guidance to the European Commission, Members States and private actors on innovative approaches to the challenges related to raw materials. This work package will consist of the routine developing of the AMR survey and drafting of Annual Monitoring Reports 2018, 2019 and 2020. Further, this work package will manage the open call for Commitment proposals including the pre-screening of the new commitment proposals and providing support for the analyses underlying the SIPID.	31/05/2021	Technical Reports
7534 - C2ART JRC.C.4	6682 - SMART Sustainable use of Materials through Automotive Remanufacturing to boost resource efficiency in the road Transport system	The research "SMART" contributes to the Exploratory Research (ER) Programme. This research aims at developing and evaluating promising strategies to boost resource efficiency in the transport sector, with a specific focus on passenger cars, which represent the majority of vehicles on EU roads. We target the contribution of remanufacturing, an industrial process that consists of restoring end-of-life vehicles and components to useful life, therefore achieving reuse and circularity of materials. The project will study how remanufacturing, aiming at extending lifetime of components and materials, and innovative mobility models, aiming at increasing the vehicle use intensity (e.g. mobility as a service, electrification and autonomous vehicles), can be integrated to provide benefits in terms of resource efficiency and sustainable use of materials. The research will follow a holistic approach and will be based on Material Flow Analysis and	JRC.D.3	4.1.d	JRC MOVE	JRC	ENV MOVE		01/01/2018 31/12/2019	ER-17	01	Final technical report	The Final technical report will summarise all the findings of the project. A mid-term technical report will be produced at the end of first year	31/12/2019	JRC technical reports

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443 - Raw Materials JRC.D.3	7805 - SuREBATT Sustainable and Responsible sourcing of critical raw materials for the European BATTERY sector	This work package will support building the knowledge base for the raw materials pillar of the "Sustainable Mobility" for Europe Action Plan in also the context of the Raw Materials Initiative and the Circular Economy Action Plan. The work package will conduct specific preliminary analyses with a focus on sustainable and secure access to raw materials for batteries and will provide support to the Battery Alliance. Batteries are a critical building block of the decarbonised economy. The WPK will focus on the availability of both primary and secondary raw materials, as well as on responsible sourcing of key raw materials. The deliverables of the WPK will help build the RMIS. This will include help building material flow visualisations for the battery sector. These data, visualisations and analyses will be useful in the future to feed policy discussions related to e.g. waste battery collection targets, investments in treatment plants, certification schemes and resilience of the EU (primary vs secondary raw materials). The WPK contributes to the project as it supports the 3rd pillar of the Raw Material Initiative "Resource efficiency and supply of secondary raw materials through recycling". It will also support activities related to criticality assessment and resource efficiency assessments (also related to U.N. initiative). It will provide support to the Battery Alliance and Mobility Package, but also to the Raw Material Initiative (pillar 1 on sustainable sourcing and pillar 3 on resource efficiency) and to the Circular Economy Action IV.7 (Further development of RMIS) and Action VII (Monitoring Framework). It will help provide links to Sustainable Development Goals.	JRC.D.3	4.1.d	GROW	JRC	CNECT DEVCO ENV MOVE SG	- TECHNISCHE UNIVERSITAET BERLIN - European Aluminium Association EGS - Eurogeosurveys CEN - European Committee for Standardization CENELEC - European Committee for Electrotechnical Standardization (CENELEC) KUL - Katholieke Universiteit Leuven MS EU - Member states EU ORGALIME - European Engineering Industries Association	02/01/2019 31/12/2020	INS-RS	201902	Analysis of efficient circulation of raw materials for various recovery strategies in sectors related to batteries	SUPPORT TO CIRCULAR ECONOMY ACTION V.3.1 (critical raw materials in the circular economy). The recovery strategies to be analysed based on data coming from real practices include: optimised recycling of CRMs contained in photovoltaic panels; extension of lifetime of use of Cobalt and Lithium through re-purposing of electric vehicle batteries (spin-off of SASLAB Exploratory project, collaboration with C.1).The deliverable contains journal papers addressing the efficiency of various recovery strategies in various sectors, taking a circulation of raw materials perspective.	20/12/2019	Journal contributions (Clarivate)	
												201903	Analysis of responsible sustainable sourcing opportunities for key raw material for batteries: the example of Cobalt	Several raw materials have a fundamental role in low-carbon technologies such as batteries for e-mobility. However, there is evidence that some metals are produced under socially unsustainable conditions, especially in countries with poor governance. A case study will explore materials used in batteries in the context of social and environmental considerations associated with their raw materials supply chains, both for primary and secondary, with a special focus on cobalt and possibly other materials (e.g. lithium). The European Pillar on Social Rights, the OECD Guidance on Responsible Minerals Supply Chains and the UN Sustainable Development Goals framework will be used as references for developing metrics and applying them to the selected case study.	20/12/2019	Technical Reports
												202001	Mapping of primary raw materials availability for batteries in the EU: zoom on Lithium, Cobalt, Graphite, Nickel, Manganese	Despite the currently high dependency on import of raw materials used in batteries, EU has minerals deposits, skills and know-how on several stages of the relevant raw material supply chains. This deliverable will analyse the current situation on geological knowledge related to deposits of Lithium, Cobalt, Graphite, Nickel, Manganese in the EU. A mapping will be carried out on availability and perspectives on skill and know-how in view of a possible expansion of EU primary production. The deliverable will build on inputs from experts from some European geological surveys.	30/10/2020	Technical Reports
												202002	Further development of data on Secondary Raw Materials. Focus on batteries.	SUPPORT TO BATTERY INITIATIVE and MOBILITY PACKAGE, CIRCULAR ECONOMY ACTION IV.7 (Further development of RMIS) and ACTION VII (Monitoring Framework). The deliverable will make further available relevant data and visualisations on current and future availability of secondary raw materials for batteries in RMIS. Some data sets concerning other flows of end-of-life products (e.g. electrical and electronic equipment; vehicles) that also contain batteries will also be made available. The deliverable could also include some links to relevant life cycle inventory datasets on secondary materials from the Life Cycle Data Network.	18/12/2020	Sci information systems and databases

4.1.e EU defence research - support the future EU defence research programme through relevant security and dual-use research activities.

6485 - DESSIRES JRC.E.7	5843 - C-CCA Observatory and Megatrends (OMEGA)	The "EU Dual-use and Defence Research Observatory" will be the non-public focal point to assist GROW and other policy DGs to provide indications on R&D programmes and policies to be developed for dual-use and defence, and to co-ordinate needs among stakeholders. It will allow the JRC to be part of policies' co-creation process. It includes landscape / thematic mappings, addressing status, potential for new applications, analysis of EU funded projects and identification of gaps in the current R&D programmes; permanent horizon scanning with focus on emerging and disruptive technologies to ensure an anticipatory character. Internally, it will also include the overall co-ordination of the JRC space approach and the co-ordination of Dir E's activities for the JRC Security & Defence Task Force. Complementary work on space security is done under other WPKs: assessing fitness for purpose and evolution of the Copernicus Security Service (WPK 5045); Copernicus uptake study (WPK 900); and Arctic connectivity synergies study (WPK 7767); Galileo supply chain (WPK 4869). The second mainstream of activities is the support to megatrends and Horizon Europe. Whilst the relevance for defence will be assessed under the Observatory, this stream includes permanent horizon scanning functions, landscape / thematic mappings on security areas such as hybrid threats, protection of public space, border security, cyber-security (e.g. contribution to flagship report, mappings and information), and support to the KCMD and DRMKC (e.g. CoP, searchable repositories, analysis). It sustains the participation of Dir E in the strategic planning of Horizon Europe (RTD) with support throughout the whole programme duration. The produced knowledge is organised in searchable repositories, which contain information on EU policies, EU-funded R&D projects (FP7, H2020, Horizon Europe), and other relevant data and information. Factsheets, reports, newsletters are foreseen. Workshops, communities of users and partnership platforms will accompany the process for acquisition of information, validation of outcomes and elaboration of results for final feedback into the policy making process. Interaction with non-EU stakeholders is foreseen (UN,NATO) Deliverables support: recent COM policies on defence; proposed EU space program-new MFF (Copernicus, Galileo, Govsatcom and Space situational awareness), mainly with GROW; in general security policies with HOME and H-Europe activities with RTD.	JRC.E.7	4.1.e	GROW	JRC	CNECT DEVCO EEAS HOME MARE MOVE RTD	MS EU - Member states EU	01/01/2019 31/12/2020	INS-RS	D1920ME GATHoriz	Support to Megatrends and Horizon Europe	Horizon scanning, landscape / thematic mapping on megatrends (e.g. the shift of the security paradigm, the accelerating technological changes and hyper-connectivity etc.) and on specific areas such as cybersecurity, border control, hybrid threats, protection of public spaces, support to DRMKC and KCMD. Using tools such as TIM, EMM, dedicated workshops and analysis of documentation. Factsheets and reports will be issued for providing a regular reporting on the above areas and more in general to feedback the strategic planning of Horizon Europe and its implementation through the whole duration of the programme. Contribution from internal JRC actions (e.g. clusters) as well as interaction with stakeholders will be added to get a comprehensive analysis and become part of the co-creation process of future R&D actions and Work Programmes.	01/03/2019	Science for Policy reports
											D19DisInf	Disinformation and online propaganda	An analysis of root causes of citizens' vulnerability to coordinated disinformation campaigns, with the role played by data-driven propaganda and its security challenges in a complex and rapidly changing international system.	31/03/2019	Science for Policy reports
											D2020sund ersuppserv	Underpinning support services for landscape mapping and horizon scanning 2019 and 2020	Define a systematic of EMM and TIM tools to assist Dir E work on landscape mapping and horizon scanning. E.7 will also closely work together with I.3 in setting up EMM and TIM workspaces, according to identified prioritized needs in order to address a number of topics (e.g. hybrid threats, cybersecurity, CBRN-E). Building on that experience, in 2020 the activities on landscape mapping and horizon scanning will continue and be further extended to ensure early identification of important issues within emerging topics. Additionally, EMM and TIM will be used for anticipatory work on the priorities of the Directorate E. As a examples, E.7 will work together with E.2 on hybrid threats for the design of "anticipatory methodology" in the field. It is an on going and long lasting knowledge management service, which is carried out in collaboration with all Units in Directorate E and other units in the JRC (I.2, I.3, H.2, A.7)	31/12/2020	Sci information systems and databases
											D20SpaSec	Space & Security Landscape	Space & Security covers security applications of space (in observation, navigation and communication), and the security of the space-related assets. The EU has major programs on these matters - Copernicus, Galileo, GOVSATCOM and Space Situational Awareness, and their security aspects are becoming increasingly important. In 2018, a landscape view on Space & Security was produced, outlining regulations, stakeholders, programs, projects and R&D priorities at EU-level and from some of the most important MS. Also foresight (from horizon scanning) was included. This was based on internal work, a contracted study and an EU-wide workshop. In 2020, an update of the space & security landscape will be issued, following the same methods, plus outputs from newly available KM tools planned in this WPK and in collaboration with I3. An intermediate minor update may be issued in 2019, depending on the speed of developments.	15/12/2020	Science for Policy reports
											D1920Teh cinnovmoni t	Technology innovation monitoring for security and defence technologies	The monitoring system TIM (tool for innovation monitoring), which tracks the evolution of technologies (emerging and established) via semantic analysis through data and text mining from scientific articles, projects, patents will be applied to better map results related to security and defence technologies, along with collaboration patterns (EU and worldwide), resulting in a report.	31/12/2019	Technical Reports

JRC 2019 - 2020 DETAILED WORK PLAN

Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expt. Rel. Date	Category
<p>4.1.f EU automotive industry - in support to relevant Commission services further develop and improve vehicle emissions (both pollutants and CO2) test procedures for testing in the laboratory and on the road; support the development of next-generation vehicle emission standards (post-Euro 6/VI) for light- and heavy-duty vehicles; perform market surveillance activities to support the enforcement of current vehicle emission standards (including the investigation of potential defeat devices); support the development of international regulation efforts for the safety approval of advanced driver assistance systems up to fully automated vehicles; support European and international regulation and standardisation efforts through performance and safety evaluation of energy storage devices, including batteries for electromobility; develop testing methodology and perform pre-normative research on electric vehicle-to-grid integration (VGI), concentrating on interoperability between smart electric vehicles, their charging stations, smart homes and smart grids. This key orientation is linked to Sections 1.8 and 3.1.1.</p>															
167 - EST JRC.C.1	495 - STORIC Competitiveness and Innovation of Energy Storage Technologies	<p>The objective of this work package is, through use and extension of existing experimental testing infrastructure, to perform pre-normative research (PNR) by experimental performance and safety evaluation of innovative energy storage (ES) devices. It contributes to the objectives of the EST project to achieve EU policy goals pertaining to low-carbon, safe and sustainable transport and ES by: (1) robust support towards ES related policy and international regulations; (2) harmonisation of standards for ES test methods to facilitate innovation; (3) underpinning innovation and EU industry's competitiveness through technology validation and stimulating commercialisation by enhancing safety and consumer acceptance. Activities in this work package comprise experimental testing and numerical modelling, supplemented with knowledge management activities to identify opportunities for integration of Europe's research and innovation contributions which will increase the competitiveness of European industry. To achieve its objectives this work package exploits JRC's independence as a warranty to ensure impartial and robust support to related standards, regulations and innovation.</p> <p>This work package also contributes to the implementation phase of Key Action 7 of the Integrated SET-Plan. R&I actions needed to achieve strategic battery targets have been endorsed. These R&I actions are seen as the basis for the R&I work stream of the European Battery Alliance. Private and public R&I activities aligned with these priority R&I actions need urgent implementation and coordination while the effectiveness of invested efforts to achieve these targets needs to be assessed.</p> <p>To achieve or maintain European industrial leadership in ES, barriers across the whole value chain need to be addressed: PNR will be performed in collaboration with industry for the development of fit for purpose standards for battery safety evaluation and performance assessment. For hydrogen, this work-package contributes to standardisation effort on-going at ISO, CEN and IEC through dedicated pre-normative research, including the development of harmonised testing protocols. In addition, PNR work is performed to support the standards referred to in the Alternative Fuels Infrastructure Deployment Directive.</p> <p>Experimental testing facilities will offer access (upon request) to external users who have expressed their interest through Dir. A's calls for Open Access of JRC Research Infrastructure.</p>	JRC.C.1	4.1.f	ENER GROW	JRC	ENER MOVE RTD	<p>CEN - European Committee for Standardization CENELEC - European Committee for Electrotechnical Standardization (CENELEC) EGVIA - European Green Vehicles Initiative Association IEA-HIA - IEA HIA International Energy Agency Hydrogen Implementing Agreement IEC - International Electrotechnical Commission IPHE - Partnership for Hydrogen and Fuel Cells in the Economy ISO - International Organization for Standardization (ISO) US DoE - US Department of Energy (DOE) - FUEL CELLS AND HYDROGEN JOINT UNDER</p>	01/01/2018 31/12/2020	CON-TW,INS-RS	KIWA01	Tests for KIWA NL BV	According to Contract number 34741: this deliverable consists in the execution of pneumatic cycling tests aiming at on-board hydrogen tank certification according to GTR No. 13, clause 5.1.3.2 and 5.1.3.3. Upon completion of the test campaign(s) JRC will issue a report to KIWA. The tests are performed according to demand of customer. When possible, in agreement with KIWA, experimental results will be published in co-authorship in in peer-reviewed scientific journals.	30/11/2019	Technical Reports
											STORIC05	Support in the follow-up of Directive 94/2014 implementation	Assessment of the Directive on Alternative Fuel Infrastructure implementation: potential needs for updating/revising the AFID proposed targets; definition of new guidelines for the assessment of the MS alternative fuel infrastructure deployment and evaluation of the NPFs implementation in 2020. Whenever possible, results of the related underpinning scientific work will be published in peer-reviewed scientific journals. The work includes interacting with the CEN TC 268, as well as representing the Commission in the International Workshop on Hydrogen Infrastructure.	31/12/2020	Science for Policy reports
											STORIC06	Research work programme and report of investigations on factors influencing battery performance and ageing	This multi-annual deliverable serves JRC commitments under the Collaboration Agreement (CA No. 34858) with the European Green Vehicles Initiative Association (EGVIA). The objectives of the cooperation between EGVIA and JRC are a) To improve a science-based understanding of the fundamental which affect battery performance and safety (e.g. through material characterization for degradation monitoring) and b) To generate scientific data for supporting standardization. EGVIA members have identified the need for scientific data and understanding to evaluate how mechanical integrity changes (arising from charge/environmental cycling) can affect battery performance and life-time. This deliverable includes the research work programme elaborated to address the scientific needs and will describe JRC's dedicated research and findings on this topic. Whenever possible, results of the related underpinning scientific work will be published in peer-reviewed scientific journals.	31/12/2020	Technical Reports
											STORIC1	Support to SET-plan Action 7 and the European Battery Alliance	Contribution to the operationalization of SET-plan Action 7 on batteries by facilitating the Commission funded mechanism (potentially a European Technology and Innovation Platform (ETIP) on batteries) for implementing the R&I priorities of the Action 7 Implementation Plan. JRC will assess and guide the alignment between R&I activities performed/coordinated under the foreseen ETIP on batteries and SET-Plan Action 7 IP R&I priorities also bearing in mind the relation with the Strategic Transport Research and Innovation Agenda (STRIA). This work will feed into the R&I work stream of the European Battery Alliance (which was launched during the 11 October 2017 high-level battery stakeholder meeting announced in COM(2017) 479).	31/12/2020	JRC contributions to policy documents
											STORIC4	Open access to Energy Storage Lab for scientists and industry for R&D	This multi-annual deliverable will make available to researchers the Energy Storage (GasteF, FCTest and BESTEST) facilities. In collaboration with Dir A access will be granted through open calls and proposals will be evaluated by a Selection Panel, considering the priority topics defined by a Steering Committee. Depending on the proposal, the labs will provide technical assistance, testing of specimens, data acquisition, support in the use of analytical tools. Open access to the BESTEST battery testing laboratories for enhancing users skills and capacity building is foreseen in the 3rd Mobility Package COM (2018) 293 to help bridge the gap between research and industry and boost competitiveness. The tangible outputs will consist of a series of reports containing results, methodology and experimental details for each of the selected access projects. If in agreement with the specific users, experimental results will be published in co-authorship in in peer-reviewed scientific journals.	31/12/2020	JRC technical reports
											190 - PRESERVE JRC.C.4	659 - Vehicle Emissions Support to European vehicle/engine emissions legislation	<p>This institutional work package includes assistance to DG-GROW on specific open issues concerning future emission legislation and complements the activity carried out under the Administrative Arrangements between the JRC and DG-GROW (WPK 4440 -EMILE and WPK 6166 - INSET). Technical and scientific support is requested by DG-GROW for the development of the European emission legislation for heavy and light duty vehicles, including non-road mobile machinery. The above mentioned AA financially covers part of the staff and the specific credits needed to carry out the required work. The rest of the staff and specific credits related to the technical and scientific support to DG-GROW on future emission legislation is covered by this institutional WP.</p> <p>Moreover, compared to the activities directly covered by the AAs, this WP includes also more looking forward activities with a broader scope, not just addressing specific immediate policy needs. Examples are the monitoring of currently unregulated pollutants, the assessment of specific engine/after-treatment technologies, exploring innovative instruments and methods for emission monitoring and the collaboration with international partners/organizations working in the same field (China VECC, US, Japan, Korea,...).</p> <p>Its major objectives are:</p> <ul style="list-style-type: none"> - produce analyses and studies on emission data generated in ad-hoc experimental campaigns to support the discussion with stakeholders on future emission legislation; - technical contribution (test procedures, measurement techniques, ...) to the proposals for emission legislation; <p>Coordination of ongoing activities for the development of test procedures</p> <p>The compliance with emissions standards is a central issue of vehicle certification worldwide. Most manufacturers produce vehicles for a global market. Even if vehicles are not identical worldwide, Different emissions standards in each region creates high burdens either for administrative issues or for vehicle design. The objective of this WPK is to give scientific advice and technical support to the worldwide standardization work for vehicle emissions and performance, under the umbrella of United Nations-European Commission for Europe (UNECE). Work relates to all type approval concerns on emissions for LD vehicles, including hybrids, and L-Category vehicles. This WPK also refers to electrical vehicles in the aspects of type approval, performance and environment. JRC has been working in the different informal working groups or task forces during the last 12 years and now, staff from STU JRC is acting as chair or co-chair of 4 different informal working groups and/or Task forces. The activity of the JRC in the Worldwide Harmonized Light Duty Vehicles-WLTP entails the participation in the relevant meetings, scientific and technical support to the discussion, conducting experimental programmes whenever this is needed and contributing to drafting technical documents and reports. Scientific Peer reviewed papers supporting this activity have been also the base of the JRC approach to the science for policy support in the UN-ECE process.</p> <p>Pre-normative research in line with the strategy outlined in the white paper "Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system", the Energy Union Package on electric vehicles and the European Strategy for Low-emission Mobility that frames the initiatives around three main areas:1) increasing efficiency of transport system; 2) deployment of low emission alternative energy for transport; 3) moving towards low and zero-emission vehicles. HELECTRON will conduct pre-normative research on - electric vehicle performance (range, efficiency, durability, emissions in case of hybrids,...) in realistic use</p> <p>This work package consists in providing technical and scientific support to DG-GROW for the development of the European emissions legislation concerning L-category vehicles, light duty vehicles (M and N category) and heavy duty vehicles. DG-GROW has a well-established cooperation with JRC through a series of Administrative Arrangements for elaborating proposals related to various Directives/Regulations under the responsibility of DG-GROW, with particular emphasis on the technical issues within these pieces of legislation.</p> <p>The latest AA (no. 34263) that had been signed in April 2016 will expire at the end of 2018. A new AA (35074) has been signed to partially cover additional tasks to be carried out during 2018 and</p>	JRC.C.4	4.1.f
11	Report on HD PEMS measurement at cold temperatures	Final report on the assessment of the heavy duty vehicles (HDV) PEMS emissions at cold temperatures, which will include the analysis of the measurement campaigns and conclusions as regards to the significance of the issue and possible ways forward	28/02/2019	Whole parts of policy documents											
20	Contributions to the development of Euro 7 emission standards	Emission data, technical reports and studies on the future emissions standards an related test procedures. The JRC will contribute to the assessment of new policy measure to reduce the environmental impact of the transport sector, to the development of new test procedures for vehicle concepts and methodologies for the on-board monitoring of environmental performance of vehicles.	31/12/2020	Technical Reports											
22	Contribution to the review of the real driving emission test procedure	Emission data, technical reports and studies for the review of the real driving emission test procedures and of the conformity factors.	31/12/2020	Technical Reports											
24	Scientific publications and outreach activity	Peer reviewed publications based on the data generated in the VELA laboratory and from desktop research activities	31/12/2020	Journal contributions (Scopus)											
11	Low Temperature Task force: coordination	Coordination of the WLTP Low Temperature Task force, the Commission aims at finding the best possible solution in terms of worldwide harmonization on the one hand and best technical procedures. Commission has the objective of finding the widest support and agreement will be looked for: harmonized temperature at which the low temperature test should be carried out in order to be representative of realistic winter and the driving cycle adapted to low T. Description of test procedures for combustion engines, hybrids, including plug-in and the effect of low T on batteries (hybrids).	20/12/2019	Journal contributions (Clarivate)											
190 - PRESERVE JRC.C.4	661 - UNECE -GRPE Global Harmonisation and Standardisation at UNECE for Vehicles & Engines	<p>Pre-normative research in line with the strategy outlined in the white paper "Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system", the Energy Union Package on electric vehicles and the European Strategy for Low-emission Mobility that frames the initiatives around three main areas:1) increasing efficiency of transport system; 2) deployment of low emission alternative energy for transport; 3) moving towards low and zero-emission vehicles. HELECTRON will conduct pre-normative research on - electric vehicle performance (range, efficiency, durability, emissions in case of hybrids,...) in realistic use</p> <p>This work package consists in providing technical and scientific support to DG-GROW for the development of the European emissions legislation concerning L-category vehicles, light duty vehicles (M and N category) and heavy duty vehicles. DG-GROW has a well-established cooperation with JRC through a series of Administrative Arrangements for elaborating proposals related to various Directives/Regulations under the responsibility of DG-GROW, with particular emphasis on the technical issues within these pieces of legislation.</p> <p>The latest AA (no. 34263) that had been signed in April 2016 will expire at the end of 2018. A new AA (35074) has been signed to partially cover additional tasks to be carried out during 2018 and</p>	JRC.C.4	4.1.f	GROW	JRC	CLIMA ENER ENV MOVE	UN ECE - UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE	16/05/2018 20/12/2020	INS-RS	12	Contribution to GRPE IWGs, drafting and updating of Global Technical Regulations - GTR	Contribution to the updated and drafting of the GTR-s developed within the different informal groups including WLTP (GTR 15); L-EPPR group for L-Cat Vehicles (2-, 3-, and 4-wheelers) and new GTR for Low Temperature	20/12/2020	Science for Policy reports
											14	Scientific publications and outreach activities	Generic aggregate deliverable including all outputs which are not final or directly relevant to policy (e.g. interim reports, peer-reviewed scientific publications, presentations, conference proceedings, participation to workshops etc.). i.e. Progress reports to GRPE on EPPR, PMP; Low Temperature task force reports to WLTP - Test procedure for Hybrids and AP -	20/12/2020	Journal contributions (Scopus)
											10	Scientific publications and outreach activity 2020	This generic aggregate deliverable includes interim reports, peer-reviewed scientific publications, presentations, conference proceedings, participation to workshops etc. They will be related to: - Lab and on road tests on e-vehicles - Peer reviewed papers - Big data analysis	31/12/2020	Journal contributions (Clarivate)
190 - PRESERVE JRC.C.4	664 - HELECTRON Hybrid and Electric Vehicles Performance Assessment	<p>Pre-normative research in line with the strategy outlined in the white paper "Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system", the Energy Union Package on electric vehicles and the European Strategy for Low-emission Mobility that frames the initiatives around three main areas:1) increasing efficiency of transport system; 2) deployment of low emission alternative energy for transport; 3) moving towards low and zero-emission vehicles. HELECTRON will conduct pre-normative research on - electric vehicle performance (range, efficiency, durability, emissions in case of hybrids,...) in realistic use</p> <p>This work package consists in providing technical and scientific support to DG-GROW for the development of the European emissions legislation concerning L-category vehicles, light duty vehicles (M and N category) and heavy duty vehicles. DG-GROW has a well-established cooperation with JRC through a series of Administrative Arrangements for elaborating proposals related to various Directives/Regulations under the responsibility of DG-GROW, with particular emphasis on the technical issues within these pieces of legislation.</p> <p>The latest AA (no. 34263) that had been signed in April 2016 will expire at the end of 2018. A new AA (35074) has been signed to partially cover additional tasks to be carried out during 2018 and</p>	JRC.C.4	4.1.f	GROW	JRC	CLIMA CNECT ENER ENV MOVE RTD TRADE	ANL - Argonne National Laboratory TABC - Trans-Atlantic Business Council	01/01/2014 31/12/2020	INS-RS	8	Assessment of in-vehicle durability of batteries and hybrid power determination	Report outlining the results of durability tests or simulation of EVs/HEVs and hybrid power determination	31/12/2019	Science for Policy reports
											10	Final report	Final report summarizing all the activities carried out under the new AA with DG-GROW	31/12/2019	Technical Reports
190 - PRESERVE JRC.C.4	4440 - EMILE S&T Support to the Preparation and Implementation of the LDV and HDV legislation	<p>DownToTen will seek to develop a reliable and robust methodology to enhance the regulatory approach in the assessment of particle number emissions in the sub 23nm region (down to at least 10nm), focusing on state-of-the-art automotive powertrains with direct injection gasoline engines, but also diesel ones, under real-world operation conditions. To this end, DownToTen will first investigate and quantitatively describe the nature and the characteristics of nanoparticles <23 nm</p>	JRC.C.4	4.1.f	GROW	GROW, GROW			01/06/2016 31/12/2020	CON-AA,CON-AA	10	Final report	Final report summarizing all the activities carried out under the new AA with DG-GROW	31/12/2019	Technical Reports
190 - PRESERVE JRC.C.4	4847 - DownToTen Measuring automotive exhaust particles from 10 nm	<p>DownToTen will seek to develop a reliable and robust methodology to enhance the regulatory approach in the assessment of particle number emissions in the sub 23nm region (down to at least 10nm), focusing on state-of-the-art automotive powertrains with direct injection gasoline engines, but also diesel ones, under real-world operation conditions. To this end, DownToTen will first investigate and quantitatively describe the nature and the characteristics of nanoparticles <23 nm</p>	JRC.C.4	4.1.f	GROW	RTD			01/10/2016 30/09/2019	CON-IA	1	Proposal for measurement of particle emissions	Contribution to the proposal for a robust PN emissions measurement procedure for both laboratory and RDE conditions; the main target of the method will be to take into account the potentially different particle characteristics of state-of-the-art automotive powertrains (i.e. existence of particles <23nm), without compromising the measurement repeatability and reproducibility for regulatory purposes	30/06/2019	JRC technical reports

JRC 2019 - 2020 DETAILED WORK PLAN															
Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
190 - PRESERVE JRC.C.4	4851 - PaREGEEn Particle Reduced, Efficient Gasoline	PaREGEEn addresses the short term scope of the GV-02 call via research into and the innovation of gasoline engines for light duty vehicles. Specifically, engines used in mid to premium passenger cars will be addressed. In order to ensure the overall safety of vehicles equipped with a rechargeable electrochemical energy storage system (battery) containing flammable electrolyte, the vehicle occupants should not be exposed to the hazardous environment resulting from thermal propagation of this system. In the context of the further development (Phase 2) of the Global Technical Regulation on Electric Vehicle Safety (GTR EVS), the UNECE Informal Group experts involved in this exercise have acknowledged the safety risks to vehicle occupants associated with thermal propagation (TP) and recognise that regulatory coverage of thermal propagation is of crucial importance. As co-chair of the UNECE Informal Group DG GROW has solicited JRC's continued support to the continues development of the GTR and within this AA to specifically develop an appropriate test DG-GROW has a well-established cooperation with JRC for elaborating proposals related to various Directives/Regulations under the responsibility of DG-GROW, such as the Regulations on type approval of light-duty vehicles, heavy-duty vehicles, non-road mobile machinery and L-category vehicles with particular emphasis on the technical issues within these pieces of legislation. While the JRC will continue to provide technical expertise to DG-GROW on specific legislation related issues, this AA covers the area of in-service conformity testing for light-duty vehicles and wider support to the new market surveillance framework which deals with all the relevant aspects related to motor vehicles (i.e. LDV and HDV). The text of the new type approval framework has been agreed at the end of 2017 after the trilogue negotiation phase	JRC.C.4	4.1.f	GROW	RTD			01/10/2016 30/09/2019	CON-IA	6	Contribution to the deliverables of the projects	Data and measurements contributing to the deliverables of the projects.	30/09/2019	Technical Reports
167 - EST JRC.C.1	5820 - BaTProp Battery Thermal Propagation and Safety Related Aspects	EU project to call H2020-GV05-2017. The QUIET project aims to support the development of a user-centric designed and efficient electric vehicle with increased driving range under real-world conditions. Primary aspects are increased passenger comfort and energy management of auxiliary components. Furthermore, lightweight aspects of the vehicle components and modules will be targeted. The developed innovations will be finally integrated into a electric vehicle as demonstrator. The particular core is to develop and implement novel and innovative technologies and to use synergetic effects to reduce the energy consumption, which is needed for cooling and heating the passenger compartment under extreme driving conditions, with reference to a currently available Within the Testbed for Interoperability of Intelligent Homes, Electric Vehicles & Smart Grids, INTEC supports development of international standards and EU regulatory measures regarding the interoperability of electric vehicles ("EVs" incl. plug-in hybrids "PHEVs") with their electric supply equipment ("EVSE") and smart grid infrastructure. It performs pre-normative research on reliability, efficiency, safety and security aspects of charging and communication technologies, including the EV/EVSE electromagnetic compatibility: INTEC entails development of testing methods for technologies linking EVs and recharging stations, and even with back-end offices and Smart Grid management centres (wire-bound & wireless). It enables faster, smarter and easier-to-use recharging of EVs, and embedding of electromobility into smart electric grids, smart city management as well as vehicle-to-grid technologies of bi-directional electric energy-flow. It does so in line with the Roadmap for the Energy Union (Action: "Communication on decarbonising the transport sector, [...]") and in the White Paper "Roadmap to a Single European Transport Area". As per these documents, electrification of transport is key to break oil dependency and to decarbonize transport, especially for road (short & medium distance) and rail transport. Europe needs to speed up electrification of its road vehicle fleet and become a leader in electro-mobility and energy storage technologies. This requires a full integration of electric vehicles in urban mobility infrastructure policies and in an ever smarter power-grid and -distribution, considering EVs as both, energy consumers and potential storage swarms. The Commission (DG MOVE) is already taking action to promote the deployment of the necessary infrastructure, notably, recharging	JRC.C.1	4.1.f	GROW	GROW	MOVE RTD	- European Space Research and Technology Centre CEN - European Committee for Standardization CENELEC - European Committee for Electrotechnical Standardization (CENELEC) EUROBAT - Association of European Automotive and Industrial Battery	06/04/2017 05/04/2020	CON-AA	1	Annual report on thermal propagation to UNECE GTR on EVS	Scientific support and advice to DG GROW (co-chair) of the UNECE informal group on electric vehicle safety (EVS) set up by WP.29 to develop a UN Global Technical Regulation (GTR). An annual report/reports describing scientific research underpinning the development of a regulatory test method to demonstrate that potential risks to vehicle occupants associated with thermal propagation are appropriately minimised and/or provision of S&T analysis on proposals made by other stakeholders. Whenever possible, results of the underpinning scientific work will be published in peer-reviewed scientific journals.	05/04/2020	Science-for-policy reports
190 - PRESERVE JRC.C.4	6166 - INSET In-Service Conformity Testing	EU project to call H2020-GV05-2017. The QUIET project aims to support the development of a user-centric designed and efficient electric vehicle with increased driving range under real-world conditions. Primary aspects are increased passenger comfort and energy management of auxiliary components. Furthermore, lightweight aspects of the vehicle components and modules will be targeted. The developed innovations will be finally integrated into a electric vehicle as demonstrator. The particular core is to develop and implement novel and innovative technologies and to use synergetic effects to reduce the energy consumption, which is needed for cooling and heating the passenger compartment under extreme driving conditions, with reference to a currently available Within the Testbed for Interoperability of Intelligent Homes, Electric Vehicles & Smart Grids, INTEC supports development of international standards and EU regulatory measures regarding the interoperability of electric vehicles ("EVs" incl. plug-in hybrids "PHEVs") with their electric supply equipment ("EVSE") and smart grid infrastructure. It performs pre-normative research on reliability, efficiency, safety and security aspects of charging and communication technologies, including the EV/EVSE electromagnetic compatibility: INTEC entails development of testing methods for technologies linking EVs and recharging stations, and even with back-end offices and Smart Grid management centres (wire-bound & wireless). It enables faster, smarter and easier-to-use recharging of EVs, and embedding of electromobility into smart electric grids, smart city management as well as vehicle-to-grid technologies of bi-directional electric energy-flow. It does so in line with the Roadmap for the Energy Union (Action: "Communication on decarbonising the transport sector, [...]") and in the White Paper "Roadmap to a Single European Transport Area". As per these documents, electrification of transport is key to break oil dependency and to decarbonize transport, especially for road (short & medium distance) and rail transport. Europe needs to speed up electrification of its road vehicle fleet and become a leader in electro-mobility and energy storage technologies. This requires a full integration of electric vehicles in urban mobility infrastructure policies and in an ever smarter power-grid and -distribution, considering EVs as both, energy consumers and potential storage swarms. The Commission (DG MOVE) is already taking action to promote the deployment of the necessary infrastructure, notably, recharging	JRC.C.4	4.1.f	GROW	GROW			01/05/2017 15/02/2020	CON-AA					
190 - PRESERVE JRC.C.4	6202 - QUIET Qualifying and Implementing a User-centric Designed and Efficient Electric Vehicle	EU project to call H2020-GV05-2017. The QUIET project aims to support the development of a user-centric designed and efficient electric vehicle with increased driving range under real-world conditions. Primary aspects are increased passenger comfort and energy management of auxiliary components. Furthermore, lightweight aspects of the vehicle components and modules will be targeted. The developed innovations will be finally integrated into a electric vehicle as demonstrator. The particular core is to develop and implement novel and innovative technologies and to use synergetic effects to reduce the energy consumption, which is needed for cooling and heating the passenger compartment under extreme driving conditions, with reference to a currently available Within the Testbed for Interoperability of Intelligent Homes, Electric Vehicles & Smart Grids, INTEC supports development of international standards and EU regulatory measures regarding the interoperability of electric vehicles ("EVs" incl. plug-in hybrids "PHEVs") with their electric supply equipment ("EVSE") and smart grid infrastructure. It performs pre-normative research on reliability, efficiency, safety and security aspects of charging and communication technologies, including the EV/EVSE electromagnetic compatibility: INTEC entails development of testing methods for technologies linking EVs and recharging stations, and even with back-end offices and Smart Grid management centres (wire-bound & wireless). It enables faster, smarter and easier-to-use recharging of EVs, and embedding of electromobility into smart electric grids, smart city management as well as vehicle-to-grid technologies of bi-directional electric energy-flow. It does so in line with the Roadmap for the Energy Union (Action: "Communication on decarbonising the transport sector, [...]") and in the White Paper "Roadmap to a Single European Transport Area". As per these documents, electrification of transport is key to break oil dependency and to decarbonize transport, especially for road (short & medium distance) and rail transport. Europe needs to speed up electrification of its road vehicle fleet and become a leader in electro-mobility and energy storage technologies. This requires a full integration of electric vehicles in urban mobility infrastructure policies and in an ever smarter power-grid and -distribution, considering EVs as both, energy consumers and potential storage swarms. The Commission (DG MOVE) is already taking action to promote the deployment of the necessary infrastructure, notably, recharging	JRC.C.4	4.1.f	GROW RTD	RTD	RTD	ACEA - European Automobile Manufacturers Association	31/10/2017 30/09/2020	CON-IA	1	Contribution to the final report of the project	The report will summarize the main technical outcomes resulting from the activities carried out in the project	30/09/2020	JRC technical reports
208 - INTEROP-STORE JRC.C.4	6311 - INTEC InTeroperability and Electromagnetic Compatibility of electric vehicles and their recharging infrastructure	Within the Testbed for Interoperability of Intelligent Homes, Electric Vehicles & Smart Grids, INTEC supports development of international standards and EU regulatory measures regarding the interoperability of electric vehicles ("EVs" incl. plug-in hybrids "PHEVs") with their electric supply equipment ("EVSE") and smart grid infrastructure. It performs pre-normative research on reliability, efficiency, safety and security aspects of charging and communication technologies, including the EV/EVSE electromagnetic compatibility: INTEC entails development of testing methods for technologies linking EVs and recharging stations, and even with back-end offices and Smart Grid management centres (wire-bound & wireless). It enables faster, smarter and easier-to-use recharging of EVs, and embedding of electromobility into smart electric grids, smart city management as well as vehicle-to-grid technologies of bi-directional electric energy-flow. It does so in line with the Roadmap for the Energy Union (Action: "Communication on decarbonising the transport sector, [...]") and in the White Paper "Roadmap to a Single European Transport Area". As per these documents, electrification of transport is key to break oil dependency and to decarbonize transport, especially for road (short & medium distance) and rail transport. Europe needs to speed up electrification of its road vehicle fleet and become a leader in electro-mobility and energy storage technologies. This requires a full integration of electric vehicles in urban mobility infrastructure policies and in an ever smarter power-grid and -distribution, considering EVs as both, energy consumers and potential storage swarms. The Commission (DG MOVE) is already taking action to promote the deployment of the necessary infrastructure, notably, recharging	JRC.C.4	4.1.f	GROW	JRC	ANL - Argonne National Laboratory CENELEC - European Committee for Electrotechnical Standardization (CENELEC) US DoE - US Department of Energy (DOE)	01/01/2018 31/12/2020	INS-UR	4	Technial Report on Aging of EV-batteries in view of Vehicle-to-Grid respectively Vehicle-to-Home bidirectional flow	Report in collaboration with C.1: Describes literature and experimental evidence for EV-battery capacity window usable when aplying bi-directional power flow between EVs and Smart Homes / Grids without severely shortening the battery cycles per lifetime (avoidance of deep discharge etc.)	30/06/2019	JRC technical reports	
										5	Peer-reviewed Research papers with relevance for int. standardisation and regulatory policies: a) Interoperability and Solutions for Vehicle-to-Grid integration and b) Wireless Charging	INTEC will publish, ideally with colleagues of ANL, PNNL and NREL in U.S., industry/utility experts, and EU/US academia, two peer-reviewed papers on common experimental work on Vehicle-to-Grid Integration (V2G). This will address aspects of bidirectional power-flow of electric vehicles to/from Smart Homes, necessary standardisation efforts supported, and give outlooks on most future-prone solutions. We also will publish, with colleagues of ANL, one peer-reviewed paper about common experiments on electromagnetic compatibility of wireless charging technologies. That will show continuous development of EM-field strength measurement competency since 2017 in INTEC's VeLA9 lab. It will regard the stray field risks of asphalt embedded / EV under-floor positioned resonating coils. Regulatory & pre-normative issues of wireless charging are addressed, and an assessment, if - and in how far - wireless charging would constitute different types of feedback disturbance effects on the supply grid.	20/12/2020	Journal contributions (Scopus)	
										6	Roadmap for Interoperability Development	Science for Policy Report on Common Efforts with the U.S.-American Partners (ANL, D.o.E., PNNL, NREL) to define a Roadmap for Interoperability Development.	30/06/2020	Science for Policy reports	
167 - EST JRC.C.1	6359 - SEC Safety of energy storage technologies	This WPK provides critical interventions fulfilling needs and problems associated with the safe deployment of energy storage technologies and energy carriers specifically through performing standardisation and pre-normative research focusing on safety. Through this WPK the JRC acts as a trusted and impartial pivot, balancing the commercial interest of industrial stakeholders whilst ensuring the safety and wellbeing of European citizens. The independence and scientific excellence of the JRC are exploited to support the development of standards and regulations related to the safety assessment of these technologies. Safety assessments of energy carriers in mobile and energy storage applications are performed including gaseous large scale energy storage (natural gas, hydrogen). Institutional research performed in this WPK complements the research performed in WPKs 5820 and 7262 under AAs. DG GROW has solicited JRC, as a strategic partner, for continued support to the development of the Global Technical Regulation on Electric Vehicle Safety (GTR EVS). To ensure the overall safety of vehicles equipped with batteries containing flammable electrolyte, vehicle occupants should not be exposed to hazardous environments resulting from electrolyte leakage or venting. Research in this WPK is performed in the context of Phase 2 of the GTR EVS development, where experts have acknowledged the safety risks associated with short circuiting	JRC.C.1	4.1.f	GROW	JRC	JRC MOVE	01/01/2018 31/12/2020	INS-RS	SEC02	Contributions to global technical regulation (GTR) development on type approval of hydrogen and electric vehicle safety	This multi-annual deliverable provides direct S&T support demanded by DG GROW covering: a) Provision of expert technical advice on safety aspects of hydrogen and battery electric vehicles b) Verification of selected testing procedures, c) Contributions to the development of the GTR. This work is based on the already established modus operandi adopted for the first phase of both the HFCV and EV GTRs. Results of the research performed enriches JRC's specific competences and knowledge in battery and hydrogen safety aspects and these are applied in other non-institutional WPKs. Whenever possible, results of the underpinning scientific work will be published in peer-reviewed scientific journals to enhance the advancement of scientific knowledge and safety practices in applications using energy storage technologies. Joint publications with renowned experts/institutions in the field will be pursued to augment the scientific novelty and impact of the research.	31/12/2020	Science-for-policy reports	
										SEC03	Report on safety of selected energy carriers	This multi-annual deliverable will review the current status and identify gaps on safety aspects of selected energy carriers (LNG or other advance storage systems) for various applications, such as automotive, maritime, rail and aviation. Whenever possible, results of the underpinning scientific work will be published in peer-reviewed scientific journals.	31/12/2020	Technical Reports	
167 - EST JRC.C.1	6781 - CarE-Service Circular Economy oriented services for reuse and remanufacturing of hybrid and electric vehicles	Hybrid and Electric vehicles have the potential to revolutionise future transportation habits in the direction of reducing environmental impacts and transportation costs. The CarE-Service project proposal aims at demonstrating innovative circular economy business models based on advanced mobility services exploiting hybrid and electric vehicles. Such business models will entail re-use, remanufacturing and recycling of components and materials of hybrid and electric vehicles for applications in the automotive sector and in other sectors (energy, plastics, mechanical, furniture, etc.). Mobility services will consist in novel performance based, non ownership-based and highly customized value proposition for different customer segments that will establish in Europe highly efficient and competitive recycling supply chains of hybrid and electric vehicles. Through the CarE-Service project the JRC reinforces its collaboration and exchanges with industry and deepen its	JRC.C.1	4.1.f	MOVE RTD	RTD	ENER ENV GROW RTD	- University of Linköping - Fraunhofer Institute of Machine Tools and Forming Technology CNR - ITALIAN NATIONAL RESEARCH COUNCIL	01/06/2018 31/05/2021	CON-IA	D2	Scientific reports according to the project work programme (recurring yearly)	The annual contribution is spelled out in specific deliverables and scientific reports with JRC input in accordance with the deliverables specified in the project work programme	31/12/2019	Science for Policy reports
											D3	Scientific reports according to the project work programme (recurring yearly)	The annual contribution is spelled out in specific deliverables and scientific reports with JRC input in accordance with the deliverables specified in the project work programme	31/12/2020	Science for Policy reports
167 - EST JRC.C.1	7262 - UNGRHy UNECE GTR HFCV Expert Contribution	The aim of this Administrative Agreement is to support the development of hydrogen safety provisions within the scope of Phase 2 of the GTR No.13. JRC will analyse critical technical issues with the objective of revising the applicable test methods, or establishing new ones where appropriate. In this context the JRC will gather conclusions from relevant European research activities and generate experimental data using its High Pressure Gas Testing Facility (GasTeF) for testing compressed hydrogen storage systems.	JRC.C.1	4.1.f	GROW	GROW	MOVE RTD	CENELEC - UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE US DoE - US Department of Energy (DOE) - FUEL CELLS AND HYDROGEN JOINT UNDER	21/03/2018 20/03/2021	CON-AA	GTRH2P	Scientific and technical analysis on topics relevant to Phase 2 of GTR on HFCV	Scientific support and advice to DG GROW to support the development of hydrogen safety provisions within the scope of Phase 2 of the UNECE GTR No. 13: - In agreement with GROW C.4, provision of S&T analysis as input to the Informal Working Group Meetings and, when relevant, will provide additional assessment on proposals made by other stakeholders. - When appropriate execution of experimental tests using GASTEF facility to address / corroborate technical issues relevant to the Phase 2 of the GTR No.13 and to verify suitability of the suggested test methods.	26/02/2021	JRC contributions to policy documents
443 - Raw Materials JRC.D.3	7624 - CAELI Advanced Circular Economy Model for Li-ion Batteries End of Life Management - PLANNED	CAELI proposal submitted in 02/2019 in H2020 call on "Raw materials innovation for the circular economy: sustainable processing, reuse, recycling and recovery schemes" (CE-SC5-07-2018-2019-2020). Main focus of the call: "Securing the sustainable access to raw materials, including metals, industrial minerals (...) raw materials, and particularly Critical Raw Materials (CRM)". Project results will be integrated in the Raw Materials Information System. Lithium-ion (Li-ion) batteries play a key role in our life: every year, around 800 ktons of car batteries, 190 ktons of industrial batteries and 160 ktons of portable batteries are placed in the EU market. The Li-ion battery market is expected to grow steadily, quadruplicating its size in the next ten years. The goal of the project is to design, develop & implement an innovative effective collection & reuse/recycling integrated system, aimed at optimizing the use of resources within Lithium-ion batteries while minimizing the environmental impacts and resource losses of the end of life process. The project objectives are: to scale up promising secondary raw materials production	JRC.D.3	4.1.f	GROW	RTD	CLIMA ENV RTD		01/06/2020 31/12/2023	CON-IA	1	Contribution to the modelling and accounting of material flow in the batteries, with a special focus on	Contribution to the modelling and accounting of material flow in the batteries, with a special focus on content of CRMs	20/12/2021	Technical Reports
											2	contribution to the various process assessments	Main contribution to the various process assessments (accounting for resource consumption/saving through Material Flow Analysis (MFA), development of tailored sustainability resources / circularity indicators , assessing benefits / burdens of secondary raw material production);	20/12/2022	Technical Reports
											3	Dedicated module for the Raw Material Information System (RMIS)	Dedicated module for the Raw Material Information System (RMIS)	30/11/2023	Sci information systems and databases

JRC 2019 - 2020 DETAILED WORK PLAN

Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
209 - LoCarMo JRC.C.4	7750 - DIAS Smart Adaptive Remote Diagnostic Antitampering Systems	Target of H2020 project DIAS is to define methods and legislation to ensure that future vehicle monitoring systems cannot be bypassed or disabled in any way either currently known or that may appear in the future. For this reason, at first, real world (and in-lab) testing of OBD systems of light duty (LD) and heavy duty (HD) vehicles will be performed over known possible failures and tampering methods of engine, aftertreatment and vehicle which are expected to appear in high frequency in market (existing practices or anticipated in future systems) and affect emissions and fuel consumption. Also, the ability of existing systems to detect malfunctions and the effect on emissions and fuel consumption will be assessed. In parallel vehicle software and hardware security will be investigated. This will include analysis of current vehicle software and hardware, identification of current and future security needs (taking into account anticipated drivetrain and powertrain concepts, pollution control systems etc.), identification of communication pathways, security needs and security gaps (vehicle and engine control, remote reporting of performance, remote updates etc.), determination of the best in market safekeeping techniques and methods as well as of methods for keeping software safe in terms of tampering and protection of intellectual properties but transparent to certification authorities. Improved OBD and OBM systems will be developed and demonstrated. This will address identification of current and possible low cost OBD and OBM hardware and software (incl. sensors and hardware in general both existing and possible to develop - proof of concept), virtual sensors, low cost communication options and protection of sensitive data. Different functioning algorithms depending on vehicle operation will be developed and a demonstration vehicle and management software will be created. At a final step, the synthesis and evaluation of results will be conducted, that will summarise the output of all work packages, discussion of best practices available and guidelines for OBD/OBM legislation.	JRC.C.4	4.1.f	GROW	RTD	RTD		01/01/2019 31/12/2021	CON-IA	n/a	n/a	n/a	n/a	n/a
7534 - C2ART JRC.C.4	7762 - FMS-Lab JRC-Ispira site as living Lab for Future Mobility Solutions	Driverless vehicles will change the way we move, the way we work and the way we live, just as steam trains and motor cars did before them. They will shape the future of road transport, could lead to significantly reduced transport costs, enable new services and offer new ways to answer the ever-increasing demand for mobility of people and goods. For this reason several test-sites are currently being developed around the world. Most of them	JRC.C.4	4.1.f	GROW	JRC	CNECT MOVE RTD	EUCAR - European Council for Automotive R&D (EUCAR)	01/01/2019 31/12/2020	INS-RS	1	General plan for the FMS-Lab	The deliverable will provide an extensive description of the plan for achieving a Living Lab for Future Mobility Solutions in the JRC-Ispira Site with a detailed outline of the elements already introduced in the system at the date of its completion. The work will be based on the work of the internal group and will benefit also from the support of external experts	30/04/2020	Technical Reports
4.1.g Economic analysis in support of internal market and competition policies - analyse the industrial competitiveness of SMEs and innovative companies; assess the macroeconomic impact of competition policy enforcement in the EU; provide data and analyses on bio-based industries, as part of the Bioeconomy Knowledge Centre (linked to Section 1.7); provide economic analysis of dual food quality.															
9647 - INCOGALION JRC.B.5	4865 - AA-SICOMA-2017 Modelling the macroeconomic impact of competition policies	Objective of this WPK is the assessment of the macroeconomic impact of competition policy enforcement in the EU by exploiting updated information on cartel and merger decisions by the European Commission. The work consists in simulating competition policy enforcement by the European Commission, using the QUEST III model developed by DG ECFIN in collaboration with the JRC. Model simulations will be aimed at exploiting the available information on the sectoral distribution of Commission cartel and merger cases by tracking the interlinkages between sectors. In addition, support will be given to the development and testing of alternative model specifications aimed at better capturing the market entry/exit effects of Competition policy decisions at the macroeconomic level.	JRC.B.1	4.1.g	COMP	COMP,C OMP			02/01/2017 18/12/2020	CON-AA,CON-AA	1SICOMA2 017	Simulating macroeconomic impact competition policy	1. Yearly update of existing model simulations with QUEST using updated data on customer savings 2. Performance of model simulations exploiting the sector distribution of Commission cartel and merger decisions [done by JRC.B5] 3. Conduct of model simulations with an extended version of QUEST including a market entry-exit transmission channel 4. Integration of the results obtained under the previous three objectives in a single set of model simulations. [joint with JRC.B5]	15/12/2019	Science-for-policy reports
											2SICOMA2 020	Simulating macroeconomic impact competition policy	1. 2020 update of existing model simulations with QUEST using updated data on customer savings [JRC.B1] 2. Performance of model simulations exploiting the sector distribution of Commission cartel and merger decisions [JRC.B5] [draft deliverable of new AA to be agreed with DG COMP]	16/12/2020	Science for Policy reports
9647 - INCOGALION JRC.B.5	5700 - Manubase-3 Economic analysis of European competitiveness and integration 3	Development of a framework and its application to the analysis of the competitiveness of the EU manufacturing industries and the associated service sectors as well as of their role in global value chains. Analysis of the links between environmental regulation, energy, clean technologies and other EU policies with competitiveness indicators. Analysis of the integration of the Member States in the Internal Market. Follow-up project of Manubase #883	JRC.B.5	4.1.g	GROW	GROW			15/11/2017 14/04/2019	CON-AA	1	Analysis report on EU internal market integration	Analysis and characterization of EU industries and Member States with respect to internal market integration. This includes a methodological development using value-chain analysis (to derive a measure of EU value-chain integration at the sector-country level), and an empirical part that links value-chain and other market characteristics (e.g. regulatory or institutional) to economic performance indicators. The policy relevance consists in the possibility of identifying sectors where EU integration is not fully developed and where, hence, policy reform might be warranted. This is expected to inform the European Semester country reports through the collaboration with DG GROW.	14/04/2019	Science-for-policy reports
145 - TIC-2030 JRC.B.3	6366 - KeyTER Key Enabling and Emerging Technologies for Territorial	Analysis of the capability of the EU to develop new technologies which are critical to the transformation of strategic industries and to the emergence of new ones. The aim is to better understand how technical solutions emerge and spread across different technologies, territories (at the sub-national level) and strategic knowledge based industries. It builds on the analysis of	JRC.B.3	4.1.g	GROW	JRC	CNECT REGIO RTD	OECD - Organisation for Economic Co-operation and Development (OECD)	01/01/2018 31/12/2020	INS-RS	3	2020 Report on Keyter activities	2020 Report on Keyter activities	31/12/2020	Science for Policy reports
											4	2019 Report on Keyter activities	2019 Report on Keyter activities	31/12/2019	Science-for-policy reports
145 - TIC-2030 JRC.B.3	6427 - VC-Scale-ups Venture Capital and the promotion of scale-ups	Within the broader project on 'industrial innovation' lead by B3, and with explicit collaboration with this unit, the policy analysis under this WPK will put the emphasis on the effect of venture capital support instruments for innovative firms available at the EU level. Building on the 2018 work, and specifically on the three scientific papers on policy instruments for the promotion of scale-ups finalised in 2018, this analysis will explore the role of venture capital in supporting high-growth potential innovative companies. The focus and scope of this analysis is especially relevant for the Commission's Communication on 'A renewed European Agenda for Research and Innovation' (COM (2018) 306), where the 'increase private investment in research and innovation and scale up initiatives such as the VentureEU to boost private investment and patient capital' is explicitly mentioned as a key step for strengthening the EU research and innovation ecosystem. Our analysis will contribute to this debate by focusing on three main issues. First, we will develop a	JRC.B.7	4.1.g	GROW	JRC			01/01/2019 31/12/2020	INS-RS	1	Venture capital and the emergence of innovative firms	This study will provide a statistical portrait of the European venture capital market and compare it to its main competing counterparts. It also evaluates the role of European venture capital in the companies it finances. The results will be presented in a short JRC Science for Policy Report co-authored by B7, B3 and B6 units. The appropriate scope and suitable publication outlet for a scientific publication will be also chosen after a careful consideration based on the preliminary results (e.g. Research Policy).	31/12/2019	Science for Policy reports
											SEFKM2	Impact of HGIE support. Evidence from evaluations synthesis	The 2016-2018 work on HGIE will be translated into two/three academic papers that will be presented at leading scientific conference and submitted to leading journals (e.g. Research Policy, Industrial and Corporate Change).	30/04/2019	Journal contributions (Scopus)
											SEFKM3	Impact of HGIE support. The evidence from SME instrument	The results will be presented in a short JRC Science for Policy Report co-authored by the B7, B3 and B6 units. The appropriate scope and suitable publication outlet for a scientific publication will be also chosen after a careful consideration based on the preliminary results (e.g. Research Policy).	30/04/2019	Science for Policy reports
9647 - INCOGALION JRC.B.5	7629 - Comp3M EU Competitiveness: Methods, Measures, and Mappings	This WP analyses sectoral competitiveness at the European, national, and regional level. It combines various elements and measures of competitiveness, e.g. productivity, value chain participation, export market performance, fitness, and investigates whether and how these are influenced by Single Market characteristics (e.g. constraints on tradability of services or product market regulation), as well as by other policy or structural (e.g. technological change, income effects, intangible investment) variables. It integrates work of units B3, B5 and B7. A specific objective is to identify sectors which could strengthen their competitiveness by further Single Market integration/harmonization. To this end, the value-chain links and mutual dependencies between EU Member States, including the dependency between the UK and the remaining Member States, need to be characterised. As part of the envisaged work, new and innovative concepts such as non-cost competitiveness or the Fitness Method of competitiveness are to be explored. At the same time, the fact that many EU Member States represent mature industrialized economies clearly bears consequences in terms of future economic growth prospects, the EU's global income share, the manufacturing share of GDP.	JRC.B.5	4.1.g	GROW	GROW, J RC	REGIO RTD TF50		01/01/2019 31/12/2020	CON-AA,INS-RS	Comp3Mx D1	Report on Drivers of EU Productivity	Many EU Member States represent mature industrialized economies, which potentially bears consequences in terms of their future ability to increase productivity and foster economic growth. This report presents the results of the analysis on drivers of productivity growth, such as the investigation of the role of Baumol's disease and the impact of intangible investments on productivity. In terms of methodology, the first type of analysis uses shift-share analysis at the sub-sectoral level to identify growth-hindering sub-sectors. For the analysis of the role played by intangibles as a driver of productivity growth the INTAN-INVEST dataset will be exploited. In terms of policy relevance, the results are expected to inform some of the statements in the Country Reports of the European Semester cycle.	17/12/2020	Science for Policy reports
											Comp3Mx D2	EU competitiveness: insights from new approaches	This report presents results from the exploration and application of new and innovative concepts that measure and explain competitiveness, such as the Fitness Method of competitiveness, non-cost competitiveness, global-value chain participation and individual firm's technological capacity. These new approaches make intensive use of large amounts of data (global input-output tables, global trade data at product level). The report will first assess the actual applicability of these approaches, and then shed light on the question of whether and how competitiveness (expressed by these new measures) is influenced by Single Market characteristics (e.g. constraints on tradability of services or product market regulation) and/or firm characteristics.	15/12/2020	Science for Policy reports
9647 - INCOGALION JRC.B.5	7749 - Strategy INCOGALION Strategic Steering of Work on Industrial Competitiveness	Work package formalizing the effort required for the strategic steering and coordination of DirB work falling within the domain of this project. Envisaged activities include regular short coordination meetings between the involved people and DirB units, annual or bi-annual topical meetings, joint discussions to coordinate the uptake/integration of new activities and to ensure consistent representation of DirB work on the specific topic of industrial policy, competitiveness and globalisation. In addition, activities of this work package serve to coordinate the active exchange with the sister project TIC 2030 on industrial policy and innovation.	JRC.B.5	4.1.g	GROW	JRC	COMP JRC REGIO TF50 TRADE		01/01/2019 31/12/2020	INS-RS	Incogalion Synthesis	Report on Industrial Competitiveness and Globalisation	In view of the overall objectives of the project, this report provides a synthesis of the most relevant findings across the different work packages, i.e. what are the broader lessons learned in this transversal research project? This is expected to provide a series of statements on how the competitiveness of EU markets can be strengthened, where each statement is supported by referring to and briefly explain the evidence assembled in the individual work packages of the project. Here, competitiveness is broadly defined and includes an efficient internal market (no anti-competitive markets, no regulatory barriers) and the EU's ability to compete globally (value chain integration, cost and non-cost competitiveness of EU products). These insights are expected to feed into the current political debate on how to make the EU economy fit for globalization.	01/12/2020	Science for Policy Briefs

JRC 2019 - 2020 DETAILED WORK PLAN

Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
4.2. Customs risk management policy and the fight against fraud															
4.2.a Customs risk management and the fight against fraud - carry out research and analysis and develop and test new technologies, prototypes, applications as well as data infrastructures and systems to help manage safety, security, financial and other customs risks connected with the cross-border movement of goods; combat fraud and other types of criminal activity, e.g. enhance customs risks analysis and anti-fraud intelligence by strengthening EU and national analytical capacities; support the fight against trafficked, smuggled or counterfeited goods; standardise analytical data and create libraries of analytical data for illicit substances; provide reference systems and certified reference materials.															
215 - SITAF-ST JRC.I.3	285 - SITAF- CORE Statistics and Information Technologies for Anti-Fraud – Methods, Models and Dissemination Tools	<p>Building on JRC's extensive experience in modelling, developing & implementing statistical procedures for detecting patterns in frauds against the budget of the EU and EU MS, SITAF-CORE improves & updates statistical and data mining methods for fraud detection & extends their application to other domains and policies. SITAF-CORE's research activities cover improving versatility of statistical procedures to handle data of different formats; improving their computational efficiency & scalability; and their accessibility to users. This WIP will:</p> <p>(1) Expand the scope of application of the reference web platform for all SITAF-ST statistical tools (WebAriadne) beyond anti-fraud, in order to make it a general-purpose data mining and statistical processing tool. This will help increase the user base and visibility of the application, which in turn will be instrumental in broadening the range of application of SITAF-ST's tools.</p> <p>(2) Re-design THESEUS, the web-based resource used to disseminate results of applications of the SITAF-ST statistical suite for authorized users in the EC and Member State anti-fraud services. THESEUS will have a brand-new user-centric workflow with a view to becoming a collaborative tool for sharing and working on specific results among THESEUS users (members of the users' team or of the whole THESEUS community).</p> <p>(3) Work on the Automated Monitoring Tool (AMT) project series providing support to OLAF. The aim of this project is to develop and apply novel statistical methods to anti-fraud relevant data and disseminate results via THESEUS. This project will further advance applications and development work in the systematic statistical detection of patterns of antifraud relevance in large volumes of trade and other relevant data and will further disseminate the results in OLAF, the Member States and other interested services. Phase II focuses on the study of the problem of the deflection of trade and on the analysis of trade data at disaggregated level, i.e. import/export declarations containing the value and quantity of individual transactions into the EU.</p> <p>(4) Set up the Competence Centre in Data Mining: scope, procedures, terms of reference, tools, applications, etc. Please see the project-level attachment "Concept Note on the CC-DMA" for details.</p>	JRC.I.3	4.2.a	OLAF	JRC,OLA F,TAXUD	GROW TAXUD	Cust Aut MS - MS Customs Authorities	01/01/2017 15/12/2021	CON-AA,CON-AA,INS-RS	201901	Enhanced EU Fraud detection capability	The AMT phase II project will deliver methods and tools for the detection of specific patterns in declaration level data. These are clusters and systematic under/over-valuation and price outliers for heteroscedastic populations. This work is meant to intensify the support to Member States, especially in view of the revision of the 515/97 Regulation. The deliverable consists of a report on the software and the anti-fraud resources developed for OLAF. The report shall specify the results linked to the support to the INTEL4CUSTAF working groups.	02/02/2021	Whole parts of policy documents
											201902	Set-up of CC in Data Mining including ad-hoc support to other JRC Units and Projects	1) Lay out the structure of the Data Mining Competence Centre (CC), including (a) Scope, roles and responsibilities, (b) Coordination and decision procedure. Details for this activity are available in the attachment "Concept Notes on the Data Mining CC". 2) Work for the new CC will stem from (and expand) ongoing collaborations with other JRC units and projects, such as: (a) JRC.B.1 on novel applications of robust statistics to the analysis of banking and financial data and trade flows and the clustering for the detection of communities, (b) JRC.B.1 and JRC.C.3 on the analysis of the energy market, (c) JRC.E.2 on the analysis of satellite positioning data, (d) JRC.G.II.7 on the analysis of export flows of dual-use products, (e) JRC.E.5 on methods for robust trade price estimates and outlier detection, (f) JRC.E.1 on statistics for timely and robust tsunami alerting, (g) Project Data4Policy on new case studies concerning energy and financial data.	15/12/2019	Article contribution to periodicals or to conference proceedings listed in the Thomson-Reuters' Science Citation Index Expanded (SCI-e) or Social Science Citation Index (SSCI)
											201903	KPI IT platform	Ad-hoc IT platform, capable to: (i) centralize the data acquisition; (ii) validate and structure information in a unique consistent dataset (in particular, keeping historical evolution); (iii) automatize data treatment and the computations needed for the KPI; (iv) make output and results available in visual/graphical form, easy to be used both for policy analysis and for communication.	20/12/2019	Technical systems
											202001	The WebARIADNE statistical processing platform	WebAriadne will be one of the pillars of the Competence Centre in Data Mining. It will provide the Competence Centre's customers with tools for analyzing their own data in full autonomy. This deliverable expands WebAriadne's scope of application beyond anti-fraud, in order to make it a general-purpose data mining and statistical processing tool. Intermediate tasks include: export of results to Theseus, user group management, advanced management of datasets and results, finer-grained control of applications and datasets access, support for R, packaged WebAriadne installations and additional statistical procedures.	15/12/2020	Scientific information systems and databases
											202101	FSDA	Flexible Statistics Data Analysis (FSDA) is an open MATLAB software library in support of a robust and efficient statistical analysis of data sets, ensuring an output unaffected by anomalies in the provided data or deviations from model assumptions. The project is jointly run since 2006 with the University of Parma and is now internationally recognized as a unique tool for robust statistical modelling. The deliverable's work ensures the continuous enrichment of FSDA and its wide applicability	15/12/2021	Scientific information systems and databases
											202102	From THESEUS to my-THESEUS	THESEUS is a web-based resource to disseminate results of application of the SITAF-ST statistical suite for authorized users in the EC and Member State anti-fraud services. The deliverable consists of (1) continuous annual enrichments with new features and signals; (2) a brand-new user-centric workflow with a view to becoming a collaborative tool for sharing and working on specific results among THESEUS users. This requires code refactoring, new functional requirements & user needs evaluation.	15/12/2021	Technical systems
4973 - BOSS JRC.E.5	3782 - CTR-RISK ConTraffic for Customs Risk Management	Collaboration with DG TAXUD and MS Customs authorities in implementing action 6.2 of COM(2014) 527 for improving the customs risk management. Focusing on R&D techniques and prototype systems related to the usage of Container Status Messages collected under Reg (EC) 515/97. Support DG TAXUD in defining how this new type of information can be linked to the existing customs systems and used in an operational manner. The work is expected to have an impact on Customs policy and the Customs 2020 programme. This work requires the continued	JRC.E.5	4.2.a	TAXUD	TAXUD	HOME OLAF	Cust Aut MS - MS Customs Authorities	16/04/2016 15/04/2019	CON-AA					
4973 - BOSS JRC.E.5	6160 - PROFILE PROFILE - Architectures and organizations, big data and data analytics for customs risk	PROFILE seeks to accelerate the uptake of state-of-the-art data analytics and incorporation of new data sources for more effective and efficient European customs risk management. The project provides tailored solutions, that build on modern methods in machine learning, graph-based analytics, and natural language processing, to help targeting officers and strategic analysts to collect and organise unstructured data, data-mine large datasets, apply semi-supervised machine	JRC.E.5	4.2.a	TAXUD	RTD	HOME MOVE OLAF TRADE	Cust Aut MS - MS Customs Authorities	01/09/2018 31/08/2021	CON-IA	1	JRC contributions to the PROFILE project	The contributions of JRC to the PROFILE project are going to be documented through the official deliverables of the H2020 PROFILE project. These deliverables include the work of JRC in WP2 on analytics algorithms and WP6 on data sharing architecture as well as the rest of the activities described in the PROFILE Description of Work document registered in the H2020 system.	30/04/2021	JRC technical reports
5133 - Illicit JRC.F.4	6409 - TOBLAB Identification of illicit tobacco products	The objective of the WPK is the operation of a facility for the chemical analysis of authentic and illicit cigarettes and tobacco products in order to identify whether they are genuine or contraband and counterfeit cigarettes. This work will support customs administrations in the Member States in applying the Anti-Fraud Cooperation Agreement that have been concluded with major tobacco processors with respect to determining whether seized cigarettes are genuine or counterfeit products. The legal basis for the WPK is Article 8 (a) (iii) of Regulation (EU) No 250/2014 establishing a programme to promote activities in the field of the protection of the financial interests of the European Union (Hercule III programme). Characteristic features of authentic tobacco	JRC.F.4	4.2.a	OLAF	OLAF,OL AF	SANTE TAXUD	Cust Aut MS - MS Customs Authorities EUROPOL - EUROPOL	12/07/2017 11/07/2020	CON-AA,CON-AA	2	Annual activity report of TOBLAB	The JRC will analyse tobacco samples (mostly cigarettes and raw tobacco) seized by Member States (MSs) for authentication purposes. Reports summarising the outcome of the analysis and the conclusions about the authenticity of the sample will be sent to the requesting MS and DG OLAF via the ToSMA database (owned and maintained by DG OLAF). The activities of the JRC will be presented in different fora (mostly customs and investigator networks) in the MSs. One workshop will be organised by the JRC for the network of laboratories in MSs involved in the analysis of tobacco and tobacco products in which the activities of the JRC in the last 12 months will be presented and relevant issues will be discussed. DG OLAF will receive a report about the outcome of the previously described activities.	01/07/2019	JRC technical reports
4973 - BOSS JRC.E.5	7777 - I4CAF-2 Scientific and technical support for advancing the customs anti-fraud intelligence in the EU	The project provides scientific and technological support to the European Anti-Fraud Office (OLAF) and Member States (MS) customs authorities in the domain of anti-fraud intelligence. The first component of the project is the assistance provided to the MS and OLAF to strengthen their analytical capacities and collaboration by prototyping and testing novel methods. This activity is also supporting the goal for a more uniform level of anti-fraud controls in the EU by dissemination of best practices and increasing collaboration among MS. A second component of the project is the transfer of the technology and know-how on container traffic analytics developed within the JRC ConTraffic project for the implementation of appropriate functions in the AFSI-CSM operational system run by OLAF and used by all the MS customs authorities.	JRC.E.5	4.2.a	OLAF	OLAF,OL AF	TAXUD	Cust Aut MS - MS Customs Authorities	01/01/2019 31/12/2020	CON-AA,CON-AA	1	Data Analysis for customs anti-fraud	The final report summarises the main results and conclusions from the activities conducted by JRC in the context of the project. They include: support to networks of customs anti-fraud experts through organization of workshop, meetings and the dissemination of best practices. Research, analysis and prototyping of new data analytics techniques in collaboration with customs anti-fraud experts in support to advancing the EU-wide intelligence capabilities in the domain.	20/12/2019	Technical Reports
											2	Scientific and technical support for developing analytics functions in the EU Antifraud System (AFIS)	The interim project report summarises the activities performed by JRC, in the first year of the project, to transfer to OLAF the technology and know-how developed by the ConTraffic project.	20/12/2019	Technical Reports
											3	Scientific and technical support for developing analytics functions in the EU antifraud System (AFIS)	The final project report summarises the activities performed by JRC, in the second year of the project, to transfer to OLAF the technology and know-how developed by the ConTraffic project.	18/12/2020	Technical Reports
4973 - BOSS JRC.E.5	8283 - S-DAC Scientific Support for Data Analytics for Customs	Provision of scientific and technical assistance to support DG TAXUD's actions for the implementation of the Union Customs Code regarding customs risk analysis for safety and security as well as for financial fraud. The work on safety and security risk analysis will be carried out in close collaboration with DG TAXUD's ICS2 project team to support the urgent needs of this project, agreed by the Customs Policy Group in July 2018, based on the scientific know-how and technical capacities of the ConTraffic team. The work on the financial risk analysis will be carried out in close	JRC.E.5	4.2.a	TAXUD	TAXUD	OLAF	Cust Aut MS - MS Customs Authorities	01/12/2018 30/11/2020	CON-AA	1	Year-1 activities for Objective A	Report of the year-1 activities and outputs produced for Objective A	29/11/2019	Technical Reports
											2	Year-2 activities for Objective A	Report on the year-2 activities and outputs for Objective A	30/11/2020	Technical Reports
											3	Overall activities for Objective B	Report on the overall activities performed and outputs for Objective B.	30/11/2020	Technical Reports

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
5. A deeper and fairer Economic and Monetary Union															
5.1. Economic and Monetary Union															
5.1.a Socio-economic analyses - model and carry out socioeconomic analyses to improve macroeconomic, budgetary, structural, and financial developments and policies in the EU.															
203 - MACFIS JRC.B.1	3566 - GAP-GM-QUEST Support to European Semester: Stability and Growth Pact, EC Economic Forecasts and Macroeconomic Imbalance Procedure	Support to DG ECFIN in the context of the European Semester (Stability and Growth Pact, Economic Forecasts, In-depth Reviews, Macroeconomic Imbalance Procedure)	JRC.B.1	5.1.a	ECFIN	ECFIN, ECFIN, EC FIN, JRC	FISMA	MS EU - Member states EU	01/01/2016 31/12/2020	CON-AA, CON-AA, CON-AA, INS-RS	1Semester 2019	Support to European Semester 2019: Economic Forecasts and Output GAP	In the context of strengthened EU economic governance (European Semester and Macroeconomic Imbalance procedure), in collaboration with DG ECFIN, perform model-based calculations with the GM model to provide inputs to official EC Forecast Documents for individual euro area countries and the euro area aggregate and provide methodological inputs to the Output Gap Working Group with maintenance and upgrade of program GAP.	15/12/2019	JRC contributions to policy documents
		1Semester 2020									Support to European Semester 2020: Economic Forecasts and Output GAP	In the context of strengthened EU economic governance (European Semester and Macroeconomic Imbalance procedure), in collaboration with DG ECFIN, perform model-based calculations with the GM model to provide inputs to official EC Forecast Documents for individual euro area countries and the euro area aggregate and provide methodological inputs to the Output Gap Working Group with maintenance and upgrade of program GAP.	18/12/2020	Whole parts of policy documents	
		AAGM2018 1									Model development, simulations and estimations	Implement and test the GM model specifications, also by designing relevant policy scenarios. Perform estimation exercises, allowing flexibility in the choice of countries to be included (countries within Euro Area).	30/06/2019	Science-for-policy reports	
		AAGM2018 2									End users provisions	Provide routines which allow for a frequent re-estimation of the model (before each forecasting exercise) in a user friendly interface such as to allow regular use of the model by non-experiences model users.	30/06/2019	Technical Reports	
		AAGM2019 1									GM model development, simulations and estimations. Provisions for endusers	Implement and test the GM model specifications, also by designing relevant policy scenarios. Perform estimation exercises, allowing flexibility in the choice of countries to be included (countries within Euro Area). Provide routines which allow for a frequent re-estimation of the model (before each forecasting exercise) in a user friendly interface such as to allow regular use of the model by non-experiences model users. [draft deliverable of the AA to be agreed for signature by mid 2019]	31/07/2020	Technical Reports	
6080 - CAS-2 JRC.A.5	5260 - CAS2-EconFor Big data and forecasting economic developments	Many important indicators of economic activity are measured at the quarterly frequency and with significant delays. These delays are the result of the complexity involved in estimating GDP and other macroeconomic variables. Measuring the value of goods and services produced by a country in a certain period of time depends on monthly and quarterly surveys of consumers, establishments, firms, importers/exporters, and stores among others. The survey data are often available with significant delays and even after 75 days from the end of the quarter only a fraction	JRC.A.5	5.1.a	ECFIN	JRC	EMPL ESTAT GROW TRADE	- FOUNDATION FOR MARKET ECONOMY - Interdisciplinary Centre for Technological Analysis and Forecasting EBRD - European Bank for	01/07/2017 30/06/2020	INS-CAS	5260	Applications of big data to forecast economic activity	Working papers on the methodology of forecasting economic variables and in the application of big datasets about consumer and firm behaviour to understand the sources of the business cycle. (the peer review process in economy is very long which is why working papers are being produced).	31/12/2019	Technical Reports
		52602									Scientific peer reviewed publications	Peer reviewed publications	31/12/2020	Journal contributions	
7512 - FAIRNESS JRC.I.1	6365 - Fairness_CoP Fairness - Multidimensional Inequalities of Opportunities	The workpackage covers two main strands of activities.	JRC.I.1	5.1.a	JRC	JRC	EAC ECFIN EEMPL ESTAT GROW HOME JRC JUST NEAR REGIO SANTE	OECD - Organisation for Economic Co-operation and Development (OECD) WB - World Bank	01/01/2018 31/12/2020	INS-RS	01	Multidimensional Poverty and Inequality of Opportunities	This Science for Policy Report will build on the results of the individual research lines of the work package related to multidimensional poverty, inequality of opportunities and the marginalization of minority groups. The empirical results will feed into the second JRC flagship report on Fairness and in the series of policy briefs to be produced.	31/12/2019	Science-for-policy reports
		1									Fairness CoP - Workshops on fairness related topics	Three to four workshops will be organized every year, with each of these workshops being dedicated to a specific theme. The first four workshops in 2017/2018 were the following ones: (i) social mobility and the role of education (ii) the space of social disadvantages, (iii) income inequality and its policy determinants – beyond a MS level analysis, (iv) spatial disparities in accessing basic services. Possible topics for the workshops to be organized in 2019/2020 include the behavioural aspects of fairness, loneliness, fairness and inequality perceptions, gender gaps and health inequalities. After each workshop, a policy brief summarizing the state of the play as well as new findings on the specific topic addressed during the workshop will be produced.	30/12/2020	Science for Policy Briefs	
7512 - FAIRNESS JRC.I.1	6404 - Fairness_INEQ Income Inequality and Citizen Perceptions	This work package continues the work from two previous work packages, builds on issues from the Fairness Report, and connects to resilience. It responds to the interest of partner DGs. The WP focuses on income inequality and poverty, moving from MS-level analysis to individuals, regions and the EU. For 2019-20, the focus of the work package is broadened to measure and monitor absolute poverty (AA with DG EEMPL) and to analyze the perceptions of EU citizens about inequality, fairness, and the role of the welfare state. The WP performs literature reviews, econometric analysis, data collection, and economic modelling. It also consolidates the use of the two main household-level surveys of Eurostat as a source for the EU-wide income distribution, and creates a regional database suitable for fairness and resilience work. These databases would be shared. The work also utilizes various value and opinion surveys (like the European Social Survey and Eurobarometer). The AA also includes a subcontracted pilot data collection on absolute poverty.	JRC.B.1	5.1.a	ECFIN	EMPL, JRC	COLLÈGE COMP EEMPL EPSC SG	OECD - Organisation for Economic Co-operation and Development (OECD) WB - World Bank	01/01/2018 31/12/2021	CON-AA, INS-UR	AAEMPL20 21final	Data and analysis on absolute poverty - final report	Series of studies on absolute poverty including: - Feasibility analysis regarding data collection, the results of the pilot data collection and the preliminary measurements. - Review of existing research and data, mapping of existing methodologies and data collections available to measure absolute poverty. - Comparisons with traditional material deprivation indicators, all data and programming codes, methodological guidance regarding data collection and absolute poverty measurement and possible recommendations on the use of new measures in future SDG monitoring.	31/08/2021	Technical Reports
		Inequality chapter									Income inequality and citizen perceptions about fairness and the welfare state: drivers and consequences	This Science for Policy Report would build on the results of the individual research lines of the work package, and the associated knowledge management and synthesis activities. As such, it may represent the base for a contribution to a third JRC Report on Fairness (not yet decided).	31/12/2020	Science-for-policy reports	
9647 - INCOGALION JRC.B.5	7522 - GlobalFirms Corporate investments in a global perspective	This work package uses JRC.B1 expertise in firm's ownership structure and corporate investments to support two Direction generals, DG TRADE and GD COMP.	JRC.B.1	5.1.a	TRADE	COMP	COMP		01/01/2019 31/12/2020	CON-AA, INS-RS	1	Foreign investments in Europe	Analysis of foreign investments in Europe, detailing the sectors of the investment and the nationality of the investor with the aim of exploring the geography and the impact of non-European inward investments. The analysis will be used as input for the Commission SWD on Foreign Direct Investment into EU and will support the Foreign Investment Screening dossier of the Commission.	26/12/2019	Science for Policy reports
		3									analysis of cross-border ownership of firms	Analysis related to the cross-border ownership of firms, international cross-border investments and M&A. The analysis will contribute to debate on the geography of foreign investments in Europe and their economic relevance in selected sectors (e.g. telecom, energy, transport). It will be framed in accordance with the Commission's priorities on Foreign Direct Investment screening initiative.	19/12/2020	Science for Policy reports	
		4									Analysis of the link between common ownership and competitive outcomes	Analysis of firms' ownership structure in a set of EU markets with the aim of investigating anti-competitive impacts in the presence of common ownership.	21/12/2019	Technical Reports	
9791 - AMADEUS JRC.B.5	8323 - GALILEI Growth and Productivity Accounts – Labour Productivity Indicators	Growth and Productivity Accounts (GPA) provide an important input to policy evaluation, in particular regarding economic analysis of the EU and national economies in the context of the European semester. Furthermore, productivity indicators tuned to digital technologies and skills are seen useful to complement the available statistics for the analysis of digital economy. In this view, productivity measures need to be further developed; methodological and data research on these measures is to be carried out in order to adopt the most suitable methodology, improve availability of indicators and ensure their comparability. The goal is to support Eurostat in developing high quality indicators for labour productivity for all EU Member States. Eurostat considers that data available under ESA 2010 Transmission Programme should be fully exploited to extend the production and the publication of productivity indicators. These new developed methodologies and	JRC.B.5	5.1.a	ESTAT	ESTAT	ECFIN EEMPL GROW		01/01/2019 30/06/2021	CON-AA	1	Extension and publication of Labour Productivity Indicators, including QALI	This Deliverable will produce a Report on the data and methodological issues regarding the construction and regular update of QALI, including a description of the QALI program developed in R and a one-off training to Eurostat personnel working on the QALI production and dissemination.	31/12/2019	Technical Reports
		2									Feasibility study of LPI for the digital economy	This Deliverable will produce a Report on the literature of methodologies for the calculation of LPI for the digital economy and the assessment of the corresponding data availability at Eurostat with a focus on ESA 2010 data and ICT and R&D statistics.	31/12/2020	Technical Reports	
		3									Promotion and awareness raising	This Deliverable will produce a Report on the results of the Eurostat's Task Force on Productivity Indicators, the organisation of two Eurostat's events at EU level on productivity measurement and the activities carried out by Eurostat and the JRC to promote the use and awareness of the new databases	30/06/2021	Technical Reports	

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
5.2. Financial stability, financial services and Capital Markets Union															
5.2.a Capital Markets Union and Banking Union - carry out quantitative analyses for the development of the Capital Markets Union and for the completion of the Banking Union.															
4820 - CAPMAU JRC.B.1	4826 - CMU&FIRMS Capital Markets Union and Access to Finance	In support to the initiatives stated in the Capital Markets Union Action Plan, the work package aims at exploring whether and how access to finance of EU non-financial companies can be improved. Efficient financing of corporations is essential for economic growth and employment, and the latest crisis showed that uneven access to finance and capital market segmentation affect the economic integration of the European Union. Typically, younger and smaller firms are more financially constrained than others, and financial constraints unequally affect sectors and geographic areas. Failures in the financial system seem to be among the main factors for observed discrepancies in corporate access to finance. Within the financial system, the WPK focuses on bank loans and the financial crisis has clearly shown that the synchronization of economic activity and financial integration go in tandem. Financial linkages not only increase the risk of contagion of financial crises but have also been found to affect resource allocation, notably fixed capital, in good times. Moreover, national economic policies, particularly when they are not coordinated, may generate spillovers, and contribute to the build-up and transmission of shocks in an asymmetric fashion across countries.	JRC.B.1	5.2.a	FISMA	JRC	COMP ECFIN EMPL GROW REGIO		01/01/2019 28/12/2020	INS-RS	18122020	Financial constraints of non-financial companies and effects of access to finance.	Series of studies contributing to the Capital Markets Union and its follow-up initiatives. The topics include the identification of financial constraints of non-financial companies, the effects of corporate access to finance on economic growth and employment and the negative spillovers of misallocated debt on economic growth and real investment (e.g., so-called zombie firms phenomenon).	18/12/2020	Technical Reports
											18122023	Contribution to the CMU follow up	Support to the revision of the Capital Markets Union initiative. The research activities will include quantitative and econometric analyses on firms financing (especially SMEs), bottlenecks and way forward. Additional research topics may emerge depending on priorities established in the next CMU initiatives.	18/12/2019	Science-for-policy reports
4820 - CAPMAU JRC.B.1	4827 - EcoFinRisk Economic and financial risks to a sustainable Union	Within the framework of Capital Markets union completion, this WPK aims to analyze factors that might be the source of substantial risk for the long-run sustainability of economic and financial integration in Europe, by using econometrics and a variety of data (including firm-level data, newly	JRC.B.1	5.2.a	FISMA	JRC	ECFIN		01/01/2019 18/12/2020	INS-RS	192	Economic and financial shocks and risk sharing	In support to the completion of the Capital Markets Union, at least one study following up on the work previously done on risk sharing via cross-border investments, investigating links between risk sharing and economic shocks. The focus will be on the risks to the long-run sustainability of the Union, and on those - including policies and institutional arrangements - that contribute to the mitigation of these risks.	12/12/2019	Technical Reports
											201	Economic and financial risks	At least one study on the role of financial linkages in transmitting the risk of contagion of financial crises and in shaping resource allocation. The role of economic policies, particularly when they are not coordinated, in generating spillovers, and contributing to the build-up and transmission of shocks in an asymmetric fashion across countries will also be examined. The output will help Capital Market Union Completion and macroeconomic surveillance.	18/12/2020	Technical Reports
5.2.b Financial sector - assess initiatives related to the regulation of the financial sector and to new dynamics and risks, including sustainable finance and financial technologies; maintain and further develop a data infrastructure for analyses of the EU financial sector. The assessment of initiatives includes support with the development of impact assessments in terms of quantification and modelling.															
340 - FINSTAR JRC.B.1	901 - FinResS Financial Resilience and Sustainability	FinResS supports the Commission, the European Supervisory Authorities and the Single Resolution Board in improving the resilience of the EU financial system to crises, including via developing the architecture of the Banking Union. The ACTIVITIES of this workpackage include the following: i) ex-ante impact assessment of policy options aimed at improving financial stability and the deepening of the EMU; ii) ex-post evaluation of financial regulation, to assess gaps, inconsistencies and unintended effects; iii) development of frameworks and tools for the monitoring of systemic risk, the resilience of financial markets and institutions and the emergence of new risks. In particular, quantitative analyses and support are provided for: 1) assessing impacts, implementing legislation and monitoring responses, notably in	JRC.B.1	5.2.b	FISMA	FISMA, JRC	COMP ECFIN ENV TF50	- Organisation for Economic Cooperation and Development ECB - European Central Bank WB - World Bank	01/01/2016 31/12/2021	CON-AA, CON-TW, INS-RS	EDISFISM AA	Support for DG FISMA on adoption of the European Deposit Insurance Scheme	Support to the negotiation and implementation of the EDIS, based on the Administrative Arrangement.	11/12/2020	Technical Reports
											FINRES19	Implementing the Banking Union and deepening the EMU	Studies with analyses to support DG FISMA and DG ECFIN in their initiatives to complete and implement the Banking Union, to the deepening the EMU and to implement the Sustainable Finance Action Plan, as well as for the European Safe Asset.	12/12/2019	Science for Policy reports
											SRBSupport	Support to the SRB, based on the SLA.	Analyses developed in support to the Single Resolution Board and in particular for the estimation of the contributions that bank should pay to the Single Resolution Fund.	15/12/2019	Sci information systems and databases
340 - FINSTAR JRC.B.1	7769 - FinTech Digitalisation of Finance	Activities in this work-package will produce analyses aimed at supporting the implementation of the EC Action Plan on FINTECH. It will be conducted in close coordination with DG FISMA and with JRC units currently working on Digital transformation, block-chain, cyber-security and text and data mining. The analyses will concentrate on structural changes induced by FinTech in the financial system and on the opportunities and risks these represent for inclusiveness, competitiveness, growth and stability. The focus for 2019 will be: (a) diffusion and macro-economic impacts of crypto-assets, in terms of	JRC.B.1	5.2.b	FISMA	JRC	CNECT COMP ECFIN GROW		01/01/2019 31/12/2021	INS-RS	FintechAP19	Contribution to the Fintech Action Plan	Contribution to the Fintech Action Plan of the European Commission by performing analyses aimed at providing quantitative sectorial intelligence, assessment of policy design options, monitoring of developments and impacts on financial stability, inclusiveness, growth and competitiveness.	13/12/2019	Science for Policy reports
											FintechAP20	Contribution to the Fintech Action Plan and policy action, 2020	Contribution to the Fintech Action Plan of the European Commission by performing analyses aimed at providing quantitative sectorial intelligence, assessment of policy design options, monitoring of developments and impacts on financial stability, inclusiveness, growth and competitiveness.	11/12/2020	Science for Policy reports
5.3. Taxation															
5.3.a Tax fraud and tax avoidance - fiscal modelling analysis to analyse the fiscal and fairness impact of tax fraud and tax avoidance, including corporate tax and VAT fraud.															
7665 - FISCAL JRC.B.2	6449 - FISCALMOD Modelling the resilience and fairness of tax systems by fighting tax fraud and tax avoidance	This work package will further develop fiscal modelling tools (including the CORTAX model) to analyse the fiscal and fairness impact of tax fraud and tax avoidance. The work package will be structured along several research questions. It will develop modelling tools to analyse VAT fraud in the EU from a cross-border perspective. It will also develop analytical tools to analyse tax wedges, developing alternative indicators to assess tax wedges along the wage distribution. It will also build on JRC.B.2 expertise in modelling corporate tax reforms through the CORTAX model which was used for the impact assessment of the Common Consolidated Corporate Tax Base (CCCTB) in 2016. The model will be extended to analyse anti-abuse measures to reduce corporate tax avoidance and the taxation of Intellectual-Property related corporate tax revenues. The JRC.B.2 unit will also investigate the possibility to develop an analytical tool for the assessment of international tax fraud by individuals.	JRC.B.2	5.3.a	TAXUD	TAXUD	ECFIN	OECD - Organisation for Economic Co-operation and Development (OECD)	01/01/2018 31/12/2021	CON-AA	04	On-demand CORTAX analyses	DG TAXUD might request ad hoc CORTAX simulations following discussions at the European Commission, European Council and European Parliament on the implementation of the CCCTB or related taxation aspects throughout the duration of this WP.	31/12/2020	JRC technical reports
											06	Final feasibility report on corporate tax expenditures	The possibility of including corporate tax expenditures in a comprehensive way in the CORTAX model will be assessed. Currently, the model takes into account certain expenditures that relate to depreciation regimes, allowance for corporate equity etc. Furthermore, the extension under deliverable 01 will account for R&D tax incentives. However, national tax systems often feature many more special regimes and tax incentives. Such schemes can make national tax bases narrower in practice from the tax base approximated by the model. The feasibility work will assess the extent to which such tax expenditures could be covered by the model, the added value of doing so and data availability	31/12/2019	JRC technical reports
											07	Building labour tax wedge with EUROMOD (Final report)	Developing the EUROMOD-JRC web interface in order to include labour tax wedge indicators Extend the EUROMOD-JRC web interface to incorporate standard measures of labour tax wedges for hypothetical households providing flexible definition of average, low and high wages to users. Provide standard measures of the impact of tax wedge by category of households, including by marital status, number of children and employment status.	31/12/2019	Science-for-policy reports
											08	Technical input on digital economy based on targeted requests - final report	The objective of this deliverable is to provide input and data to underpin DG TAXUD's analysis on taxation of the digital economy. This input will be provided against the backdrop of high political priority for updating international tax rules to fit the digital business models and for ensuring profits are taxed where the value is created. Analysis and policy simulations will be conducted based on DG TAXUD requests. The analysis will be guided by policy developments and evolution in business models	31/12/2020	Science-for-policy reports
											09	Wealth taxation, fairness and tax avoidance (final report on all activities)	The EUROMOD model has been extended to cover wealth taxes (e.g. taxes related to capital income, real estate, inheritances and gifts) and to improve the coverage of the top percentile of the income distribution. The EUROMOD model has been adapted to use the Household Finance and Consumption Survey data (HFCS) from the European Central Bank which better covers the wealthiest household and yield more details on wealth-related income linked to asset ownership and asset transmission. In some cases, the unit also improves the HFCS data through top tail estimations using the Forbes list or national rich lists. We will seek to develop its analysis of top income taxation building on the extension of EUROMOD to wealth taxation. The JRC will explore the distributional and fiscal revenues impact of wealth tax systems, including existing and hypothetical ones. We will also investigate the possibility to merge information from ORBIS and other possible company-level data sources	31/12/2020	Science-for-policy reports
											909276	Feasibility report for using Orbis in a corporate microsimulation model for Italy	Assess the feasibility of using survey data from Orbis in a microsimulation model for corporate taxation originally using administrative data.	31/12/2019	Technical Reports
											909277	First deliverable on the future of taxation	JRC and TAXUD will reflect upon the impact of long-term structural changes on the level and structure of taxation.	31/12/2019	Technical Reports
											909278	Feasibility report for extending corporate microsimulation model to other Member States	The corporate microsimulation model will be tested for countries other than Italy. This deliverable will assess the feasibility of such an extension.	31/12/2020	Technical Reports
											909279	Second deliverable on the future of taxation	DG TAXUD and JRC will reflect upon the future of taxation systems, taking into account long-term structural changes.	31/12/2020	Technical Reports
											909280	Final report on extending the corporate microsimulation model to other Member States	This deliverable will investigate the feasibility of extending the corporate microsimulation model to consider all EU countries.	31/12/2021	Technical Reports
											909281	Final deliverable on the future of taxation	JRC and DG TAXUD will assess the impact of long-term structural change on the level and structure of taxation.	31/12/2021	Technical Reports

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
5.3.b Fiscal policies - perform micro-economic analysis and macro-economic modelling of fiscal policies, using tools such as the EUROMOD microsimulation model, to assess the impact of these policies both in terms of fairness and resilience.															
7665 - FISCAL JRC.B.2	6441 - FISCALPOLICY Resilience and fairness of fiscal policy and public finances	The work package will support DG ECFIN in assessing the fairness of tax and social benefits systems and their role in promoting the resilience of public finance to economic shocks. JRC.B.2 modelling activities will support DG ECFIN services in the context of policy recommendation for the European Semester and contribute to DG ECFIN modelling activities, in particular through the estimation of second round effects of structural tax reforms. This work package will also cover thematic research concerning the fairness and fiscal impact of investment-related tax expenditures; the role of automatic stabilisation mechanisms in the EU in absorbing adverse economic shocks, the resilience and sustainability of public finances to large employment fluctuations and analysing the fiscal impact of uncertainty in business cycle developments.	JRC.B.2	5.3.b	ECFIN	ECFIN	EMPL SG TAXUD		01/01/2018 31/12/2020	CON-AA	03	Fiscal reforms in the European Semester, 2019 (yearly overview table - summary of results)	Fairness and resilience of fiscal reforms in the European Semester. Building on what is done in terms of tax reform assessment in the context of the European Semester, DG ECFIN and JRC.B.2 will agree each year on a number of national tax reforms to be analysed based on the microsimulation model EUROMOD. Special emphasis will be made on the impact of tax reforms in fostering the resilience of public finances and in promoting fairness. Given the numerous extensions of EUROMOD over the last few years, indirect tax (e.g. VAT) and wealth tax reforms on top of personal income tax and social security contribution reforms could be analysed. Tax reform simulation results should be ready in order to feed into the Country Reports and the associated CSRs. ECFIN could also request ad-hoc support to policy questions depending on reforms plans announced by the Member States and not initially foreseen, taking due account of JRC.B.2 resources and availability.	30/06/2019	Science-for-policy reports
											04	Analysis of the impact of unemployment evolutions and uncertainty in fiscal forecasting (progress report)	The EUROMOD model can be used to analyse the fiscal consequences of changes in unemployment insurance spending and social insurance contributions over the business cycle. Accounting for the heterogeneity in employment dynamics has been shown to be important in order to better understand the link between microeconomic behaviour and macroeconomic outcome as well to account for the impact of policy changes. Information regarding who becomes unemployed (i.e. gender, education, occupation, etc.) will be used in order to account for the heterogeneity in employment creation and destruction and their likely fiscal impact over the business cycle. These stylised employment transitions will extend the EUROMOD model in order to replicate recent macro-evolution. This analysis should also account for the uncertainty in future business cycle evolutions and possible errors in predicting unemployment trends.	30/06/2019	Science-for-policy reports
											05	Analysing the resilience of tax and social benefits systems and the automatic stabilisation mechanisms in the EU (progress report)	The analysis will compare the stabilisation coefficients following negative versus positive shocks, shocks of different sizes and shocks affecting asymmetrically various population groups. The possibility to build on the EUROMOD model to further extend the macro-micro modelling of fiscal policy, covering both tax and public expenditures, will be explored. This work, carried out upon the initiative of the JRC, will analyse reforms from a cross-generational perspective by constructing an over-lapping generation model with a high level of disaggregation at household level calibrated with EUROMOD in order to investigate the equity impact of fiscal reforms in the EU. The extensions can be used to assess the stabilisation properties of the tax-benefit systems of EU Member States adopting a dynamic approach. These extensions could be used e.g. to analyse the stabilisation properties of an EU-wide unemployment scheme or other macro-economic stabilisation schemes at EU level.	30/06/2019	Science-for-policy reports
											06	Analysing investment related tax expenditures (final report on all activities)	The level and design of capital taxation influences the investment choices of individuals (shares, real estate, saving deposits, private pension funds). Since capital taxation ultimately also affects the financing of the real economy, it is relevant to understand what preferential tax treatments are given and to what extent capital taxation impacts/distorts private investment and capital allocation in the economy (e.g. more productive versus less productive activities). Building on the input produced for ECFIN's 2015 Tax Reforms Report, JRC will provide further estimations of tax expenditures related to saving deposits, private pension funds and other investment-related items. This will allow analysing tax expenditures in terms of their budgetary impact as well as their impact on households' disposable income.	30/06/2019	Science-for-policy reports
											07	Fiscal reforms in the European Semester, 2020 (yearly overview table - summary of results)	Fairness and resilience of fiscal reforms in the European Semester. Building on what is done in terms of tax reform assessment in the context of the European Semester, DG ECFIN and JRC.B.2 will agree each year on a number of national tax reforms to be analysed based on the microsimulation model EUROMOD. Special emphasis will be made on the impact of tax reforms in fostering the resilience of public finances and in promoting fairness. Given the numerous extensions of EUROMOD over the last few years, indirect tax (e.g. VAT) and wealth tax reforms on top of personal income tax and social security contribution reforms could be analysed. Tax reform simulation results should be ready in order to feed into the Country Reports and the associated CSRs. ECFIN could also request ad-hoc support to policy questions depending on reforms plans announced by the Member States and not initially foreseen, taking due account of JRC.B.2 resources and availability.	31/12/2020	Science-for-policy reports
											08	Analysis of the impact of unemployment evolutions and uncertainty in fiscal forecasting (Final report on all activities)	The EUROMOD model can be used to analyse the fiscal consequences of changes in unemployment insurance spending and social insurance contributions over the business cycle. Accounting for the heterogeneity in employment dynamics has been shown to be important in order to better understand the link between microeconomic behaviour and macroeconomic outcome as well to account for the impact of policy changes. Information regarding who becomes unemployed (i.e. gender, education, occupation, etc.) will be used in order to account for the heterogeneity in employment creation and destruction and their likely fiscal impact over the business cycle. These stylised employment transitions will extend the EUROMOD model in order to replicate recent macro-evolution. This analysis should also account for the uncertainty in future business cycle evolutions and possible errors in predicting unemployment trends.	31/12/2020	Science-for-policy reports
											09	Analysis of the resilience of tax and social benefits systems and automatic stabilisation mechanisms in the EU (final report on all activities)	The analysis will compare the stabilisation coefficients following negative versus positive shocks, shocks of different sizes and shocks affecting asymmetrically various population groups. The possibility to build on the EUROMOD model to further extend the macro-micro modelling of fiscal policy, covering both tax and public expenditures, will be explored. This work, carried out upon the initiative of the JRC, will analyse reforms from a cross-generational perspective by constructing an over-lapping generation model with a high level of disaggregation at household level calibrated with EUROMOD in order to investigate the equity impact of fiscal reforms in the EU. The extensions can be used to assess the stabilisation properties of the tax-benefit systems of EU Member States adopting a dynamic approach. These extensions could be used e.g. to analyse the stabilisation properties of an EU-wide unemployment scheme or other macro-economic stabilisation schemes at EU level.	31/12/2020	Science-for-policy reports
											10	Analysing investment related tax expenditures (follow-up work report)	The level and design of capital taxation influences the investment choices of individuals (shares, real estate, saving deposits, private pension funds). Since capital taxation ultimately also affects the financing of the real economy, it is relevant to understand what preferential tax treatments are given and to what extent capital taxation impacts/distorts private investment and capital allocation in the economy (e.g. more productive versus less productive activities). Building on the input produced for ECFIN's 2015 Tax Reforms Report, JRC will provide further estimations of tax expenditures related to saving deposits, private pension funds and other investment-related items. This will allow analysing tax expenditures in terms of their budgetary impact as well as their impact on households' disposable income.	31/12/2020	Science-for-policy reports
7665 - FISCAL JRC.B.2	6443 - TAXFAIRNESS Fairness and resilience of tax and social benefits systems and reforms	The work package will support DG EMPL in assessing the fairness of tax and social benefits systems and their role in promoting their resilience to migration flows. JRC.B.2 modelling activities will support DG EMPL services in the context of policy recommendation for the European Semester, focusing in particular on the impact of reforms on fairness and equity using the EUROMOD model. This work package will also cover thematic research concerning the fiscal and equity impact of migration flows in the EU extending the EUROMOD model to improve its coverage of the migrant population (including economic migrants and asylum seekers) and specific policy rules (in particular concerning asylum seekers). It will assess the sustainability and resilience of social benefit systems to shocks, including massive migration movements. JRC.B.2 will also explore collaboration with Unit JRC.E.6 to provide long-run estimates of the impact of migration flows based on long-term demographic projections. The aim of this work package is to ensure a smooth transfer to the Commission of the processes of development and maintenance of the microsimulation model EUROMOD currently based at the University of Essex. EUROMOD is a tax-benefit microsimulation model, which covers in a consistent manner the 28 Member States. The model is unique in its area as it features a great flexibility in the scope of its simulation and ensures cross-country consistency of the modelling approach and comparability of the results. The maintenance and development of the EUROMOD microsimulation model, currently based at the University of Essex, will be progressively transferred to the JRC and ESTAT during a transition period of 3 years, starting in January 2018. The transfer will have four major added values for the Commission services: (i) It will consolidate the key role of the model in the context of the European Semester and thematic studies conducted by the Commission services (ii) It will facilitate the adaptation of future extensions of the model to	JRC.B.2	5.3.b	EMPL	EMPL	ECFIN SG TAXUD		01/01/2019 31/12/2020	CON-AA	2	Tax and social benefits reforms in the European Semester, 2019	Fairness and resilience of tax and social benefit reforms in the European Semester (T0 + 14m) Building on the work done in terms of tax and social benefits reform assessment in the context of the European Semester, DG EMPL and JRC.B.2 will agree each year on a number of national tax reforms to be analysed based on the microsimulation model EUROMOD. Special emphasis will be made on the impact of tax reforms in promoting fairness and ensuring the resilience of social safety nets.	01/03/2019	Science-for-policy reports
7665 - FISCAL JRC.B.2	6446 - EUROMODTRANSFER Transfer of maintenance and update of the EUROMOD model		JRC.B.2	5.3.b	EMPL	EMPL			01/01/2018 31/12/2020	CON-AA	2	Update, maintenance and public release of the EUROMOD model for 2019	Update and maintenance of the EUROMOD model and public release for the year 2018 (T0 + 24m) The transfer of the EUROMOD model to JRC.B.2 and ESTAT will concern a number of countries (to be agreed with DG EMPL) and tasks: (i) Data updating, including empirical data from EU SILC and other sources for use in EUROMOD mainly under the responsibility of ESTAT (ii) Updating of policy rules, including collecting information on national policy rules and ensuring consistent coding of policy rules into EUROMOD (iii) Documenting and testing the model, including verifying consistent and coherent treatment of national policies and data as well as compliance with guidelines, protocols, templates and conventions. Ensure timely delivery of the update and release of a EU28 model that is quality-checked and ready for use (iv) Calculate and validate key indicators (v) Disseminate user interface, website and annual user conference (vi) Provide training and user support (vii) Ensure project administration and	31/12/2019	Science-for-policy reports

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
7665 - FISCAL JRC.B.2	6448 - FISCALSUPPORT Fairness and resilience of fiscal policy-Technical assistance and support	This work package provides technical support on questions on common interest across DG ECFIN, DG EMPL, DG TAXUD and the SRSS. Main activities cover include: (i) The development and maintenance of the EUROMOD-JRC web interface, especially in the context of its use for the European Semester (ii) Technical assistance to Member States, including Greece and possibly other countries depending on future requests.	JRC.B.2	5.3.b	JRC SG	JRC	SG		01/01/2018 31/12/2020	INS-RS	2	EUROMOD-JRC web interface for 2019	JRC.B.2 provides DG ECFIN, DG EMPL, DG TAXUD and the SRSS with access to basic functionalities of the EUROMOD model through the Commission intranet. Simple simulations affecting tax rates, tax brackets and tax allowances and credits can be performed and standard results on the fiscal and equity impact of reforms can be obtained for all Member States. JRC.B.2 provides an update of this web interface every year.	31/12/2019	Science-for-policy reports
6. A balanced and progressive trade policy to harness globalisation															
6.1. Trade policy															
6.1.a Trade analysis - provide support (methodological, modelling, and analytical) for impact assessments of free trade agreements and the socioeconomic and environmental implications of external trade, including on agri-food markets and raw materials (see also Sections 1.1. and 4.1); analyse foreign direct investment (FDI) flows into the EU.															
9791 - AMADEUS JRC.B.5	7664 - FIGARO Input-Output Accounts	This WPK builds on the (past and current) extensive and close collaboration of JRC B.5 with the national statistical offices of the EU and other non-EU countries (United States, Canada, Mexico...), Eurostat, the OECD and the United Nations Statistical Division for setting up a methodology to construct the EU inter-country Supply, Use and Input-Output Tables. These are in the process to be integrated with the OECD global inter-country Input-Output Tables during the next two years (2019-2020). Besides, this WPK will contribute to the UN Handbook on Supply, Use and Input-Output Tables and to the UN Handbook on Global Value Chain Accounts, which provide guidelines about how to run policy applications on certain global value chains (e.g. automobile industry) using official global business statistics and National Accounts. Complementarily, this WPK will develop a novel methodology to construct EU Inter-country Supply, Use and Input-Output Tables.	JRC.B.5	6.1.a	ESTAT	ESTAT	ECFIN TRADE		01/01/2019 31/12/2020	CON-AA	01	Openness ratios in value added terms and JRC contributions to UN Handbooks	Report on the discussion and results of the openness ratios measured in value added terms provided to ESTAT/ECFIN for the IMF discussions on the country's quota and the JRC contribution to the UN Handbook on Supply, Use and Input-Output Tables and the UN Handbook on Global Value Chains Accounting.	31/12/2019	Science for Policy reports
											02	European Supply, Use and Input-Output Tables (2010-2018) and supporting Eurostat in statistical methodology	Report on the construction of the time series of European Union's Inter-country Supply, Use and Input-Output Tables (2010-2018) at current and previous year's prices; exploration of the construction of EU inter-country social accounting matrices; and integration of the EU Inter-country IO Tables with the OECD-WTO global Inter-country IO tables.	31/12/2020	Science for Policy reports
9791 - AMADEUS JRC.B.5	7667 - FIDELIO Input-Output Modelling	This WPK provides the data and methodological support for the use of more complex input-output models; namely, the FIDELIO model (Full Inter-country Dynamic Econometric Long-term Input-Output model). This WPK will continue the development of the FIDELIO model and will contribute to its further dissemination and use in studies related to sustainable production and consumption-based policies, social policy (employment), economic growth and trade policy (e.g. tariffs). Beyond the standard macroeconomic approach, it is highly relevant to research and possibly develop the links between multi-sectorial models such as FIDELIO and the technical information provided by experts in the field of resource use of materials, waste management, recycling, product policy, etc.	JRC.B.5	6.1.a	TRADE	JRC	ECFIN		01/01/2019 31/12/2020	INS-RS	01	FIDELIO: Model and case studies carried out in 2019	This Deliverable provides a summary of the methodological developments of the model and the related sustainable production and consumption-based studies carried out in 2019. These studies have the aim of supporting related EU environmental policies, social policy (employment), economic growth and trade policy (e.g. US tariffs).	31/12/2019	Technical Reports
											02	FIDELIO: Model and case studies carried out in 2020	This Deliverable provides a summary of the methodological developments of the model and the related sustainable production and consumption-based studies carried out in 2020. These studies have the aim of supporting related EU environmental policies, social policy (employment), economic growth and trade policy (e.g. US tariffs).	31/12/2020	Technical Reports
9791 - AMADEUS JRC.B.5	7668 - DON-GIOVANNI Input-Output Analysis	For Input-Output Analysis, this WPK uses input-output databases and input-output techniques based on the GLIM model to carry out studies for DG TRADE. This WPK keeps providing existing support to the EU trade policy compiling a unique set of input-output based indicators to support evidence-based trade policymaking. These indicators illustrate in detail the relationship between exports, employment (by skill, gender and age) and income (by skill, gender and age) for the EU as a whole, as well as for each Member State. These results contributed to the publication of "EU Exports to the rest of the World: Effect on Employment and Income" (2015). Some of these results were cited in the State of the Union addresses (2016/2017), in the Reflection Paper on "Harnessing globalisation" and in numerous speeches of the Trade Commissioner. This project will update this publication including both printed and (dynamic) electronic formats and complemented with a specific tool to be used by our clients directly on their PCs (reduced version) or by the JRC	JRC.B.5	6.1.a	TRADE	JRC	ECFIN ESTAT		01/01/2019 31/12/2020	INS-RS	01	Pocketbook: Employment and income effects of intra-EU and extra-EU exports	This Deliverable will produce an updated (both printed and electronic) version of the book "EU Exports to the World: Effects on Employment and Income" (2015) using the new release of the WIOD database 2016 and other data on employment, skill levels, age and gender collected from other sources (Eurostat, ILO, EUKLEMS...) depending on availability. This WPK will produce a graphical user interface to be used by DG TRADE directly on their PCs (reduced version) or by the JRC B.5 for more complex analyses.	31/12/2019	Technical Reports
											02	European Union's Trade in Value Added, Employment and Carbon footprints	This Deliverable will produce a printed (and electronic) version of the book (with a preliminary title) "EU Trade in Value Added, Employment and Carbon Footprints" using the latest release of the WIOD database 2016 and other data on employment, skill levels, age and gender collected from other sources (Eurostat, ILO, EUKLEMS...) depending on availability. This WPK will update the existing JRC graphical user interface (Deliverable 01) with more options for databases (EXIOBASE3, EUROSTAT-FIGARO and OECD) and variables (air emissions).	31/12/2020	Technical Reports
9647 - INCOGALION JRC.B.5	7771 - MapTrade Analysis of employment and income effects of EU exports to the rest of the world and to other EU countries	This WPK uses input-output databases and develops existing and novel input-output methods to carry out studies for DG TRADE on the basis of indicators produced by the AMADEUS Project. The GLIM model is used as the base model. This WPK will quantify the employment (by skill level, age and gender) and income associated to exports to countries for which there is or there could be a potential free trade agreement, under the request from DG TRADE (e.g. Mercosur). This is very relevant for the negotiators' position in the discussion rounds. This WPK will also produce a small publication illustrating the servicification process of the EU trade with other EU countries and with the rest of the world (i.e. employment in one specific country and sector supported by the total EU exports of a certain industry). This WPK will also use the GLIM model to support JRC.C.4 in an input-output study for assessing the economic effects of the widespread introduction of	JRC.B.5	6.1.a	TRADE	JRC	ECFIN ESTAT		01/01/2019 31/12/2020	INS-RS	1	Analysis of income, trade and jobs in the EU	This deliverable will summarise the methodology and results of the studies carried out for the various purposes described in the WPK. a) quantify the employment and income associated to exports to countries for which there is or there could be a potential free trade agreement (e.g. Mercosur). b) a small publication illustrating the servicification process of the EU trade with other EU countries and with the rest of the world c) use of the GLIM model to assess the employment and income effects of the widespread introduction of cooperative, connected and automated driving.	31/12/2020	Technical Reports
7. An area of justice and fundamental rights based on mutual trust															
7.1. Justice, consumers and gender equality															
7.1.a Consumer markets and products - analyse statistical indicators and methodologies to monitor consumer behaviour and market performance (see also key orientation 4.1.g); develop data collection systems and their interoperability for product safety and market surveillance (see also key orientation 4.1.a); develop harmonised testing approaches to check certain quality-relevant characteristics of food and consumer products.															
156 - AgFuture JRC.D.4	7625 - DualFoodEcon Economic analyses of dual food quality	Tests conducted in several Member States have confirmed the quality differences of some food products in home market when compared to products by the same producer sold under the same brand but different Member State. Following these tests, in September 2017 the European Commission published a notice laying out guidelines on the application of EU food and consumer protection law to issues of dual quality of food products. The Commission has also allocated €1 million to Joint Research Centre to develop methodology to improve food product comparative tests. Acknowledging that the dual food quality problem may lead to distortion of consumer choices and may affect the functioning of the single market, the objective of this Work Package is to provide economic analysis of dual food quality. Some of the key questions that this WPK will cover include: analysis of the determinants and impacts of dual quality of branded food products in terms	JRC.D.4	7.1.a	GROW	JRC	JUST		26/07/2018 31/12/2020	CON-AA	1	Economics analyses of dual quality of food	Economics analyses of dual quality of food: Analysis of the determinants and impacts of dual quality of branded food products in terms of understanding why brand owners offer different quality in different MS for the same product; economic impacts of dual quality for brand-owners; impacts of dual quality on consumers' welfare; how the consumer choices are affected; does dual quality leads to market inefficiencies; and is there need for policy intervention to address dual food quality issue.	31/12/2019	Technical Reports
											2	Economics analyses of dual quality of food	Economics analyses of dual quality of food: Analysis of the determinants and impacts of dual quality of branded food products in terms of understanding why brand owners offer different quality in different MS for the same product; economic impacts of dual quality for brand-owners; impacts of dual quality on consumers' welfare; how the consumer choices are affected; does dual quality leads to market inefficiencies; and is there need for policy intervention to address dual food quality issue.	31/12/2020	Technical Reports

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category	
7.2. Home affairs and security																
7.2.a Critical infrastructure and public spaces protection - provide scientific support and research to strengthen critical infrastructure and protect public spaces such as buildings, urban centres, shopping malls, concert halls, transport hubs etc.; contribute to standardisation activities leading to enhanced security; understand and model vulnerabilities and interdependencies, including through: synthesis and sharing of knowledge, exchange of good practices, exercises and networks for critical infrastructure operators, and training and awareness programmes for national authorities and operators of critical infrastructures.																
438 - SMART PROTECT JRC.E.4	858 - BUILT-PROTECT Advanced Techniques for Security and Defence	The activity aims at enhancing the security, safety and resilience of built environment, including buildings, transport and energy infrastructure, under catastrophic events such as explosions and impact caused by terrorist acts or accidents. Advanced modelling and innovative materials will be employed for the development of calibrated methodologies for upgrading structural robustness under such extreme loadings. Appropriate techniques for providing protection to soft targets will also be assessed. Data from selective laboratory testing will be used for the verification and validation of such models. Results will improve current construction standards and best practices, and will contribute to the drafting of new European Guidelines regarding the protection of physical infrastructure (C(2015) 3765, DG HOME, M/487 EN2011, DG GROW). The effects of such protection measures on the ERNCIP (European Reference Network for Critical Infrastructure Protection) is the flagship project of the European Programme for Critical Infrastructure Protection. In this framework, the ERNCIP project has developed a vast network of European experts and stakeholders (more than 700) to work in close collaboration with JRC to collect testing gaps and needs, identify promising areas for the development of standards, test protocols and certification procedures. It also involves the creation and population of an inventory of test facilities, and development of a software platform to enhance the use of this inventory. In the framework of supporting the EPCIP (European Programme for Critical Infrastructure Protection) and CBRNE (Chemical Biological Radiological Nuclear and Explosives) policies, ERNCIP steers several thematic groups (TGs) in different areas. The activity addresses the need of producing European guidelines for the protection of public spaces and built infrastructure against terrorist acts. Such guidelines will be written together with European experts and the work will be effectively aided by advanced numerical simulations or testing, which allow the reliable reproduction of the structural response to severe loads due to explosions and impact. The vulnerability of urban centres and other unprotected targets will be assessed under several attack scenarios including new emerging threats, such as the drones. Of particular concern is the protection of public spaces against vehicle ramming, and guidance material and tools will be developed for addressing this problem of the EU cities. European and international standardisation activities for security barriers against ramming will be followed. DG Whereas telecommunications have impacted many aspects of people's lives, civil infrastructures and the built environment are yet to fully benefit from the digital revolution.	JRC.E.4	7.2.a	HOME	JRC		ECHO EEAS GROW HR MOVE OIB	- Direction of Military Applications (CEA) NATO - NORTH ATLANTIC TREATY ORGANISATION CEA - Commissariat à l'Energie Atomique et aux Energies Alternatives CEN - European Committee for Standardization EDA - European Defense Agency NEA-OECD - Nuclear Energy Agency CEN - European Committee for Standardization	01/01/2014 31/12/2021	INS-RS	12	Dual-use technologies for blast protection of soft-targets	Focusing on soft-targets, an assessment will be carried out on the feasibility of transferring and adopting models and technologies from the civilian to the defence/military sector and vice-versa. Explosion loading, advanced materials, human injury criteria and protection techniques will be considered and evaluated. In addition, numerical simulation models (EUROPLEXUS code) and experimental techniques already developed at the JRC will be assessed for other defence applications.	15/12/2019	Technical Reports
4821 - HYBRIT JRC.E.2	866 - ERNCIP Security testing, standardisation and facilities inventory	The activity addresses the need of producing European guidelines for the protection of public spaces and built infrastructure against terrorist acts. Such guidelines will be written together with European experts and the work will be effectively aided by advanced numerical simulations or testing, which allow the reliable reproduction of the structural response to severe loads due to explosions and impact. The vulnerability of urban centres and other unprotected targets will be assessed under several attack scenarios including new emerging threats, such as the drones. Of particular concern is the protection of public spaces against vehicle ramming, and guidance material and tools will be developed for addressing this problem of the EU cities. European and international standardisation activities for security barriers against ramming will be followed. DG Whereas telecommunications have impacted many aspects of people's lives, civil infrastructures and the built environment are yet to fully benefit from the digital revolution.	JRC.E.2	7.2.a	HOME	HOME, JRC		CNECT ECHO ENV GROW MOVE	ENISA - European Network and Information Security Agency ETSI - European Telecommunications Standards Institute (ETSI) ETSO-E - European Network of Transmission System Operators EU MS R/N emergencies - EU MS - Direction of Military Applications (CEA)	01/01/2014 31/12/2020	CON-AA,INS-RS	22	Guidance for infrastructure protection and proposals for standardisation	ERNCIP will provide guidance to operators for the protection of their infrastructures against a number of threats as well as proposals and the associated material in order to proceed to workshop agreements where applicable and in specific areas of EPCIP and CBRNE policies	31/12/2019	Science-for-policy reports
438 - SMART PROTECT JRC.E.4	871 - SIMUL-PROTECT Security by design	The activity addresses the need of producing European guidelines for the protection of public spaces and built infrastructure against terrorist acts. Such guidelines will be written together with European experts and the work will be effectively aided by advanced numerical simulations or testing, which allow the reliable reproduction of the structural response to severe loads due to explosions and impact. The vulnerability of urban centres and other unprotected targets will be assessed under several attack scenarios including new emerging threats, such as the drones. Of particular concern is the protection of public spaces against vehicle ramming, and guidance material and tools will be developed for addressing this problem of the EU cities. European and international standardisation activities for security barriers against ramming will be followed. DG Whereas telecommunications have impacted many aspects of people's lives, civil infrastructures and the built environment are yet to fully benefit from the digital revolution.	JRC.E.4	7.2.a	HOME	JRC		EEAS GROW HR MOVE OIB	NATO - NORTH ATLANTIC TREATY ORGANISATION CEA - Commissariat à l'Energie Atomique et aux Energies Alternatives CEN - European Committee for Standardization EDA - European Defense Agency	01/01/2014 31/12/2021	INS-RS	10	Protection of public spaces	This report should illustrate the possibilities how to protect public spaces (soft targets) and buildings. It should consist technical recommendations to mitigate the risk of terrorist attacks by different modus operandi depending on the type of the target (e.g. stadia, shopping malls, open air demonstrations, Christmas markets);	31/12/2019	JRC technical reports
438 - SMART PROTECT JRC.E.4	4953 - INSTECH Innovative Sensor Technologies	INSTECH focuses on the analysis and deployment of embedded ICT system architectures to support the development of wireless diagnostic systems, which can be used to improve the security and performance of ad-hoc wide-area industrial and societal infrastructures in support to EC policies, targeting specifically the aspects of Security in Public Spaces. This WPK will deal with the interaction of communication protocols and electronic components. Analytical studies and prototype development will be developed to simulate the dynamics, structure and network connectivity based on the distance-weighted topology of wireless sensor networks and to provide insights on the constraints and opportunities of systems integration for the protection of the urban areas. We will also study the feasibility of wirelessly connected spatially-distributed sensor networks to monitor the engineering performance and environmental parameters (e.g. strains, vibrations, energy performance, duty cycle and type of use) for the protection of Public Spaces. The WPK activity mainly focuses on the hardware implementation of Wireless Sensor Networks and constitutes the practical counterpart of the more mathematically oriented DYSTECS (4962) WPK within the context of Smart and Safe Cities development. The Workpackage contributes to the JRC Cities initiative (Umbrella Project) and the JRC Going	JRC.E.4	7.2.a	CNECT HOME	JRC		CNECT ENER GROW MOVE RTD		01/01/2017 31/12/2021	INS-RS	4	Sensor Technologies for Security of Smart Cities and Public Spaces	The security of Public Spaces is one of the top priorities of the European Union. The work will consider the technological advances of wireless sensor networks, sensors and artificial intelligence, among the others, as potential elements for the improvement of security in European cities and public spaces. Although the advent of new technologies in the actual implementation of Smart Cities is providing benefit in many sectors (e.g. administration, transportation, energy), security is still facing limitations, due to segregation of systems, and missing opportunities from sensors integration. The state of the art of technologies along with their potential for the advent of novel and more effective security systems in urban areas will be analysed and will serve as the basis for pre-normative support and novel research.	20/12/2019	JRC technical reports
438 - SMART PROTECT JRC.E.4	4962 - DYSTECS Dynamics and Structure of Complex Sensor Networks	Computational capacity and data generation rates are changing the way we collate and examine data. Data from wireless sensor networks will play a fundamental role in developing the EU's ICT programme in many industrial and social areas. At the same time, Smart Cities are facing challenges to integrate information and systems. The scope of DYSTECS is to develop prototype analysis methods on the structure and vulnerability of urban space, in order to understand the future implications for the design of geographically distributed heterogeneous sensor networks towards more safe, efficient, sustainable and resilient buildings, cities and infrastructures. Platforms based on GIS-layered data (ideally using space-based data) and mathematical models will simulate scenarios of urban dynamics and short-range communication networks over long-range distances. The activity will provide novel strategies on the way data from heterogeneous spatially-distributed sensors can be combined and analysed to provide additional insights for improved security strategies. By considering the innovation in the Construction Sector, the Workpackage has direct connection with the Digital Transformation project, it evaluates the impact of ICT innovation and considers the technology challenges and opportunities for the European Construction Industry. Finally, the activity will contribute to the JRC Cities Initiative (Umbrella Project) for the issues related to Smart and Safe Cities and Security of Public Spaces.	JRC.E.4	7.2.a	CNECT HOME	JRC		CNECT GROW MOVE REGIO		01/01/2017 31/12/2021	INS-RS	3	GIS-based Analysis of Cities Vulnerability for Protective Urban Landscape Design	Public spaces in European Cities showed dramatic vulnerability to intentional attacks based on vehicle ramming techniques. Urban complex networks and European built environments are analyzed to develop novel indicators of Public Spaces' exposure to such threats, on the basis of urban morphology and vehicles dynamics. The developed methodology will serve to build a knowledge base for city Administrations for the deployment of preventive measures in European cities and as 'security by design' guidance for protective urban landscape design. As exposure of public spaces to such threats is a sensitive information, a synthetic city model will be developed to disseminate the methodological approach.	20/12/2019	JRC technical reports
438 - SMART PROTECT JRC.E.4	7703 - TerrorRisk Terrorism Risk Assessment	The risk of terrorism is difficult to assess as terrorism is an intentional man-mad hazard which follows no specific patterns. However, event based assessment of terrorism could give indications of the probability of future events. In order to mitigate this risk further steps are needed which would include the use of intelligence, the reduction of the vulnerability and the increase of the resilience of our society. The TerrorRisk workpackage will directly support EU security policies by providing an event based	JRC.E.4	7.2.a	HOME	JRC		EEAS GROW HR MOVE		01/01/2019 31/12/2021	INS-RS	4	Smart Public Spaces: modelling and analysis of IoT enhanced urban spaces	Complex systems need specific measures and analysis approaches to provide metrics for performance assessment. The systems' dynamics are difficult to predict in extreme conditions (e.g. congestions, natural hazards) when infrastructures are stressed to their limits/ collapse. Novel metrics and analysis methods (eg: agent-based modelling, graph theory, machine learning) set the basis for integration of intelligent streaming of sensor data and distributed signal processing for large scale networks for the implementation of Smart and Safe Cities. The work will serve as guidance for the development and implementation of wireless sensor networks and innovative technologies for the protection of cities and public spaces and optimal deployment strategies for sensors and wireless systems in the urban environment.	18/12/2020	Technical Reports

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
438 - SMART PROTECT JRC.E.4	7744 - SLA4F4E 2019-2020 Service Level Agreement for Fusion for Energy	The work is commissioned by Fusion for Energy (F4E) and aims at assessing the safety of important ITER components against accidental loads (dropload, impact, explosion, earthquake). The work includes advanced numerical simulations using the EUROPLEXUS computer code and experimental tests for the assessment of critical components of the ITER facility.	JRC.E.4	7.2.a	ENER	n/a		Fusion for Energy - European Joint Undertaking for ITER and the Development of Fusion Energy	01/01/2019 31/12/2020	CON-TW	774401	Report on EUROPLEXUS	Reporting on the simulations carried out with EUROPLEXUS and any updated version of the software	20/12/2020	Technical Reports
											774402	Report on the experimental programme	Detailed description of the experimental campaign including test results and analysis	20/12/2020	Technical Reports
194 - TDSS JRC.E.5	7746 - X-VISION Application of computer vision to x-ray screening	The X-VISION work package contributes to the JRC's Exploratory Research (ER) Programme. It aims at demonstrating the potential of computer vision to automate certain tasks in x-ray screening which have been performed by subjective human analysis for many years. JRC's existing knowledge and capability in explosives simulants for x-ray will be fused with state-of-the-art techniques in machine learning (and possibly deep learning). If the work is successful, it will deliver a step-change forward in the way conventional x-ray detection equipment is used, and the way it's performance is assessed. The project will address two parallel challenges: i) automated assessment of visual image quality, and ii) automated detection of threats concealed in carry-on luggage. Conventional x-ray equipment relies solely on human screeners to identify threats by	JRC.E.5	7.2.a	JRC	JRC,JRC	HOME		01/01/2019 31/12/2020	ER-18,INS-UR					
7.2.b CBRN-E - help to implement action plans on chemical, biological, radiological, nuclear and explosive materials (CBRN-E) and implement Regulation EU 98/2013 on explosive precursors. This support includes scientific advice, research and development; support to the standardisation process for CBRN-E related detectors and other equipment; exchange good practices among users and manufacturers of CBRN-E detectors and related equipment; develop a single market for security products and certifications of security-related systems and their components such as industrial control systems as well as for explosive precursors; provide training, exercises and capacity building on nuclear security including the actions at EUSECTRA (see also key orientation 9.1.2.d).															
194 - TDSS JRC.E.5	3300 - PRE-EX Precursors & Explosives Trace Detection	This work package focus mainly on the detection of trace amounts of explosives, precursors and other related chemical threats. Experimental work is carried out with a purpose-built laboratory and expertise at JRC Geel. Through this work package, the JRC gives science-based advice and performs experimental work Threat from malicious use of chemical, biological, radiological, nuclear or explosive (CBRN-E) materials is a high priority area for the European Commission, identified in a number of EU political and legal instruments. For this purpose, DG HOME settles the EU CBRN Action Plan to minimise the likelihood of incidents and to limit their consequences. The plan contains 124 measures to be taken in three main areas: Prevention, detection, preparedness and response to CBRN threats. Among the biological actions of the plan, some regard the development of detection models with trialling and testing and the development of minimum detection standards. Current technologies for	JRC.E.5	7.2.b	HOME	JRC,JRC	MOVE TAXUD	ECAC - European Civil Aviation Conference EUROPOL - EUROPOL MIN Int Border - Ministries of Interiors	01/01/2016 31/12/2020	INS-E&IA,INS-RS	2002	Scientific article on use of flow chemistry to develop standard solutions of explosives	JRC will develop innovative flow-chemistry approaches for producing test solutions of explosives that are more automated, repeatable and safe.	31/12/2020	Journal contributions (Scopus)
436 - CBRNec JRC.A.7	4201 - SECUCHIP Device for Detection of pathogen agents for security application	Recent incidents in Europe and worldwide have threatened civil society by the attempted use of	JRC.F.2	7.2.b	HOME	JRC			16/09/2016 31/03/2019	INS-ER	5	Publication on detection of pathogens	final publication on detection of pathogens including results of del. 3 and 4.	31/03/2019	Article contribution to periodicals or to conference proceedings listed in SCOPUS
341 - Reference Materials JRC.F.6	3300 - Eurobiotox Establishment of validated procedures for the detection and identification of biological toxins	Official title: European programme for the establishment of validated procedures for the detection and identification of biological toxins	JRC.F.6	7.2.b	HOME	RTD			01/02/2017 31/01/2022	CON-IA	01	Reference Materials	Reference materials for the identification and quantification of biological toxins developed.	30/06/2022	Reference Material
4821 - HYBRIT JRC.E.2	6860 - TIED_UP Tracing Improvised Explosive Devices Under Production	The TIED_UP project contributes to the Exploratory Research (ER) Programme. The purpose of this ER project is to mitigate the threats to EU citizens posed by improvised explosive device (IED) used by terrorist in particular against soft targets through the development of novel tracking techniques to be applied already during the production phase of the explosive. These techniques	JRC.E.2	7.2.b	JRC	JRC	HOME		01/01/2018 31/12/2019	ER-17					
7.2.c Emerging and hybrid threats and resilience - support community resilience against all threats; understand and develop methodologies to counter emerging threats, such as hybrid threats and insider threats; understand how new technologies such as social media, mobile applications and virtual reality can be used to improve citizens' security and the security perception; provide support to the development of open source policies and strategies (e.g. Europe Media Monitor).															
4821 - HYBRIT JRC.E.2	1001 - HYBRITTECH Hybrid Threats and Technological Aspects	Technology is a fundamental aspect in Hybrid Threats and might affect specific technological sectors and services (critical infrastructures, energy, transport, administration, water, telecommunications, health, etc.). Moreover, threat vectors may employ technological means such as Chemical, Biological, Radiological and Nuclear threats (CBRNE), cyber-attacks, terrorist attacks etc. In particular CBRNE threats are very high in the political agenda (the last Joint Communication on Hybrid Threats is a clear example) due to the events in Salisbury earlier this year. In principle,	JRC.E.2	7.2.c	HOME	HOME,H OME,JR C	CNECT ECHO ENER MOVE	NIST - National Institute of Standards and Technology ENTSOE - European Network of Transmission System Operators for Electricity EUROCONTROL - European	01/01/2014 31/12/2020	CON-AA,CON-AA,INS-RS	19	Technological aspects of Hybrid Threats	A report describing technological aspects of Hybrid Threats both in terms of affected sectors and services as well as means used in the framework of HT. This report will describe the technological aspects of Hybrid Threats such as CBRNE issues, Critical Infrastructures, Crisis Management, Cybersecurity and how these elements are interlinked. It also look upon issues related to emerging technologies (e.g. robotics and unmanned systems) and how these are part of hybrid threats attack vectors or hybrid threats attack surfaces.	23/12/2019	Technical Reports
4821 - HYBRIT JRC.E.2	8024 - HYBRITCOF Hybrid Threats Conceptual Framework	The first objective of the project HYBRIT is to develop a conceptual framework for Hybrid Threats. Given the complexity of the topic, the combination of attack vectors, exploitation of vulnerabilities and the number of involved actors, a conceptual framework will be extremely useful to provide an abstract yet very powerful representation of the Hybrid Threats ecosystem in order to support the	JRC.E.2	7.2.c	GROW	HOME,J RC	CNECT EEAS ENER HOME SANTE		01/01/2019 31/12/2020	CON-AA,INS-RS	1	Hybrid Threats Conceptual Framework	The outcome of this workpackage is a report documenting the hybrid threats conceptual framework.	01/12/2019	Science for Policy reports
4821 - HYBRIT JRC.E.2	8025 - HYBRITDET Hybrid Threats Detection	One of the most important challenges in the domain of Hybrid Threats is their early detection. This is paramount for providing the MS with the necessary advantage in terms of time in order them to counteract Hybrid Threats. Once a Hybrid Threat is in full swing it might be much more difficult to respond; in that case one or more MS will be mainly addressing a crisis situation, which might quickly escalate. Detection efforts require the collection and analysis of datasets from various sources which often look uncorrelated. This workpackage will aim at identifying those datasets that are necessary to be analysed in order to have more chances to identify a Hybrid Threat during the preparatory phase. Considering the fact that several MS receive a large amount of security related reports, providing the tools to distinguish among this wealth of data and identify patterns is of great interest. In more detail, data from media, internet, as well as from other technological sectors will be considered. It is important to mention that the aim of this workpackage is not to perform operational work but to identify these variables that have to be considered by authorities as well as to provide the related stakeholders with the necessary schemes for exploiting this huge bulk of multidimensional information. On the contrary, the operational work should always remain with the	JRC.E.2	7.2.c	GROW	JRC	ECHO EEAS ENER HOME SANTE		01/01/2019 31/12/2020	INS-RS	1	A report describing detection variables (possibly in the form of a taxonomy) and associated IT tool	This report will describe the detection variables, their links while there will be an effort to build a visual analytics demo tool to support decision making with respect to Hybrid Threats detection. The feasibility to derive some of the detection variables from on-line media sources will be explored and will result with live data feeds from TMA-CC. In order to provide better quality results, the report describing detection variables should also provide multi-level aggregation model. The quality of those feeds will depend on the precision, coverage, and multi-level aggregation model defined in the main report.	31/12/2019	Technical Reports
											2	Visual analytics tools for hybrid threats detection	Detection of hybrid threats is a very challenging issue and requires the correlation of several datasets in order to identify whether a hybrid threat is taking place. Despite the progress of AI, the capability of an experienced analyst cannot be easily replicated. To this end it is necessary to provide to the experienced analyst the right tools to support detection, attribution and decision making. Visual analytics is an excellent means and JRC aims to develop a demonstrator for these purposes. The data format and protocol to access the media sources data feeds (deliverable 1) will be adapted to facilitate the integration in the Visual analytics tools.	31/12/2020	Technical systems

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7.2.d Law enforcement - provide technical support, intelligence techniques and research to improve operational cross-border cooperation and assist the European Union Agency for Law Enforcement Cooperation (Europol) and Member State law enforcement authorities in areas such as early warning and risk analysis, terrorism, cybercrime, child sexual exploitation, new psychoactive substances, including support to the European Monitoring Centre for Drugs and Drug Addiction. This technical support is provided through digital forensics, the collection of digital evidence from smart environments and open-source intelligence.															
329 - DFILE JRC.E.3	559 - ITFC Innovative Techniques for Fighting Cybercrime	ITFC work package is focused on developing innovative techniques to enable effective investigation and prosecution of cybercrime by European law enforcement bodies. It identifies emerging scientific and technological approaches, explores their potential for increasing the efficiency of cybercrime investigation and prosecution, and develops new techniques. This research activity deals with the prosecution of criminal activities that involve the usage of new and emerging technologies and lead to a direct financial impact for citizens and industries. The aim of the WP is to support the 2013 EU cybersecurity strategy (renewed in September 2017) in the fight against Child Sexual Abuse (CSA) on-line and the EU agenda on security, with new and improved forensic investigation techniques relying on signal processing, computer vision, image analytics and biometric matching algorithms in order to better identify perpetrators and victims and to contribute to crime localisation. The research is focused on the fingerprinting of multimedia devices, the detection of those fingerprints in TOR Hidden Services, object and tattoo recognition, face identification systems and the improvement of their resilience to possible spoofing.	JRC.E.3	7.2.d	HOME	JRC	JUST MOVE	EUROPOL - EUROPOL MS EU - Member states EU	01/01/2014 27/12/2019	INS-RS					
329 - DFILE JRC.E.3	560 - AVICAO Authors and Victims Identification of CSA On-Line	SAND provides scientific assistance to DG HOME and the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) within the EU Drugs Strategy and Action Plan and legislative proposals on new psychoactive substances (NPS) (Council Decision 2005/387/JHA , Regulation (EU) 2017/2101 of the European Parliament and of the Council, Directive (EU) 2017/2103 of the European Parliament and of the Council and EU ACTION PLAN ON DRUGS 2017-2020 (2017/C 215/02)). SAND supports EU action by establishing harmonised methods and approaches addressing the challenges of identification and collection of analytical data on NPS by forensic, customs and public health bodies. Efficient sharing of data and knowledge at EU level is achieved through close collaboration with European Customs and Forensic networks and EMCDDA. The global threat posed by NPS was also underlined by the United Nations General Assembly on the world drug problem, which also called for strengthening and enhancing information-sharing and early warning networks (UNGASS, April 2016). The "new drug" market is developing at an unprecedented pace in number of substances and diversity with no signs of a slowdown leading to more than 700 new substances currently monitored in EU. The NPS market is driven by rapid changes in technology and globalisation. A	JRC.E.3	7.2.d	HOME	JRC	CNECT	EUROPOL - EUROPOL MS EU - Member states EU	01/01/2014 31/12/2020	INS-RS					
5133 - Illicit JRC.F.4	606 - SAND Scientific Activity on New Drugs	The aim of this WP is to support the EU Agenda on Security and more specifically its second priority for disrupting organized crime and tackling terrorism with the development of innovative technologies which will level the playing field of law enforcement authorities in full compliance with the EU charter for fundamental rights. The research efforts will be focused on the following topics: - The growing concerns about new encryption technologies will be addressed through the development of the concept of contextualized decryption. This new way of password recovery process aims at collecting all the information produced by a target in order to build his/her semantic space from which a customized wordlist will be extracted. Only personal data of the individual	JRC.F.4	7.2.d	HOME	JRC, TAX UD	GROW OLAF SANTE TAXUD	Cust Aut MS - MS Customs Authorities ECHA - European Chemicals Agency (ECHA) EFSA - European Food Safety Authority EMA - European Medicines Agency (EMA) EMCDDA - European Monitoring Centre for Drugs and Drug Addiction EUROPOL - EUROPOL Law-enforcement Nat. Auth. - MS Law-enforcement National Authorities	01/01/2014 31/12/2020	CON-AA, INS-UR	SAND2019 a	Summary of risk assessments of NPS 2019	A summary of the risk assessment conducted on NPS in 2019 by the extended scientific committee of EMCDDA will be edited. The risk assessment reports are the base for further decision for ban of certain substances by the EU institutions (Commission, Council). The JRC delegate is the scientist representative from the Commission participating in the EMCDDA meetings for risk assessment of new substances. The report will present elements regarding the implementation of the legislative package on NPS adopted in November 2017 (DIRECTIVE (EU) 2017/2103 and Regulation (EU) 2017/2101 of the European Parliament and of the Council).	20/11/2019	Science for Policy reports
											SAND2019 b	Sharing of forensic science data	A report presenting the progress of sharing of forensic science data and the development of a common methodology supporting the identification and monitoring of new psychoactive sub-stances.	20/11/2019	Technical Reports
											SAND2020 a	Summary of risk assessments of NPS 2020	A summary of the risk assessment conducted on NPS in 2019 by the extended scientific committee of EMCDDA will be edited. The risk assessment reports are the base for further decision for ban of certain substances by the EU institutions (Commission, Council). The JRC delegate is the scientist representative from the Commission participating in the EMCDDA meetings for risk assessment of new substances. The report will present elements regarding the implementation of the legislative package on NPS adopted in November 2017 (DIRECTIVE (EU) 2017/2103 and Regulation (EU) 2017/2101 of the European Parliament and of the Council).	30/11/2020	Science for Policy reports
											SAND2020 b	Sharing of forensic science data	A report presenting the achievements of sharing of forensic science data and the development of a common methodology supporting the identification and monitoring of new psychoactive sub-stances.	30/11/2020	Technical Reports
329 - DFILE JRC.E.3	3524 - DOCIDT Disrupting Organised Crime with Innovative Digital Technologies	Based on the core EMM features, this work-package will enhance the real-time open source (OS) monitoring activities related to (cyber) security, home affairs, law enforcement by providing and extending Open Source analysis capabilities specifically adapted to these activities. Stakeholders include DG-HOME, CERT-EU, Europol, European Defence Agency, and others. It will also support collaboration by developing methods for exchange of analysis capabilities (note: not data) between trusted partners. The project will increase Open Source Intelligence capacity building by further dissemination of the OSINT suite in MS and other parties such as the International Criminal Court.	JRC.E.3	7.2.d	HOME	JRC		EUROPOL - EUROPOL OHIM - Office for Harmonization in the Internal Market	01/01/2016 25/12/2020	INS-RS					
213 - TMA CC JRC.I.3	7566 - OS4SEC Open Source Intelligence for Security and Defence		JRC.I.3	7.2.d	HOME	EA, HOME, HOME, JRC	HR	EDA - European Defense Agency EU CERT TF - EU CERT Task Force EUROPOL - EUROPOL ICC - International Criminal Court	01/01/2019 31/12/2021	CON-AA, CON-AA, CON-TW, CON-TW, DEL	658601	Europol Media Monitoring	Europol's Corporate Communications Unit performs open source monitoring on behalf of operational Units in Europol. The Unit also produces a daily newsletter for the whole organisation. The purpose of this deliverable is to enhance Europol's capabilities in preventing and combating organised crime, terrorism and other forms of serious crimes by maintaining the provided software.	31/12/2019	Technical systems
											659101	Operational support to STAR	Support to DG HOME's strategic analysis and response capability (STAR) as required by the AA. DG HOME uses STAR to develop risk assessment processes related to security threats: Furthermore, it is used as capability for crisis management. STAR is operated by DG HOME, however, continuing support and transfer of open source gathering, and analysis techniques developed by JRC is required.	31/12/2019	Sci information systems and databases
											EDA2020	Support to the European Defence Agency	Support to the European Defence Agency analytical capability. The support is done through providing EMM software, training and know-how support to customise the tools for EDA's purposes.	31/12/2020	Technical systems
											ISA2	ISA2 Interoperable Meta Data and Processing Components for Open Source Information Mining	The deliverable aims to develop a set of meta data standards to facilitate the interchange of software components in the field of open source information mining. This deliverable aims to fulfil the ISA2 project objectives.	31/12/2019	Technical systems
7.2.e Border protection and document security - increase security of external borders (e.g. help to design and implement the EU entry-exit system, contribute to the protection of external borders and the efficient processing of short-stay visa applications); increase the security features of ID cards and residence documents; strengthen the capacity of FRONTEX to carry out border controls, risk analysis and joint operations at external borders; provide technical support and research to strengthen large EU information systems, including for the free movement of EU citizens (e.g. interoperability, new biometric arrangements, resident permits, digital identity management, smart card security, etc.) and to close information gaps.															
4973 - BOSS JRC.E.5	298 - BORSEC-CF Border Security for people and goods and ECCAIRS Common Framework	The main objective of the WP is to develop the activities of the Unit in the field of Border Security, in close collaboration with DG HOME and DG TAXUD, taking into account the four different dimension of Border Security (Land, Sea, Air and Cyber) as well as the different approaches needed to manage the border crossing for people and goods. The effective sharing, management and use (visualisation, analytics, AI, etc.) of data from diverse sources is of paramount importance to support risk management and the decision making processes needed to protect the EU Borders. Hence, the WP aims at leveraging the technical competences acquired in the development of Contrafic, CISE and ECCAIRS as well as the network of relationship and the solid knowledge of the Users' needs in the field of Border Security and customs risk management. This knowledge has been developed through years of collaboration with DG HOME on EUROSUR (MARHOME - AA) and DG TAXUD (CTR-RISK AA) and will be used to identify and propose sound solutions to support the enhancing of security at the external border as well as the improving of information exchange, risk analysis and strengthening information systems as foreseen in EU Strategy and Action Plan for customs risk management COM(2014)527 and the European Agenda on Security COM(2015)185 implementing the Political Guidelines of European Commission President Jean-	JRC.E.5	7.2.e	HOME	JRC	JRC MARE MOVE OLAF TAXUD TRADE	Cust Aut MS - MS Customs Authorities MS Border Sec - MS Border and other Security Authorities	01/01/2018 31/12/2020	INS-RS	22	Report on the WPK Activities	This deliverable will contain the output of the different initiatives in the field of border security including: i) studies on the application of the interoperability concepts of CISE to the Border Control Domain (Innovative solutions for Border Security information exchange); ii) Analysis of the Concept of Cyber-Border and its implication on EU Security; iii) Analysis of the opportunities offered by Blockchain and AI to address the enhancement of the Security of the EU Borders for goods and people; iv) Research studies and prototype analytics tools and data processing techniques for customs risk analysis, in particular in the security domain.	18/12/2020	Technical Reports
											23	ECF Show Cases	After the successful deployment of ECCAIRS in the three public transport domains this deliverables will demonstrate that ECCAIRS can be used for solving data collection and integration problems in different domains. The production of a number of show cases (i.e. functional ECCAIRS deployments) will demonstrate to potential interested DGs how the platform can be used to resolve fast and efficiently their data sharing needs. The deliverable will also report on the progress made in the study of solutions for big data type of handling and analysis leveraging the information stored in ECCAIRS repositories as a test bed. The focus is on flexible, fast and efficient data-links.	31/12/2019	JRC technical reports
244 - CSPI JRC.E.3	3764 - DigitalID Digital Identity	This work-package aims at providing support to the forthcoming Commission Communication on an Action Plan on document security and identity management which is called for in the Commission Communication Stronger and Smarter Information Systems for Borders and Security which explicitly references the need to combat document and identity fraud. Linked to this activity on identity management, which is focused on "hard" id documents, this work-package also aims at	JRC.E.3	7.2.e	HOME	JRC, JRC	CNECT JUST		01/01/2016 31/12/2020	CON-AA, INS-RS	12345	Conformity testing MS reports and final report	A test report will be provided for each Member State covering all the samples received from that Member State. A final report summarising the results and the work done will be delivered as the final product of the AA.	15/12/2019	Technical Reports
											TTols	Conformity test tools	This deliverable includes all the tools developed in support to the conformity testing activity and associated documentation	31/01/2019	Technical systems
244 - CSPI JRC.E.3	6529 - LP 2018 Support to the operation of the Laissez Passer 2018-2019	Direct support to DG HR in the further development and operation of the technical infrastructure required for the issuance and interoperability of the EU Laissez-Passer. More specifically the activity comprises the operation of the two PKIs (ICAO-PKI and EAC-PKI) according to the established security policies and the design and further development of the	JRC.E.3	7.2.e	HR	HR, HR	HOME		01/04/2018 31/12/2020	CON-AA, CON-AA	101256	LP 2019-2020 Operations	The report will contain a summary of all the activities performed during the execution of the project during the second half of year 2019 and the first half of 2020. It will include (either as annexes or as pointers) also the specific documents that will be produced during the execution of the project as agreed in the technical annex annexed to the AA.	15/07/2020	Technical Reports

JRC 2019 - 2020 DETAILED WORK PLAN															
Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
244 - CSPI JRC.E.3	6530 - ML+ETIAS Cyber-Security in Smart-Borders (Schengen Master List + Mobile app for ETIAS)	This work-package supports the development of the Smart-Border Policy package it two ways: (1) Following the results of the JRC feasibility study (A.A.) conducted by JRC in 2017 on "technical options concerning the management of Member-States digital certificates (i.e. a Masterlist) for electronic passport authentication", this work-package will design and implement a first working set-up for the in-production Schengen Master List system.	JRC.E.3	7.2.e	HOME	HOME,HOME		FRONTEX - European Agency for the Management of Operational Cooperation	15/06/2018 31/12/2020	CON-AA,CON-AA	ML3	Final Deliverable ML	The report will describe the set-up for Schengen masterlist operational system which will provide the digital signature required by the project and the associated masterlist publication.	15/01/2020	Technical Reports
											ML4	Mobile apps: for ETIAS feasibility study	The deliverable presents the results of the feasibility study with identification of user, operational and architectural requirements, (in particular in terms of security, privacy and data-protection), presentation of possible architectures, prototyping results and comparison with current state of play in other countries	15/12/2019	JRC technical reports
4973 - BOSS JRC.E.5	6541 - MARHOME 3 MARHOME 3	JRC support to EUROSUR and in the R&D sector for border surveillance WP1. Assessment and further development of EUROSUR components The JRC will continue to support the assessment of the different EUROSUR components by describing the progress made with respect to the provisions made in Regulation (EU) No 1052/2013. <i>Special emphasis shall be made on the implementation of the Common Application of</i>	JRC.E.5	7.2.e	HOME	HOME			01/07/2017 31/12/2019	CON-AA	MARHOM E3reps	Six monthly reports	Description of the work performed in the framework of the AA MARHOME 3 and to be reported to the partner.	31/12/2019	JRC technical reports
222 - DRMKC JRC.E.1	6620 - FOSS 2017 FRONTEX ONE-STOP-SHOP Handover Phase	The subject of this contract is the definition of the operational, administrative, financial and technical conditions under which JRC shall provide Frontex with the services and products to maintain, enhance and update Frontex-One-Stop-Shop (FOSS), which were initially supplied by the JRC in the frame of the SLA No. 33222-2013 TPW, which entered into force on 3 May 2013. This contract is intended to support the process of replacement of the FOSS application within	JRC.E.1	7.2.e	HOME	n/a			01/09/2017 28/02/2019	CON-TW	201801	FOSS system handed over to FRONTEX	JRC will hand over operations of the FRONTEX One Stop Shop to FRONTEX. The JRC will develop and deliver necessary documentation to FRONTEX. JRC shall share information and knowledge with Frontex staff members that act as FOSS administrators during face to face meeting (up to three days) to familiarise them with the basic administration tasks and make them more independent from JRC in the resolution of daily issues.	28/02/2019	Technical systems
329 - DFILE JRC.E.3	7743 - BRASSA Biometric Research Applied to Security in the Schengen Area	The performance of Biometric systems will be fostered by improving their adaptability to the diversity of data subjects (age and gender) and to various biometric modalities (fingerprint, latent, palm-print, face). Interoperability of more user friendly (3D touch-less) acquisition devices offering quantum leap increased accuracy (laser based scanning developed in 2016) will be assessed and their resilience against spoofing attacks will be studied. Measures to facilitate interoperability and increase of the quality of the data processed such as international standardization efforts (ISO SC37) and benchmark campaigns will be explored.	JRC.E.3	7.2.e	HOME	JRC	JUST	EUROPOL - EUROPOL	01/01/2019 31/12/2020	INS-RS	001	Quality metrics for Biometric large scale It systems	1 Quality metrics for Biometric large scale It systems : Face, fingerprint. 2 Quality metric for kids. 3 Touchless fingerprint reader and elderly fingerprint quality level.	30/11/2020	Technical Reports
											002	Performance benchmark of large scale AFIS system	1. Definition of the most appropriate methodology of performance benchmark of the SIS AFIS with the cooperation of MSs and EU-LISA and elaboration of its protocol. 2 Together with 3 MSs, execution of the performance benchmark protocol.	27/12/2019	Technical Reports
4973 - BOSS JRC.E.5	7774 - MARHOME 4 MARHOME 4	In December 2019 the AA MARHOME 3 will end. It is highly probable that a new AA (MARHOME 4?) will be established. This new AA will aim to continue to work in close collaboration with DG HOME C.2 (Border management and Schengen). The key activities will focus on: - Assessment and further development of EUROSUR components (Regulation (EU) No 1052/2013) ; - Support for assessing technology research and innovation, including the take-up of results, for Border Security; - Assessment and further development of a European Integrated Border Management (Regulation (EU) No 2016/1624). The JRC's support may cover, among other matters, the exploration of innovative technology areas and components, the study of the contribution of novel solutions to the reinforcement of operational capabilities, the monitoring of the readiness levels of technologies under development, or the assessment of R&D projects results versus User Needs.	JRC.E.5	7.2.e	HOME	HOME			01/01/2020 31/12/2020	CON-AA					
4973 - BOSS JRC.E.5	8022 - BorTech Technologies for Border Security Data Analysis	Border technologies	JRC.E.5	7.2.e	HOME	HOME			01/01/2020 31/12/2021	CON-AA					
8. Towards a new policy on migration															
8.1. Migration															
8.1.a Support the implementation of the external dimension of the European Agenda on Migration, in particular the Partnership Framework and the new Global Compact for Migration and Global Compact on Refugees and improve the effectiveness of migration-related EU actions and resources. This includes analysing migration drivers and developing informed migration scenarios as well as issuing Migration Profiles and an Atlas of Migration.															
355 - KCMD JRC.E.6	4830 - EDM External Dimension of Migration	The WP follows closely the implementation of the external dimension of the European Agenda for Migration and intends to offer high quality evidence and address knowledge gaps. Specifically, the WP supports policies linked to development, such as the EC External Investment Plan [COM(2016) 581 final] to foster investments in partner countries, the EU Development policy and the new European Consensus on Development (2017/C 210/01). At the global level the WP supports the initiative towards the Global Compact for Migration, the Global Compact on Refugees and the 2030 Agenda for Sustainable Development (SDG 10.7). To address some of the root causes and ensure the necessary policy coherence for development, new activities will be devoted to understanding better the specific role of drivers for the different forms of migration towards the EU, in a medium to longer term perspective including the development-migration nexus, climate, demography, education and rural to urban migration. This WP will consolidate the production of the Atlas of Migration containing migration-related facts, figures and reference indicators for third countries of interest to the EU including for EU MS. More detailed migration profiles for a limited number of third countries, regions or migration corridors, will continue to be produced on demand.	JRC.E.6	8.1.a	DEVCO	JRC	ECHO EEAS EPSC HOME NEAR	- EUROPEAN UNIVERSITY INSTITUTE EASO - European Asylum Support Office EEAS - European External Action Service FRA - European Union Agency for Fundamental Rights FRONTEX - European Agency for the Management of Operational Cooperation ICMPD - International Centre for Migration Policy Development IDMC - Internal Displacement Monitoring Centre	01/01/2018 31/12/2020	INS-RS	483001	Atlas of Migration - 2019	The Atlas contains migration-related facts, figures and indicators for third countries of interest to the EU (Section 1) based on official statistics and includes also migration profiles of EU Member States (Section 2). A third section is finally devoted to thematic analysis in the form of a descriptive/narrative report on a topic which may change every year. The Atlas is intended to be used as a reference book, to be produced systematically and semi-automatically in both its printed and an online versions, and is there to serve a host of different uses and interests.	31/10/2019	Books
											483002	The impact of root causes on specific migration corridors	The report will provide elements to assess in qualitative and quantitative terms the effect of development, demography, urbanisation, climate change and other root causes on specific migration corridors in a medium to long term perspective.	02/12/2019	Science for Policy reports
											483003	Atlas of Migration 2020	The Atlas contains migration-related facts, figures and indicators for third countries of interest to the EU (Section 1) based on official statistics and includes also migration profiles of EU Member States (Section 2). A third section is finally devoted to thematic analysis in the form of a descriptive/narrative report on a topic which may change every year. The Atlas is intended to be used as a reference book, to be produced systematically and semi-automatically in both its printed and an online versions, and is there to serve a host of different uses and interests.	30/10/2020	Books
8.1.b Support legal migration, integration and asylum - analyse the impact of admission and integration policies and examine factors enabling integration; measure the impact of migration on economic growth, the labour market, employment, welfare, education and demographics; study public perceptions and attitudes towards migrants; explore the local dimension of integration (e.g. cities where most of the integration issues arise) and assess likely scenarios for demographic changes in Europe; address data on children in migration including age assessment; support the further development of the Common European Asylum System.															
355 - KCMD JRC.E.6	4829 - LMI Legal Migration, Integration and Asylum	The Work Package (WP) follows closely the implementation of the European Agenda on Migration (EAM) and the related approach combining various internal policy tools – ranging from the Action plan on the integration of third-country nationals to the reform of the Common European Asylum System (CEAS). The main deliverables of the WP will deal with the following relevant aspects: (1) How is increasing concentration of migrants in EU cities affecting electoral outcomes and education systems? The related study will be based on the D41 data challenge launched by JRC in 2017 and will explore the relations between the concentration of migrants in EU cities with electoral outcomes, segregation in schools and the evolution of diversity and residential spatial segregation over time. (2) What is shaping attitudes about migrants? The activity will deepen the knowledge on how discourses on migration are influenced by exposure to diversity in social media and in the geographical space of cities analyzing the Eurobarometer and Gallup World Poll surveys as well as performing text mining and network analyses of Twitter. (3) How to ensure skill matching for migrants taking into account circular and temporary migration? The related activity will focus on the analysis of trends and drivers of skills mismatch of EU and non-EU migrant workers and a comparative study of visa entry systems worldwide, providing a specific support to HOME in the context of Pilot projects on legal migration. This work will be carried out in collaboration with Unit B.4. (4) What are the fiscal effects of migration taking into account demographic forecasts for the medium-long term? This activity will be addressed through a micro simulation of fiscal impacts associated to lifetime projections of the EU migrants' population. The simulation will be carried out using the demographic model by project CEPAM, and in collaboration with Unit B.2. (5) What is the pressure on national asylum systems? This aspect will be monitored through indicators (in collaboration with EASO, the European Migration Network and Member States authorities) and scoreboards of convergence towards the Common European Asylum System (CEAS). The WP will also address age assessment and biometrics for children in migration to make sure that minors do not fall out of protection.	JRC.E.6	8.1.b	HOME	JRC	COMMECFIN EMPL ESTAT REGIO	- EUROPEAN UNIVERSITY INSTITUTE EASO - European Asylum Support Office FRA - European Union Agency for Fundamental Rights IOM - International Organisation for Migration KNOMAD - Global Knowledge Partnership on Migration and Development OECD - Organisation for Economic Co-operation and Development (OECD)	01/01/2018 31/12/2020	INS-RS	1	Skill matching and migration	The technical report will consist in an assessment of the matching between the skills supplied by immigrants and those demanded by the labor market. It will allow identifying 1) those third country nationalities whose stock of skills is mostly mismatched hindering thus their integration into the society; and 2) those MS who are mostly affected by the phenomenon, deterring their productivity.	31/12/2019	Science for Policy reports
											3	Public perception on migration	The technical report will consist in an analysis of how public perceptions on migrants in Europe are determined by exposure to diversity in a local context.	31/12/2019	Science for Policy reports
											482901	Anticipating future EU labour market demand, skill matching and supporting the design of legal pathways for migration	The report will address the question: how many migrants will Europe need? The work will involve labour market research and comparative analysis of selective admission systems globally as well as pilot projects with third countries on legal pathways.	02/12/2020	Science for Policy reports
											482902	Monitoring convergence to the Common European Asylum System (CEAS).	The Report deals with modelling to monitor convergence to the Common European Asylum System (CEAS) and to measure the pressure on national asylum systems (with EASO, EMN and MS) (2019). The work will also aim at providing early warning and support to modelling-based programming for the short to medium term (2019-2020).	02/12/2019	Science for Policy reports
											482903	Fiscal impact of migration in the EU from a demographic perspective	The report deals with forecasting the fiscal and welfare impacts of migration for the EU28 by extending the demographic micro-simulation model developed by JRC-IIASA (project CEPAM)	30/06/2019	Science for Policy reports
											483004	Age assessment and biometric registration for children in migration	This report will provide scientific advice and best practices on age assessment and biometric registration for children in migration.	01/12/2020	Science for Policy reports
5046 - CAS-1 JRC.A.5	5071 - CAS1-Pop&Mig Centre of Expertise on Population and Migration (CEPAM)	This research project on demography and migration assesses in a multi-dimensional analysis the consequences of alternative future population and migration trends in Europe as well as in the main regions of origin of migration into Europe. Push and pull factors and different kinds of migration streams are studied. In addition, the impact of migration flows for Europe in terms of population ageing and the productivity of Europe's labour force over the coming decades. This is done using macro-modelling techniques. Populations scenarios by age, sex, level of education and labour force participation for all EU member states will be studied. Moreover, micro-simulation models with more characteristics will be employed in the study of migrant integration. Scenarios by	JRC.A.5	8.1.b	HOME	JRC	ECFIN ECHO EPSC ESTAT GROW NEAR	Int Disaster Resp - International disaster response, including, Humanitarian Community Reg Aut Mig - Candidate Countries / Members States regulatory authorities on Migration UN ISDR - United Nations International Strategy for Disaster	01/07/2016 30/06/2019	INS-CAS	50711	Demographic development in the EU in the 21 century under specific consideration of migration scenarios	Publication of a series of scientific papers which provide calculations of new alternative population demographic scenarios for EU-28 and the analysis of their results. This will be done with the help of both the macro- and micro-level projection models. In projecting the future evolution of the population by age, sex, education and labour force participation under alternative migration scenarios the macro level structures will be consistent with the microsimulation model.	31/12/2019	Journal contributions (Scopus)
											50712	Flagship policy report on demography	Policy summary of the scientific output on the Demography project (Del D1-2019)	30/04/2019	Science for Policy reports

JRC 2019 - 2020 DETAILED WORK PLAN

Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
7596 - Resilience4EU JRC.B.1	6431 - MIGRES Resilience and the challenge of migration	Migration has been recognized as one of the main challenges in modern societies, as it affects the educational sector, the labour market and, more broadly the social fabric. While migration is an inherent element of modern globalized economies and can hence be interpreted as a structural element of modern societies, recent humanitarian crisis are fostering a different type of mass migration, which generates specific problems. The objective of this work package is to go through the dashboard steps (as detailed in the project description) for the challenge of migration. It means identifying the sub-types of corresponding shocks and stresses, working on the catalogue of shock episodes, finding the system variables	JRC.B.1	8.1.b	HOME	JRC	DEVCO EAC ECHO EEAS EPSC ESTAT		01/01/2018 31/12/2020	INS-UR	1	Migration and the labour market	This deliverable will provide evidence on how labour market is affected by migration, with particular attention to distributive effects, and on how such impact depends upon different policies (which include migration policies but also labour market institutions). Of particular importance are: a) assimilation of migrants into the domestic national labour market (by industry and occupation) b) impacts of migrants on the labour market performance of domestic workers. The results of this analysis can then be used to provide estimates of the labour market response of the MS to different migration shocks (by age, origin, human capital composition, gender etc.); but also benchmarking MS in terms of their migration and labour market policies.	31/05/2019	Science-for-policy reports
355 - KCMD JRC.E.6	7302 - SDA Software demonstrator for the Asylometer	Proof of Concept Project having the objective of implementing a Software demonstrator for the Asylometer, a composite indicator tool developed by the JRC to measure the pressure on the asylum systems of EU Member States (EU-MSs) due to Asylum seekers from different countries of origin. In addition the Asylometer allows for more in-depth understanding of the functioning of the Asylum system, provides early warning and helps in planning better resources to avoid reaching the threshold of disproportionate pressure. The Asylometer software demonstrator product will consist of a stand alone version that each user may independently use and a JRC Asylometer Web Model able to process data on demand of different users and providing as a separate product the specific Asylometer estimates. Users of the tool are expected to initially include different EC services and other EU institutions as well as MS authorities dealing with Asylum related issues. Both versions of the tool are designed in order to preserve the confidentiality of the input raw data. In addition the tools is very flexible in terms of input data, which may include international statistical dataset as well as national dataset or data coming from specific surveys.	JRC.E.6	8.1.b	HOME	JRC	JRC		01/03/2018 28/02/2019	INS-PC	n/a	n/a	n/a	n/a	n/a

8.1.c Operate the Knowledge Centre for Migration and Demography - collect and organise the wealth of existing but fragmented data to support EU policies, harness the potential of innovative data sources and create new datasets to address data gaps; provide policy-oriented research and evidence-based analyses; increase the uptake of research, and strengthen partnerships and outreach.

355 - KCMD JRC.E.6	5105 - OP-KCMD Migration Data Science and Innovative Data Sources	<p>This work package provides for the data, information and IT infrastructures necessary to build a comprehensive evidence-base for EU policy making on migration through a number of activity strands:</p> <ul style="list-style-type: none"> - Data access and analysis facilitation: putting relevant data on international migration under the same roof, with a single-entry point to access, visualise and analyse migration data, the KCMD Data Hub has proven to be an effective tool to bring data closer to EU policy makers. Better use of migration related data as a basis for evidence-informed policy making is a key priority of the 2016 New York Declaration and is one of the objectives of the upcoming Global Compact for Migration (planned to be adopted in 2018). - Migration data policy: while the Commission collects regularly statistics on asylum and managed migration, continued work in migration data policy is needed to identify gaps and shortcomings in existing migration data, to monitor the evolving policy needs and the resulting data requirements, to recommend possible pathways to improve the data - including access to administrative data at EU and national levels - and to be able to respond to policy demands with adequate data. In regular consultation with EU policy officers and ESTAT, this process of data improvement can also lead to the recognition of new opportunities to formulate relevant, targeted policy questions. - Migration data improvement: most of the data that exists in the world today are not collected by 	JRC.E.6	8.1.c	HOME	JRC	CLIMA COMM DEVCO EAC ECFIN ECHO EMPL EPSC ESTAT JUST NEAR REGIO RTD SG	- EUROPEAN UNIVERSITY INSTITUTE IASA - International Institute for Applied Systems Analysis EASO - European Asylum Support Office EEAS - European External Action Service FRA - European Union Agency for Fundamental Rights FRONTEX - European Agency for the Management of Operational Cooperation IOM-GMDAC - International Organization for Migration - Global Migration Data Analysis Centre MPI - Migration Policy Institute UNHCR - UN Refugee Agency	01/01/2018 31/12/2020	INS-RS	510501	Dynamic Data Hub and Migration Data Catalogue	Further development and evolutive maintenance of the Dynamic Data Hub and the Migration Data Catalogue initiatives to facilitate and improve access to migration data. This includes adding new datasets, prompt updating of the existing ones and implementing new functionalities to widen the scope of the tools and their user-friendliness.	02/12/2019	Scientific information systems and databases
											510502	Dynamic Data Hub and Migration Data Catalogue	Further development and evolutive maintenance of the Dynamic Data Hub and the Migration Data Catalogue initiatives to facilitate and improve access to migration data. This includes adding new datasets, prompt updating of the existing ones and implementing new functionalities to widen the scope of the tools and their user-friendliness.	01/12/2020	Sci information systems and databases
											510503	Innovative sources of data for migration	The report will analyse complementarity with the more traditional sources of data (e.g. official international statistics or administrative data), and will address some of the challenges that hinder their exploitation for the social sciences. Work will focus on: th public perception of migration, complex mobility and migration patterns (including temporary migration) and a pilot origin-destination subnational-level mapping using administrative data of selected MS.	01/12/2020	Sci information systems and databases
											510504	Migration Data Policy	While the Commission collects regularly statistics on asylum and managed migration, continued work in migration data policy is needed to identify gaps and shortcomings in existing migration data, to monitor the evolving policy needs and the resulting data requirements, to recommend possible pathways to improve the data and to be able to respond to policy demands with adequate data. In regular consultation with EU policy officers and ESTAT, this process of data improvement can also lead to the recognition of new opportunities to formulate relevant, targeted policy questions. The work involves regular consultation of all relevant DGs and EU Agencies with a stake in migration data.	01/12/2020	Science for Policy reports

9. Europe as a stronger global actor

9.1. Global safety and security

9.1.1. Fight against security and safety threats, crisis management and disaster resilience

9.1.1.a Disaster resilience, emergency and crisis management - provide scientific and analytical services, develop tools and build capacity to support the entire disaster risk management cycle (disaster prevention, preparedness, response and recovery), including via a dedicated Knowledge Centre for Disaster Risk Management, and the damage assessment of natural disasters in the context of application for Solidarity Fund assistance; promote the integration of research communities for seismology and earthquake engineering; provide an evidence base for disaster risk management solutions, including ecosystem based disaster risk reduction; provide assistance for risk vulnerability and crisis assessment to improve the knowledge base for humanitarian emergencies and disasters in accordance with the Sendai framework and the Agenda 2030 (SDGs) both inside and outside the EU; develop an European fire engineering approach to be incorporated in fire safety regulations of the Member States.

222 - DRMKC JRC.E.1	287 - Critech Crisis Management Technologies and Tools	<p>The Crisis Management Technologies and Tools work package is to span the whole disaster alerting/information chain from the instrumentation and local sensors, to the monitoring and visualization systems, international coordination and national/coordination and field dispatching tools. There is a very close collaboration with the Emergency Response Coordination Centre (ERCC) at DG ECHO, which has relied on information systems developed in Critech since 2004.</p> <p>JRC, in collaboration with UN-OCHA, developed and operates the Global Disasters Alerts and Coordination System (GDACS) that is the reference system for all the humanitarian organizations (including ERCC), part of ECHO's and OCHA's Standard Operating Procedures for emergency response. To respond to Sendai Target G (on multihazard EWS), Critech will create a Multi Hazard version of GDACS, named GDACS+, that will collect information and alerts related to other types of natural disasters currently not included in the traditional GDACS (Floods, Forest Fires and Droughts) and will improve handling of uncertainty. Further synergy with the Copernicus Emergency Management Service is envisaged.</p> <p>Critech has also a strong technology focus through the European Crisis Management Laboratory (ECML). ECML activities support Member States with assessing their response capability at national or sub-national level, which must be reported to the Commission every 3 years under the The objective of the work package is the management of Copernicus EMS-Mapping and innovation in emergency mapping and evaluation of potential applicability and added value of Remotely Piloted Aircraft Systems for crisis mapping and disaster risk management. Main activities: 1. Technical and administrative management of Copernicus EMS – Mapping with its three</p>	JRC.E.1	9.1.1.a	ECHO	JRC	GROW HOME	Civ Protection EU - Civil Protection Services in Member States EEAS - European External Action Service WFP - World Food Program of the United Nations	01/01/2017 30/12/2020	CON-IA,INS-RS	2018005	IDSL Sea Level Measurement Network	The IDSL Network, created with the help of DG-ECHO and further expanded with JRC funds. This network needs to be maintained and verified to be sure about its functionality. Also the first instruments that have been installed will be donated to the host countries so that they can further provide maintenance. The network is constantly controlled in order to be sure that all the instruments are properly working and to organize prescribed maintenance. Also the Floating Buoy acquired during 2017 will be instrumented and a first experiment with the new floating buoy will be performed during 2018: it will represent a major step towards the development of a real efficient Tsunami warning system because the tide gauge will be positioned offshore a location and will be able to identify Tsunami waves approaching the coasts. The installation off-shore will be performed in collaboration with the Italian Institution in charge of mareographic network, ISPRA	30/12/2019	Technical systems
											201802	Upgraded ECML to support to sustainable crisis management testbed	The European Crisis Management Laboratory's activities will focus on contributing to the DRIVER+ testbed and international network of crisis laboratories for crisis management technology for all hazards, including hybrid threats. The ECML will upgrade its hardware as needed, and run workshops aimed at exploring specific technological aspects of the Crisis Management process. The workshops, in the wider context of the DRIVER+ testbed and GDACS network of crisis rooms, provide a forum where research, market and end-users can meet and acquire a deeper vision of the proposed technology.	30/12/2020	Technical systems
222 - DRMKC JRC.E.1	404 - MIE4CopEMS Management, Innovation and Evolution for Copernicus EMS	<p>The objective of the work package is the management of Copernicus EMS-Mapping and innovation in emergency mapping and evaluation of potential applicability and added value of Remotely Piloted Aircraft Systems for crisis mapping and disaster risk management. Main activities: 1. Technical and administrative management of Copernicus EMS – Mapping with its three</p>	JRC.E.1	9.1.1.a	GROW	JRC	DEVCO ECHO	Civ Protection EU - Civil Protection Services in Member States EEAS - European External Action Service	01/01/2017 30/12/2020	INS-RS	201901	GDACS+ Development	Further development of the GDACS+ system, in close collaboration with international organizations, such as WMO and WFP, to provide a full system that can be of use in case of emergencies	31/12/2019	Technical systems
											201901	Implementation and management of the Copernicus EMS Mapping service	Report on the EMS Mapping service including a summary on the main achievements, service developments, as well as international cooperation in the field of Earth Observation for emergency mapping and disaster risk reduction.	30/11/2019	Technical Reports

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
222 - DRMKC JRC.E.1	437 - S&T for DRMKC Science and Technology for Disaster Risk Management Knowledge Centre	<p>The WPK holds the core activities of the DRMKC and provides scientific and technical support to our partner DGs, EEAS and National Authorities contributing to an improved multi-hazard science-policy interface by fostering networking activities (WS, trainings, joint deliverables, sharing of information and technologies, ...) in the field of Risk Assessment, Risk reduction, Loss Data and Climate Change among the different actors of the whole DRM cycle.</p> <p>Some of these activities are: the development of tools for collection, analysis and dissemination of research results and available information in the fields of DRM, DRR and CCA; elaboration of guidance for National Risk Assessment and Risk Management Plans; summarising science; development of the database architecture for loss data collection to link several policies; organization of trainings and WS to exchange good practices, research results as well as facilitating the transfer of technologies; support implementation's monitoring Kimberley Process. The coordination of the contribution to the UNISDR Science and Technical Partnership and its conferences is part of our activities.</p> <p>The WPK contributes to measuring progress against targets of the Sustainable Development Framework, Paris Agreement and the Sendai FWRDR while linking these global agreement with a number of EU policies which are DRR related (Climate Change Adaptation strategy, UCPM, Flood Directive, Solidarity Funds, Cohesion Funds, SEVESO, CIP, ...). The products elaborated within this WPK are INSPIRE compliant, promote innovative use of space data, and make use of the most updated layers of information (GHSL) and techniques (data mining and machine learning). The preparation of the second volume of the Science for DRM as collaborative process to promote co-creation of knowledge. DRMKC Newsletters will be quarterly published to facilitate the exchange of information within DRM community.</p> <p>Priorities addressed within this WPK could be slightly modified depending on the result of the current negotiation regarding the proposal for the new UCPM legislation and/or the recommendations from the review of the CCA strategy.</p> <p>Within the transfer of technologies task, the DRMKC is willing to start investigating how to stimulate the launch of an African DRMKC by offering an integrated version of several web-platforms/tools already developed. The technical work should be accompanied by the activation of the AU and the African scientific network.</p>	JRC.E.1	9.1.1.a	ECHO	DEVCO-JRC	CLIMA DEVCO EEAS ENV GROW HOME REGIO RTD SANTE	- Presidenza del Consiglio dei Ministri Dipartimento della Protezione Civile AU - African Union Civ Protection EU - Civil Protection Services in Member States UN ISDR - United Nations International Strategy for Disaster Reduction (UN-ISDR)	02/01/2017 31/12/2020	CON-AA,INS-RS	012019	Scientific Improvement of Monitoring Capacities for the Kimberley Process	Development of a system to build an inventory of probable artisan mining pits in the Central African Republic . Based on the changes over time in earth cove on satellite imagery, the tool will detect new spots with a high probability of being a mining pit.	01/12/2020	Technical Reports
											022019	Guidance for Risk Assessment and Risk Management including loss data collection, recording and analysis: Risk Data Hub and National Risk Assessment	The DRMKC will continue working on the development and implementation of a multi-hazard structure for the structured collection and analysis of damage and loss data. The new proposed legislation for the Union of Civil Protection Mechanism calls for a stronger role of EC in this field and our team has sound proven experience in the elaboration of reference technical documents in this field. An updated version of the previous guidelines (delivered in 2015) will be developed based on the progress made at national level and linking global and European Disaster Risk Reduction related initiatives around a common ground: the loss data. The DRMKC is the right place for the development of such kind of activities, including the development of the Risk Data Hub, because of its multi-disciplinary approach and science-policy interface role: data 4 policy (serving the whole DRM process and a large number of policies under the responsibility of different DGs) together with data 4 scientific models.	23/12/2020	Science-for-policy reports
											032019	INFORM Global Risk Index	The INFORM GRI is a composite indicator developed by the JRC that identifies countries at risk of humanitarian crisis and disaster. Although biological hazards are a significant source of risk that may result in emergency and disasters, epidemic risk was not yet included in the INFORM model. Global epidemic risk models provide an opportunity to identify high priority risk areas and prioritize resources for prevention, preparedness, capacity development and medium-long term risk monitoring and evaluation. The JRC, as scientific and technical responsible of INFORM, has taken the lead in incorporating epidemic risk in the INFORM GRI and will continue improving its methodology and incorporating additional hazards to contribute to a more holistic view of the risk of humanitarian crisis and disaster.	30/10/2020	Science for Policy reports
											20183	DRMKC Newsletters	The DRMKC publishes quarterly Newsletters that are disseminated among the DRM, DRR and CCA communities to share information regarding new research projects, results, trainings, events and other initiatives of relevance for them.	20/12/2019	Science-for-policy reports
											20184	Establishment of a DRM database in DRMKC	The DRMKC is working on the establishment of a DRM database which provides open access to scientific/technical reports, peer-review articles, outcomes and presentations from DRR/DRM related meetings and conferences, datasets, information regarding risk related models/methods, training materials, events and news classified by thematic areas in a cross-sectorial field. The DRMKC Project Explorer gathers information regarding more than 1000 DRR/DRM/CCA related research projects funded by different organizations and mechanisms (FP7, H2020, LIFE, ECHO PPP and JRC research). The open source web-platform is provided with geo-visualization tools and advance technology to facilitate sharing of information and fostering networking among the experts and institutions registered. Information regarding the more than 5000 different institutions involved in the research is also available to be able to visualise who has worked on what with whom. Next steps: citizens "corner" to be developed.	23/12/2020	Scientific information systems and databases
											20201	Science for DRM report 2020	The DRMKC will publish on regular basis a report meant to support a solid science-policy interface for DRM. The multi-author and multi-hazard report is the first in a series that will fill the gap in preparation for Sendai framework for DRR and show the positive exploit of EU research funding. It shall provide reviews of the scientific evidence base and its practical use in various areas of disaster risk management in Europe: the translation of solid science into useful and used recommendations.	20/12/2020	Science-for-policy reports
											20203	CEWS	The DRMKC, in collaboration with I3, will further develop the African Union (AU) CAAS early warning conflict System (CEWS).	23/12/2020	Technical systems
222 - DRMKC JRC.E.1	984 - NATECH Technological risks due to natural hazards	<p>Numerous incidents have highlighted the vulnerability of industry and critical infrastructures to natural-hazard impact (e.g. earthquakes, floods, storms, space weather, etc.), the potential for major consequences on safety and security, and the growing reliance of society on critical-infrastructure services. This WPK aims to enhance the capacity of the EU and its international partners to manage the risks to these technological systems from natural hazards (so-called Natech risk) by developing novel methodologies, tools and services for the identification, assessment and visualization of these risks, and through capacity building activities in the EU and beyond. More specifically, this WPK will improve the knowledge base to understand the EU's current and future vulnerability to these risks, including via the forensic analyses of accidents to understand disruption patterns and dynamics, as well as cascading effects; it will develop and upgrade methodologies, web-based tools and data-base products for Natech risk assessment and risk visualisation to increase the resilience of industry to natural-hazard impacts and enhance industrial safety and supply security, e.g. through the further development of the JRC's RAPID-N tool for rapid Natech risk assessment and mapping and its eNATECH database for lessons learning studies; engaging government, industry, academia, civil protection and international partners (including OECD, UNISDR, UN Environment, WHO) the WPK will strengthen Natech risk governance and support EU policy by improving prevention and preparedness in industry and civil society by leading the development of science-based recommendations and guidance for better protecting critical assets and for increasing the competitiveness of industry by providing a level playing field to all; and finally the WPK will build capacity in the EU and outside by training stakeholders in risk assessment and risk reduction and by providing a forum for knowledge exchange. This WPK cuts across several legislative acts and supports the EU Civil Protection Mechanism, the Critical Infrastructure Protection Directive, the Seveso Directive, and the Sendai Framework for Disaster Risk Reduction. It also supports the preparation of a regulation on electricity risk preparedness. The WPK interacts with activities from different units and directorates and contributes to WPKs 4382, 6551, 6369 and 437 (C.3 and E.1).</p>	JRC.E.2	9.1.1.a	ECHO	JRC	CLIMA DEVCO ENER ENV GROW HOME	INCA - International Institute for Applied Systems Analysis AFAD - Prime Ministry Disaster and Emergency Management Agency (AFAD) CC EU - Candidate Countries EU E&I countries - Enlargement & Integration - countries ENTSOE - European Network of Transmission System Operators for Electricity K I U - Kyoto University MS EU - Member states EU NOAA - National Oceanic and Atmospheric Administration OECD - Organisation for Economic Co-operation and Development (OECD) UN ECE - UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE UN ISDR - United Nations International Strategy for Disaster Reduction (UN-ISDR) UNEP - United Nations Environment Programme (UNEP) WHO - World Health Organization	01/01/2016 31/12/2020	INS-RS	17	Multi-hazard Natech risk assessment	Multi-hazard Natech risk assessment case study in a region in which different types of industrial activities and critical infrastructure are exposed to multiple natural hazards and which are therefore at risk of damage and technological accidents. This multi-hazard risk assessment will include the application of the JRC's RAPID-N tool for rapid Natech risk assessment and mapping to determine the risk scenarios and to visualize the potential impact areas. This study will support improved industrial and critical infrastructure risk management in the selected region, and will aid in improving the prevention of, preparedness for and response to technological accidents caused by natural hazards.	31/12/2019	Technical Reports
											17b	National Natech risk assessment	National Risk Assessment (NRA) has become a well-known instrument to identify the major risks a country could face and to assess their likelihood and severity. In the EU, there is a requirement that Member States conduct such a NRA to prepare an overview of the major natural and man-made risks the EU faces. Although they have a potential to escalate into large-scale accidents and to cascade, Natech risks are currently not considered in a systematic way in NRAs due to a lack of dedicated methodologies and guidance for Natech risk assessment in the NRA context. This study will support the Member States by preparing guidance on how and in which setting Natech risks should be considered in the overall NRA process. This includes the consideration of Natech-specific aspects in risk identification, risk analysis and risk evaluation at national level.	22/12/2019	Journal contributions non-listed
											18	Critical infrastructure resilience against natural hazards	Identification of structural and organizational protection measures for critical infrastructure against selected natural hazards. The study will analyze the measures and systems needed to harden selected infrastructure in a cost-effective and sustainable way, assess the effectiveness of commonly implemented measures in protecting critical assets, and propose policy options for improving critical infrastructure resilience.	31/12/2019	Science for Policy reports
											19	Climate change impact on oil and gas infrastructure	Study on the likely impacts of climate change on the oil and gas sector, including up- and downstream facilities, with a particular emphasis on floods and storms. This will identify the main vulnerabilities of the critical energy infrastructure and existing protection gaps, and support improved preparedness.	31/12/2020	Technical Reports
											20	Guidance on critical infrastructure risk management under natural-hazard impact	Preparation of guidance on critical infrastructure risk assessment and management with respect to natural-hazard impact. This will help operators and authorities to consider this risk in a systematic way and help render critical assets more reliable and available.	31/12/2020	Science for Policy reports
222 - DRMKC JRC.E.1	4000 - I-REACT Improving resilience for emergencies through Advanced Cyber Technologies	To provide an integrated real-time emergency system for flood and fires that protects citizens with effective information and targeted warnings, and that supports civil protections and responders throughout all stages of emergency events, ultimately reducing the social impact of floods and fires, both in terms of human as well as economic losses.	JRC.E.1	9.1.1.a	ECHO	RTD	ECHO	Civ Protection EU - Civil Protection Services in Member States WMO - World Meteorological Organization (WMO)	01/06/2016 31/05/2019	CON-IA	201901	Integrating social media in early warning systems	Improving disaster risk management through the integration of social media analysis into early warning systems. For this H2020 research project, EFAS will serve as a testbed for the integration of social media analysis into flood early warning system. The overall aim by connecting social media analysis and early warning systems is to improve disaster risk management.	29/05/2019	Project management related documents/reports identified as outputs of the JRC Work Programme

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222 - DRMKC JRC.E.1	4382 - I-CAPP Chemical Accident Prevention and Preparedness for the Global Community	This work package is aimed to maintain and enrich the EU's core knowledgebase for chemical accident prevention and preparedness and facilitate exchange and transfer of this information throughout the Member States and globally and in partnership with international organisations and third countries around the world. It has specific deliverables also targeted for Enlargement and Neighbourhood Countries supported by funding from JRC Enlargement and Integration Activity and by DG ECHO respectively. The work package focuses on the three unique competences of the JRC's Major Accident Hazards Bureau, as a centre of reference for capacity building and exchange of good practice and as main sources of scientific support to competent authorities in risk assessment and in accident analysis. In this regard, the JRC is not only support to Member States but also serves as the main technical resource for all international organisations, mainly OECD, UNECE, UN Environment and UNISDR. Given the great diversity of production processes that use dangerous substances, the ongoing evolution of technology, the dynamics of the marketplace, there is a demonstrated need for continuous analysis and information exchange to prevent the chemical accidents of the future. The JRC uses its unique position to help operators and governments address the newest and greatest concerns. This WPK also supports WPK 437.	JRC.E.2	9.1.1.a	ECHO	ECHO, JRC, JRC	DEVCO ENV GROW HOME NEAR	CC EU - Candidate Countries EU MS EU - Member states EU OECD - Organisation for Economic Co-operation and Development (OECD) UN ECE - UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE UNEP - United Nations Environment Programme (UNEP)	04/01/2016 15/12/2020	CON-AA, CON-AA, INS-E&IA, INS-RS	201906	Seveso Capacity Building in EU Enlargement Countries	Technical support to EU Enlargement countries on implementation of chemical accident prevention and preparedness programmes in alignment with the Seveso Directive. The deliverable will include a workshop on chemical accident risk management with possible participation of also EU, EEA and Enlargement countries as well as bilateral consultation and support to individual Enlargement countries as needed.	20/12/2019	Training
											AA201901	Seveso Neighbourhood Countries - Capacity Building, Collaboration and Exchange	Technical support to EU Neighbourhood countries on implementation of chemical accident prevention and preparedness programmes in alignment with the Seveso Directive. It covers the annual workshop on chemical accident risk management for Enlargement and Neighbourhood countries as well as bilateral consultation and support to individual Neighbourhood countries as needed. The deliverable is a summary report of collaboration and technical exchange activities supporting Neighbourhood countries in Seveso implementation across the 2017-2019 AA.	21/06/2019	Technical Reports
											AA201902	Regional RAPID-N risk assessment and mapping case	Application of RAPID-N to a selected industry in a EU Neighbourhood country and mapping of the associated risk using the JRC's RAPID-N tool. Depending on the country's needs, the study will either be an earthquake or a flood-related Natech risk assessment. The deliverable is a map of Natech risk (flood or earthquake) of a selected industry in a EU Neighbourhood country and an accompanying report summarising findings and results.	21/06/2019	Sci information systems and databases
											AA201903	Launching of the ADAM Tool Online	This deliverable consists of the launching of the ADAM tool for use by competent authorities in 2019 and an update of one of the models. The timing of the launch is dependent on reaching a positive outcome from the Interservice Consultation and subsequent Decision of the Commission with respect to intellectual property rights and copyright permissions. Deliverable is dependent on adequate IT resources being allocated. This deliverable is also jointly funded by the ECHO AA (34444).	21/06/2019	Sci information systems and databases
											AA201904	Integration of ADAM with RAPID-N	Adaptation of ADAM calculus libraries to be implemented in RAPID-N and creation of input/output data structures. This will allow the integration of ADAM into RAPID-N in 2019 and 2020 as well as systems of Neighbourhood countries. ADAM provides consequence analysis models for chemical accidents. RAPID-N predicts loss of containment on hazardous sites from natural hazard events. With the integration, RAPID-N can use the ADAM models to predict the consequences of a release following the loss of containment predicted by RAPID-N. This has been requested specifically by Neighbourhood Countries but will also benefit EU Member States.	21/06/2019	Sci information systems and databases
											AA201905	Seveso Alignment Index for Neighbourhood Countries	This index will form the fourth index of the Seveso Capacity Assessment Tool, that will be implemented in a future stage as an interactive online application by which countries can calculate their performance against the 4 capacity building measures to measure progress. It includes a pilot test of the Seveso capacity Building Index in collaboration with a Seveso Neighbourhood Country.	21/06/2019	Technical Reports
											AA202001	Integration of Land-Use Planning into ISA/ADAM Online	Online implementation of the different land-use planning (LUP) methodologies available in the EU Member States within the Industrial Safety Analysis (ISA) tool, part of the ADAM suite of chemical accident risk and consequence assessment tools	20/03/2020	Sci information systems and databases
											AA202002	Implementation of pipelines and vessel explosions models into ADAM online	Online programming - Elaboration and implementation of two further consequence models for: A) Pipelines and B) physical explosion of vessels for implementation into the online ADAM consequence and risk assessment application.	15/12/2020	Sci information systems and databases
											AA202003	Seveso Neighbourhood Countries - Capacity Building, Collaboration and Exchange	Technical support to EU Neighbourhood countries on implementation of chemical accident prevention and preparedness programmes in alignment with the Seveso Directive. It covers the annual workshop on chemical accident risk management for Enlargement and Neighbourhood countries as well as bilateral consultation and support to individual Neighbourhood countries as needed. The deliverable is a summary report of collaboration and technical exchange activities supporting Neighbourhood countries in Seveso implementation across the 2017-2019 AA.	15/12/2020	Technical Reports
											AA202004	Integration of ADAM with RAPID-N - 2019-2020	Integration of ADAM calculus libraries and input/output data structures in RAPID-N. This will allow RAPID-N to perform detailed accident consequence analysis by utilizing ADAM as an external module. Depending on the type of accident scenario (i.e. toxic dispersion, fire, explosion), RAPID-N will determine input data required by ADAM, gather required data by using its data entry and estimation framework completing missing data, structure it in a format recognized by ADAM, and call ADAM for the analysis. The results will be imported back to RAPID-N and included to the related risk analysis report and risk map.	15/12/2020	Sci information systems and databases
											AA202005	Seveso Capacity Building in EU Neighbourhood Countries 2020	Technical support to EU Neighbourhood and Enlargement countries on implementation of chemical accident prevention and preparedness programmes in alignment with the Seveso Directive. The deliverable will include a workshop on chemical accident risk management with possible participation of also EU, EEA and Enlargement countries as well as bilateral consultation and support to individual Neighbourhood and Enlargement countries as needed.	15/12/2020	Training
											AA202006	Seveso Capacity Building Indices - Prototype of online tool	Prototype of online tool facilitating use of Seveso Capacity Building Indices by countries, international organisations, and other third parties engaged in capacity building for chemical accident prevention and preparedness.	15/12/2020	Sci information systems and databases
											INS201901	Common Inspection Criteria - 2019	In collaboration with EU Seveso inspectors, strategy development/ production of technical briefs (CICs) on inspection good practice/risk management topics for inspectors of chemical processing sites for stakeholders in EU and globally. Task 1. Continuing implementation of knowledge management strategy to increase visibility, accessibility, usability for inspectorates (online structure, design, translation, etc.) Task 2. Production of at least 2 additional new briefs	20/12/2019	Technical Reports
											INS201902	ADAM - Explosion Model Implementation - 2019	Elaboration and implementation of two further consequence models for: A) Pipelines and B) physical explosion of vessels for implementation in the ADAM consequence and risk assessment application.	20/12/2019	Scientific information systems and
											INS201903	EU/International Scientific Exchange and Collaboration - 2019	JRC scientific and training publications and contributions in the calendar year, including bilateral exchanges or training, e.g., on the on the JRC ADAM risk analysis tool, chemical accident analysis and contribution/leadership roles supporting UNEP, UNECE, OECD and other partners. The deliverable will include a workshop on chemical accident risk management with participation of Enlargement countries as well as bilateral consultation and support to individual Enlargement countries and may be combined with activities targeted under the ECHO AA for Neighbourhood countries.	20/12/2019	Training
											INS202001	Computer Based Fluid dynamic model - 2019-2020	Development of Computer Based Fluid dynamic models (CFD) to provide a detailed calculation of a cloud dispersion into the atmosphere, which results as a consequence of an industrial accident involving a flammable or toxic substance release.	15/12/2020	Scientific information systems and databases
											INS202002	Common Inspection Criteria (CIC)	In collaboration with EU Seveso inspectors, strategy development/ production of technical briefs (CICs) on inspection good practice/risk management topics for inspectors of chemical processing sites for stakeholders in EU and globally. Task 1. Continuing implementation of knowledge management strategy to increase visibility, accessibility, usability for inspectorates (online structure, design, translation, etc.) Task 2. Production of at least 2 additional new briefs	15/12/2020	JRC technical reports
											INS202003	Accident Analysis Methodologies - 2020	This final phase is expected start in early 2019 and finish at the end of 2020. The main deliverables will be the final version of the accident analysis handbook for publication, accompanied possibly by a training and follow-up workshop. In addition, the deliverable may include results of current collaborations on scientific articles/reports.	26/06/2020	JRC technical reports
INS202004	EU/International Scientific Exchange and Collaboration	JRC scientific and training publications and contributions in the calendar year, including bilateral exchanges or training, e.g., on the on the JRC ADAM risk analysis tool, chemical accident analysis and contribution/leadership roles supporting UNEP, UNECE, OECD and other partners. The deliverable will include the 2020 Chemical Accident Risks Seminar 2020 on chemical accident risk management with participation of Enlargement and Neighbourhood countries.	15/12/2020	Technical Reports											

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
222 - DRMKC JRC.E.1	4843 - WILDFIRES Early warning, assessment and monitoring of wildfire impacts in Europe and 4944 - UIS3	The assessment and management of wildfire risk is a major concern in Europe and many other regions of the globe. Wildfires, including forest fires, are a major cause of deforestation globally and the cause large economic and environmental impacts and human casualties in Europe and globally. The WPK Wildfires builds on the work on the European Forest Fire Information System (EFFIS) and the Global Wildfire Information System (GWIS) in the context of the EU Regulation	JRC.E.1	9.1.1.a	ECHO	JRC	CLIMA DEVCO ENV GROW REGIO	FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) Fo Fi Serv - Forest and forest fire services in the MS	01/01/2017 31/12/2020	INS-RS	20191231 20201231	European & Global wildfire risk analyses	Contribution to the analysis of global wildfire risk through data and information in the European Forest Fire Information System (EFFIS) and the Global Wildfire Information System (GWIS)	15/12/2019	Technical Reports
4821 - HYBRIT JRC.E.2	Urban information and analysis to help plan and target humanitarian and	The Syria crisis is a profoundly urban crisis: damage, destruction and displacement are concentrated in major urban centres and cities. UN-Habitat and the JRC have been analysing these developments jointly to support humanitarian and development actors to respond more effectively to this complicated and dynamic urban reality.	JRC.E.1	9.1.1.a	NEAR	NEAR	DEVCO ECHO FPI	Human Settlement Programme (UN HABITAT) WB - World Bank	01/01/2017 31/03/2019	CON-AA					
437 - SAFE&CLEAN-CONSTRUCT JRC.E.4	4950 - SEERIA 4 EU Seismology and Earthquake Engineering Research Infrastructure Alliance for Europe	The project aims at the integration of the earthquake engineering and the engineering seismology research communities in a European research alliance. The project will comprise transnational and virtual access activities, networking activities (e.g. distributed database of experimental results and integration with the EPOS platform of seismological data) and joint research activities (risk mitigation, advancement of hybrid testing methods, multi-hazard testing in coupled conventional and city-laboratory facilities, etc.).	JRC.E.4	9.1.1.a	GROW RTD	RTD	ECHO GROW		01/05/2017 30/04/2020	CON-IA	3 5 6 8	Roadmap for SERIES & EPOS data banks integration Maintenance of the SERIES database Validation of pre-operational access to SERIES Final Summary Report	The roadmap for the integration of data banks and informatics services from the earthquake engineering and seismology RIs in Europe will be defined on the basis of the review of the current data platforms, the anticipated research needs in each discipline and in cross-discipline issues, the latest technological developments, the requirements of users beyond the RIs, the collaboration with international research organisations and synergies with sibling disciplines. Ordinary maintenance and targeted modifications of the local nodes and the user interface at the central portal, automated procedure for uploading data. Based on the review of the SERIES and EPOS databases and the roadmap for integration, a pre-operational access service will be offered to selected SERIES datasets, to allow validation of the identified access technologies and involvement of the user community, for further implementation in EPOS. The high-level final report will provide a summary of the achievements of the project and will be addresses to all relevant stakeholders.	30/04/2019 30/04/2020 30/04/2020 30/04/2020	JRC technical reports JRC technical reports JRC technical reports Science-for-policy reports
222 - DRMKC JRC.E.1	6447 - DRM 2017-2019 Scientific Support to Disaster Risk Management Actions -	The purpose of this Administrative Arrangement is to provide scientific support to DG ECHO in the area of disaster risk management and measurement in the frame of the implementation of the European Union of Civil Protection Mechanism legislation. In particular the tasks to be implemented include the contribution to the development of a risk and a crisis severity index	JRC.E.1	9.1.1.a	ECHO	ECHO,E CHO	CLIMA DEVCO ENV GROW	Civ Protection EU - Civil Protection Services in Member States	17/05/2017 19/05/2021	CON-AA,CON-AA	20191 20192	Final report Interim Reports	The final report will be produce to summarize all the reports and work delivered under this AA. A series of agreed reports will be delivered including the work on National Risk Assessment, National Capability Assessment, Loss Data collection roadmap, and INFORM studies.	17/05/2021 17/05/2021	JRC technical reports Science-for-policy reports
437 - SAFE&CLEAN-CONSTRUCT JRC.E.4	6803 - IRESIST+ Innovative Seismic and Energy Retrofitting of the	The IRESIST+ project contributes to the Exploratory Research (ER) Programme. It aims to develop innovative techniques integrating advanced materials for the simultaneous seismic and energy retrofitting of the European building stock. Of the current EU building stock, 80% was built before	JRC.E.4	9.1.1.a	JRC	JRC	EAC ENER GROW		16/04/2018 15/04/2020	ER-17	680301	Final technical report	The Final technical report will summarise the scientific results of the project and provide a summary of the scientific papers originating from the project. A mid-term technical report will be produced at the end of year 1.	31/03/2020	JRC technical reports
222 - DRMKC JRC.E.1	JRCforERCC2018 Enhancing the	The AA aims to implement the requirements of articles (9), (8.c), and (21.f) of the Decision No 1313/2013/EU of the Council and the European Parliament on a Union Civil Protection Mechanism.	JRC.E.1	9.1.1.a	ECHO	ECHO		Civ Protection EU - Civil Protection Services in Member States GEO - The Group on Earth	01/10/2018 30/03/2020	CON-AA	6985001	final report	final report	15/03/2019	Technical systems
437 - SAFE&CLEAN-CONSTRUCT JRC.E.4	7665 - SPECIRUM Seismic Plus EnerGy Upgrading of Masonry	This project aims to combine advanced materials for the concurrent seismic and energy retrofitting of the European masonry building stock. Renovating the existing masonry and cultural heritage buildings is becoming progressively more crucial in all European countries as a result of the	JRC.E.4	9.1.1.a	GROW	RTD	EAC ECHO ENER		01/12/2018 30/11/2020	CON-IA	1	Final technical report	The Final technical report will summarise the scientific results of the project and provide a summary of the scientific papers originating from the project. A mid-term technical report will be produced at the end of year 1.	23/11/2020	Technical Reports
222 - DRMKC JRC.E.1	8002 - Risk4Development Scientific support for Sendai Framework implementation outside of EU	Scientific support for Sendai Framework implementation outside of EU	JRC.E.1	9.1.1.a	DEVCO	DEVCO	CLIMA ECHO	UN ISDR - United Nations International Strategy for Disaster Reduction (UN-ISDR)	01/09/2019 30/08/2021	CON-AA					
9.1.1.b Resilient societies - apply the resilience knowledge and tools to understand the level of resilience of European societies; help to develop new measures to make societies more resilient to external long-term crisis and conflicts; provide support to the definition of the EU defence strategies to improve the EU internal and international resilience.															
437 - SAFE&CLEAN-CONSTRUCT JRC.E.4	2107 - RESURBAN Resilience of the urban built environment to natural and induced	Increased resilience is an objective of the European strategy for disaster management. Also, the protection and refurbishment of urban areas deserves particular attention, owing to their potential for economic growth and energy efficiency in the housing sector, as well as because of their vulnerability to natural disasters. In the global context, the Sendai Framework aims to prevent new	JRC.E.4	9.1.1.b	ECHO	JRC	ENER ENV GROW REGIO	Civ Protection EU - Civil Protection Services in Member States OECD - Organisation for Economic Co-operation and Development	01/01/2015 31/12/2021	INS-RS	10	Improved resilience of existing buildings	Impact analysis addressing safety and sustainability for improving the resilience of buildings at EU level. The work will analyse the different options for the rehabilitation of buildings considering concurrent and non-concurrent interventions for seismic retrofit and upgrading for energy efficiency, as well as for no intervention and/or demolition and new reconstruction.	18/12/2020	Science-for-policy reports
9.1.1.c Fight global, trans-regional and emerging threats - support activities contributing to stability and peace through analysis, the provision of methods and tools, capacity-building and collaborating with international partners to monitor precious raw materials; ensure maritime security and counteract global and trans-regional threats, including climate change; develop early-warning systems and capacity-building activities.															
222 - DRMKC JRC.E.1	286 - Science4Peace Geospatial (Statistics, Remote Sensing and Information) Technologies for Peace and Stability	Support to the Instrument contributing to Stability and Peace, the EU INTACEN and its Operational Hybrid Fusion cell. Intends to provide common, evidence-based tools for DGs addressing Juncker priority #9 "EU as Global Actor". The work package focuses on three areas. (1) To further develop the Global Conflict Risk Index conflict risk (GCRI), to disseminate and promote its use by EEAS and related DGs (FPI, DEVCO, NEAR, as well as CLIMA, ECHO and HOME); The GCRI provides conflict risk data useful for (a) prioritization of conflict prevention activities (EEAS, FPI, NEAR), (b) addressing links with conflict and disaster risk (ECHO), sustainable development (DEVCO) and climate change (CLIMA), (c) root cause for migration (HOME) (2) To improve geospatial technology (remote sensing and GIS mapping) for analysis of open	JRC.E.1	9.1.1.c	FPI	JRC	CLIMA DEVCO ECHO HOME NEAR	EEAS - European External Action Service MS EU - Member states EU UN Kimb WG - UN Kimberley Process working Groups	02/01/2017 31/12/2020	INS-RS	201901 201902 201903	Geospatial Conflict Intelligence Conflict Resilience Validation of GCRI methods and data	"PEACE" platform development of a restricted access portal for the analysis of the combined resources from the Peace and Stability data repositories, in maps and statistical data (Global Crisis Atlas, Global Conflict Risk Index, Kimberley Process Data Reconciliation repositories, to forecast likelihood of armed conflict in a country, or to provide situation awareness during armed conflict, in a country. Study of the definitions and applications of conflict resilience in evidence-based actionable conflict risk prevention, based on a sound theoretical basis, and on data-driven approaches	15/12/2019 15/12/2019 15/12/2019	Technical systems JRC technical reports Article contribution to periodicals or to conference proceedings listed in the
222 - DRMKC JRC.E.1	3801 - DROUGHTS Addressing current and future risks due to droughts and extreme temperatures in Europe and globally	The WP addresses important emerging socio-economic and environmental risks resulting from droughts and extreme temperatures (heat and cold waves) by developing a global observatory for monitoring, forecasting and early warning of such events. Besides detailed information on meteorological, hydrological and vegetation parameters, the observatory will include combined impact indicators for different sectors (e.g., agriculture, forestry, public water supply, energy production, inland water transport, ecosystems), tailor-made for decision makers in the Emergency	JRC.E.1	9.1.1.c	ECHO	JRC	CLIMA DEVCO ENV GROW NEAR REGIO	EEA - European Environment Agency GWP - Global Water Partnership NOAA - National Oceanic and Atmospheric Administration UN ISDR - United Nations International Strategy for Disaster	01/01/2016 31/12/2020	INS-RS	201901 201902	Global Drought and Temperature Observatory (GDO) Ad-hoc support report to the EUSF and ERCC	Further development of GDO. Improvement of software components, addition of new global data sets and indicators, as well as refining the forecasting, vulnerability, risk and impact assessments. Output includes an information system and database, reports and scientific publications. Subject to requests from DG REGIO and DG ECHO, ad-hoc reports and maps on the severity and impacts of droughts and extreme temperatures in Europe and globally will be produced. This institutional deliverable is underpinning the AA's with ECHO JRC4ERCC and follow up AA.	15/12/2019 15/12/2019	Journal contributions (Scopus) Technical Reports
222 - DRMKC JRC.E.1	3806 - ANYWHERE H2020 EnhANCing emergency management and response to extreme Weather and climate Events	ANYWHERE aims to develop a pan-European multi-hazard platform of products and services to enhance the emergency management and response capabilities of the regional and local European authorities, public and private operators of critical infrastructures and networks, and affected citizens in cases of emergencies induced by extreme and high-impact weather and climate events. This project contributes directly to the development of multi-hazard and risk platform.	JRC.E.1	9.1.1.c	ECHO	RTD	CLIMA GROW	Civ Protection EU - Civil Protection Services in Member States WMO - World Meteorological Organization (WMO)	01/06/2016 31/08/2019	CON-IA	201701	Data sets from JRC early warning systems 2017	For this H2020 research project the JRC will deliver data produced by the JRC early warning systems (EFAS, EDO, EFFIS and GDACS) to the project partners.	29/08/2019	Project management related documents/reports identified as outputs of the JRC Work Programme
4821 - HYBRIT JRC.E.2	4951 - GCRI V Global Conflict Risk Index - Phase V	Contributing to the Juncker priority "EU as Stronger Global Actor", the JRC provides evidence-based conflict risk assessments to the Commission, EEAS and Member States. The GCRI conflict model was developed in 2014 (AA 22265) and improved in 2015 (AA 33670 - AA 33816). The results were received positively by EEAS and Member States, and EEAS expressed strong interest to renew AA to continue the development and improvement of the GCRI model and integrate it fully in the risk assessment methods underlying the Peace and Stability work. The GCRI is also an essential part of the INFORM humanitarian risk index, used widely in UN agencies, by several Commission services and several Member States. Improved conflict assessment is one of	JRC.E.1	9.1.1.c	FPI	FPI	DEVCO ECHO HOME NEAR	EEAS - European External Action Service	15/12/2017 31/03/2019	CON-AA	1	Final report	The final report of the AA will describe the work performed according to the technical annex	31/03/2019	Project management related documents/reports identified as outputs of the JRC Work Programme
4821 - HYBRIT JRC.E.2	5068 - S2CM2017 Scientific/Technical Facility in support to Crisis Preparedness/Response	Support to Juncker priorities "EU as Global Actor" and specifically the Instrument contributing to Stability and Peace (IcSP), one of the key external assistance instruments that enable the EU to take a lead in helping to prevent and respond to actual or emerging crises around the world. To support the IcSP, JRC has developed the Global Crisis Atlas, which is an IT based platform for map products on crisis preparedness, response and coordination. The Global Atlas supports timely information exchange and enhances real-time common situational awareness during major emergencies or crises. Global Atlas maps are based the collection, analysis and dissemination of	JRC.E.1	9.1.1.c	FPI	FPI	DEVCO NEAR	EEAS - European External Action Service	15/12/2017 31/03/2019	CON-AA	1	Final report	The overall aim of this project is to provide crisis/security monitoring and mapping products integrated in the Global Crisis Atlas, in order to provide the context to understand, monitor, anticipate, prevent and respond to situations of crisis or emerging crisis. The final report will describe the individual deliverables in the contract, including: 1. Map products and atlases; maps are made available through the Global Crisis Atlas 2. Situation and impact assessments. 3. Datasets	31/03/2019	JRC technical reports

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213 - TMA CC JRC.I.3	7565 - MI4EW Media Intelligence for Early Warning	Media Intelligence for Early Warning in order to fight global, trans-regional and emerging threats - support activities contributing to stability and peace (including analysis, the provision of methods and tools, capacity-building and collaborating with international partners to monitor precious raw materials), ensure maritime security and counteract global and trans-regional threats, including climate change; develop early-warning systems and capacity-building activities.	JRC.I.3	9.1.1.c	DEVCO	EEAS, JRC, EAR	EEAS NEAR		01/01/2019 31/12/2021	CON-AA, CON-AA, CON-AA, DEL, INS-RS	1850201801	Software Services for Continental Early Warning	Deliver software based services to support the Continental Early Warning (CEWS) System of the African Union. The software is based on the EMM text mining technologies that will be customised specifically for CEWS and deliver products to the Continental Alerting and Analysis system being developed by E.1	28/02/2019	Technical systems
		658301									EEAS Media Monitoring 2019	Improved media monitoring and analysis tools for a better informed and aware European External Action Service (EEAS) assisting it to provide the Union with the necessary impetus for the external dimension of EU policy, especially crisis management, and to define the general political directions and priorities thereof.	31/12/2019	Technical systems	
		CEWSV									Continental Early Warning System V5	Support and development of technical systems for CEWS V	28/02/2021	Technical systems	
		EEAS2020									Support to EEAS 2020	Improved media monitoring and analysis tools for a better informed and aware European External Action Service (EEAS) assisting it to provide the Union with the necessary impetus for the external dimension of EU policy, especially crisis management, and to define the general political directions and priorities thereof.	31/12/2020	Technical systems	
		GGMM									Building media intelligence capacity for the Georgian Government	Design and develop tools to facilitate the Defense Ministry of the Georgian Government to better monitor media intelligence.	31/12/2020	Technical systems	
222 - DRMKC JRC.E.1	7784 - EWSCM Scientific Support for Conflict Risk and Crisis Management	Support to Juncker priorities "EU as Global Actor" and specifically the Instrument contributing to Stability and Peace (IcSP), one of the key external assistance instruments that enable the EU to take a lead in helping to prevent and respond to actual or emerging crises around the world.	JRC.E.1	9.1.1.c	EEAS	FPI, FPI	DEVCO ECHO FPI NEAR	EEAS - European External Action Service MS EU - Member states EU	01/01/2019 31/12/2020	CON-AA, CON-AA	FR	Final Report describing progress on Global Conflict Risk Index and Crisis Atlas	The final report of the AA will describe the work performed according to the technical annexes	31/10/2019	Technical Reports
		FR2									Updated Peace Portal integrating Global Conflict Risk Index and Crisis Atlas	Peace portal integrating conflict-related information systems	31/10/2020	Technical systems	
222 - DRMKC JRC.E.1	7786 - Kimberley Support Scientific and Technical Support to Kimberley	The purpose of this AA between the FPI and JRC is the continuation of the support to the EU's implementation of the Kimberley Process Certificate Scheme's data and to the monitoring of the KPSCS in support of the Kimberley Process Workgroup on Monitoring, until the end 2017 chaired	JRC.E.1	9.1.1.c	FPI	FPI, FPI	TRADE		01/01/2019 31/12/2020	CON-AA, CON-AA	KP01	Progress report on the technical/scientific support for the	Progress report on the work carried out in AA 35152	31/12/2019	Whole parts of policy documents
9.1.2. Global nuclear safety and security															
9.1.2.a Provide technical assistance and scientific support to EU partner countries and international institutions to help implement the Instrument for Nuclear Safety Cooperation, the Commission support programme to the IAEA and the Instrument contributing to Stability and Peace, and participate in related international working groups.															
268 - K-NUSP JRC.G.10	3303 - TAREG 01/16 Promoting Nuclear Safety	This Work Package contributes to the overall objective to promote an effective nuclear safety culture and implementation of the highest nuclear safety, safeguards and radiation protection standards, continuous improvement of nuclear safety and responsible nuclear and radioactive wastes management.	JRC.G.I.4	9.1.2.a	DEVCO	DEVCO, DEVCO	EEAS ENER	EEAS - European External Action Service	01/01/2017 31/12/2025	CON-AA, CON-AA	201904TIPINS	TIPINS 2019	The data contains project related information which is supplied by DG DEVCO and DG NEAR combined with technical assessment of project results and lessons learned, determined by JRC experts, which can be used for nuclear safety improvement. The deliverable addresses the activities carried out during the year 2019 in the scope of the information system as well as the foreseen future activities.	30/10/2019	Scientific information systems and databases
		2020TIPINS									TIPINS 2020	The data contains project related information which is supplied by DG DEVCO and DG NEAR combined with technical assessment of project results and lessons learned, determined by JRC experts, which can be used for nuclear safety improvement. The deliverable addresses the activities carried out during the year 2019 in the scope of the information system as well as the foreseen future activities.	30/12/2020	Sci information systems and databases	
7785 - MEDAKNOW JRC.G.II.7	3510 - SUPPIO_2 International Partnership in Nuclear Security	The JRC has been a leader in the nuclear forensics arena from the beginning. Its involvement in international initiatives (such as Nuclear Forensics International Technical Working Group ITWG or Global Initiative to Combat Nuclear Terrorism GICNT) and its contributions to the work of international organizations (such as IAEA) underline on the one hand the JRC's prominent position and on the other hand enable influencing strategic international developments and decisions. Key Support of EC to Chinese authorities for the implementation of nuclear safeguards.	JRC.G.II.6	9.1.2.a	DEVCO	JRC	HOME	- KFKI Institute for isotopes CEA - Commissariat à l'Energie Atomique et aux Energies Alternatives DSTA SG - Defence Science and Technology Agency, Singapore	01/01/2016 31/12/2020	INS-RS	3510201901	Support to International Initiatives on Nuclear Security and Forensics. (2020)	JRC will continue co-chairing and contributing the Nuclear Forensics International Technical Working Group (ITWG) and will contribute to activities of the IAEA and of the Global Initiative to Combat Nuclear Terrorism (GICNT). In 2019, JRC will specifically host and organize an International Training Course on Nuclear Forensics Methodologies. This will be the IAEA's flagship training course in the nuclear forensics area. Additionally, JRC will participate in other IAEA training events and host a GICNT workshop.	31/12/2019	Training
7785 - MEDAKNOW JRC.G.II.7	3682 - SFG in China Safeguards in China and world-wide ESARDA courses	The Beneficiary is the Chinese Ministry of Commerce (MOFCOM) which oversees the cooperation activities on behalf of the Chinese government and the End-User is the Chinese Atomic Energy Agency.	JRC.G.II.7	9.1.2.a	DEVCO	DEVCO			29/08/2016 31/08/2020	CON-AA	201701	Organisation of ESARDA courses worldwide	Organisation of ESARDA courses (typically 1 week courses, typically 2 per year) Expected release date : end of each year till 31/08/2020	31/08/2020	Training
		202001									Safeguards in China and worldwide ESARDA courses	Final report describing the activities performed to support China to enhance its safeguards, to implement safeguards and non proliferation course in the curriculum of a Chinese University and the organization of ESARDA courses in the "rest of the world".	31/08/2020	Technical Reports	
436 - CBRNEsec JRC.A.7	6161 - CBRN CoE 3 Chemical Biological Radiological and Nuclear Centres of Excellence	The Centres of Excellence initiative was launched in 2010 and enjoys currently a considerable state of maturity thanks to the contribution of all the implementation partner including, from the start, a strong JRC support to DG DEVCO in the implementation of the EU CBRN Risk Mitigation Centres of Excellence Initiative. The JRC will continue the successful activities of support to Partner Countries through the provision of scientific and technical inputs, support to the analysis of CBRN needs in partner countries and regions and development of National Action Plans, contribution to the preparation of terms of reference for selected projects, evaluation of negotiated tender proposals and coordination of the technical evaluation and follow-up of executed projects.	JRC.A.7	9.1.2.a	DEVCO	DEVCO	GROW HOME MOVE TAXUD TRADE	EEAS - European External Action Service IAEA - International Atomic Energy Agency (IAEA) WHO - World Health Organization	01/01/2017 31/12/2020	CON-AA	201901	NAQ and NAP support to PC	NAQ support to the CoE Partner Countries and data analysis reports of the data provided during the NAQ missions. Support to the development of CBRN National Action Plans (NAPs) by the partner countries' authorities, under the local coordination of the NFP priorities for enhancing capabilities in terms of prevention, detection, preparedness and response, according to a suggested structure provided by the JRC, and based on the results and report of the CBRN NAQ.	31/12/2020	Technical Reports
		201902									Support to the project cycle and CoE network	Support to the drafting of project's Terms of Reference, evaluation and ranking of MS consortium offers, evaluation of project implementation. Development and maintenance of the public and private website and internet portal, as well as management of visibility and communication tools for the CoE, publication and distribution of regular newsletters. Mapping of trainings, compilation of training materials, development of a CoE training programme. Maintenance of the CoE Open Source Centre.	31/12/2020	Technical Reports	
		201903									Support activities to the EU Export control outreach programme	The EU outreach programme on export control has been implemented through a series of projects started in 2006. The current phase is called EU Long Term Programme (LTP) on export control. The JRC is requested to review the implementation of the LTP and also provide DEVCO with a proposal for a strategy to further develop the current EU -Outreach Dual Use programme. The deliverables include technical reports, assessment of trade profiles, analysis of countries' capabilities, definition of terms of reference and evaluation of project implementation under the EU export control programme.	31/12/2020	Technical Reports	
7839 - STRIKE JRC.G.II.7	7466 - STC-EUP2P Strategic Trade Control EU cooperation	The EU controls the exports of strategic goods by EC Regulation 428/2009 and amendments, defined according to international commitments, implemented by the Member States and monitored by DG TRADE as part of the EU common commercial policy. Export control is mentioned by the new EU Global security strategy and the forerunning EU WMD strategy. The so-called "Weapons-of-Mass Destruction Non-proliferation clause" is a key requirement in new Agreements between the EU and third countries. An important element to consider is the continuum between the harmonized control of EU-28	JRC.G.II.7	9.1.2.a	DEVCO	DEVCO	TAXUD TRADE		01/01/2019 31/12/2020	CON-AA	201920A	Activities supporting the definition, implementation and evaluation of the EU Partner to Partner Programme (EUP2P) on export control	As to be agreed by the new AA, the activities in 2019-20 may include: -Analysis of the EU P2P Programme Activities, Drafting of terms of Reference, -Support in capacity building events on request of DG DEVCO: -Analysis of EU and country priorities based on the EU methodology improved as needed -World trade atlas on dual-use related commodities -Technical and analytical support to DG DEVCO for the contribution in the EU-US export control and capacity building working group (XCCB-WG) -Web-portal contents and newsletter	31/12/2020	Technical Reports

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9.1.2.b Develop methods, technologies and standards to detect nuclear and radioactive materials outside regulatory control and to fight the illicit trafficking of such materials.																
436 - CBRNEsec JRC.A.7	622 - CB-THREATS Chemical & Biological Threats	The main reason for JRC doing this work is to build bridges between the EU MS CBRN Action Plan and the CBRN CoE Risk Mitigation initiative's activities. The JRC endeavours to foster capabilities in the field of chemical & biological threats at international level and within the EU. It provides scientific and technical support for harmonised implementation of chemical & biological (CB) threat security policies including the management of knowledge on current and emerging substances of interest. It also endeavours to enhance capabilities in CB risk mitigation by following up actions, decided and endorsed by the EU MS in their CBRN Action Plan and using those to build synergies with the CBRN CoE Risk Mitigation initiative's activities	JRC.E.7	9.1.2.b	DEVCO	JRC	HOME	ECDC - European Centre for Disease Control EEAS - European External Action Service MIN Int Border - Ministries of Interiors or border control agencies OPCW - Organisation for the Prohibition of Chemical Weapons WHO - World Health Organization	01/01/2016 31/12/2020	INS-RS	201901	S&T support to C security policies	Scientific & technical support for harmonised implementation of C threat security policies, including studies on i) current portable devices by purpose and detection technology used, ii) comprehensive assessment of new C portable detection equipment (simulants could be used), iii) a compilation of published guidelines for standard measurement procedure performance requirements of C threat agent detection devices and iv) a proposal for guidelines in the C area	30/11/2019	External study reports	
												201902	CB Security Training material	Continued population and maintenance of a learning management platform where all CB training modules (material and ecourses) are available to all stakeholders, including communities of practice.	30/11/2019	Training
												201903	Support to reinforcing the CBRNE structure	Given the importance of CBRN-E, the broad spectrum of actions and interactions which originate from these threats (both scientific and support/service type), including the hybrid threats perspective, means the whole activity needs to be better connected and interlinked (both internal and external stakeholders) for expansion, enhancement, development and consolidation of the CBRN-E activity, under an integrated approach. To this end this work package will co-host and support a unique access and reference point on the knowledge in the field.	31/01/2020	Sci information systems and databases
												201904	Support the creation of a new European Innovation Partnership (EIP) for a community of users for safe, secure and resilient societies	Supporting the creation of a new European Innovation Partnership (EIP) for a community of users (CoU) for safe, secure and resilient societies will help to boot strap this Community's work more firmly in the EC institutional structure. The CoU now has over 1900 registered 'users' ranging from policy makers to research scientists to other stakeholders, such as industry (especially SMEs), civil protection units in MS etc. The support provided under this work package will be to contribute to a concept note (managed by DG HOME, B.4), which will then then go through the ISG consultation process before being submitted to Commissioner King (or his successor).	31/10/2019	Technical Reports
												201905	Support to horizontal activities	Provision of support to the E.7 work on integrating certain data mining tools (EMM, TIM etc) in our knowledge management activities including landscape mapping, horizon scanning, etc. by supporting WPK 5540 Provision of support to the JRC Education & Training Academy creation by contributing to the work carried out by the members of the steering committee (roadmap etc). Provision of support to the integration of Sustainable Development Goals in our CBRNE activities by maximising the use of SDG tags when communicating our work.	31/01/2020	Technical Reports
												201906	CB Threats Annual Activity Report 2019	CB Threats Annual Activity Report 2019 This report will combine a description of the outcome of all deliverables under WPK 622 during 2019	31/01/2020	Technical Reports
												201907	CB Threats Annual Activity Report 2020	CB Threats Annual Activity Report 2020 This report will combine a description of the outcome of all deliverables under WPK 622 during 2020.	31/12/2020	Technical Reports
277 - NUSEC JRC.G.II.6	631 - AGE Standards in support to Nuclear Forensics and Security	Nuclear forensics deals with consistency of information, coherence between materials or samples, conformity of findings with declared processes and comparison of external and internal data. The JRC is therefore putting effort into the development of new certified reference materials and the provision of conformity assessment tools, particularly for particle analysis, 'age-dating' of uranium and plutonium samples and for isotopic fingerprinting, which is of importance to both the safeguards & security communities, supporting the Commission Regulation (Euratom) No 302/2005 of 8 February 2005 on the application of Euratom safeguards, the International Atomic Energy Agency (IAEA), and the Nuclear Forensic International Technical Working Group (ITWG). The objective, based in the experience gained implementing the first phase, is: To strengthen the capacity of the EU Ms labs for testing of detection radiation equipment. To test mobile detection equipment, based on revised testing procedures. To give feedback to standardisation organisations from experience gained through the implementation of ITRAP+10.	JRC.G.2	9.1.2.b	ENER HOME	JRC	DEVCO ENER GROW JRC	- Seibersdorf laboratories - IAEA - BRITISH NUCLEAR GROUP SELLAFIELD LT - URENCO NEDERLAND BV* AREVA NP - AREVA NP Main Company CEA - Commissariat à l'Energie Atomique et aux Energies Alternatives	01/01/2019 31/12/2020	INS-RS	201963101	Conformity assessment tools for particle analysis and age-dating of nuclear material	External quality control campaign and reference measurement certificates for material analysis in nuclear forensics and nuclear security, supporting Council Decision 2012/212/CFSP	20/12/2019	Validated methods, reference methods and measurements	
												202063101	Reference material for nuclear forensics and security	Certification report of a new CRM required for method validation in nuclear forensics and safeguards	18/12/2020	Reference materials
277 - NUSEC JRC.G.II.6	1820 - ITRAP ITRAP+10 PHASE 2		JRC.A.7	9.1.2.b	HOME	HOME, JRC	DEVCO TAXUD		17/12/2013 30/09/2019	CON-AA, INS-RS	181	ITRAP+10 phase II Final Report	Report summarizing the outcome of ITRAP+10: - performed tests (phase I and phase II); - round robin exercise with the EU MS laboratories, including the results of the inter-comparison, and the identified challenges and lessons-learned on the capabilities to perform tests against standards; - impact and lessons-learned from the feedback to standardisation organisations; - next steps towards an EU certification scheme.	30/09/2019	Technical Reports	
7785 - MEDAKNOW JRC.G.II.7	3660 - QUALINU Ensuring quality and building expertise in nuclear forensics	This activity aims at improving the response to nuclear security events, analytical and evaluation skills in the nuclear forensic area, exchange of expertise at European and international level, as well as awareness and interagency cooperation. This includes • Networking of experts from Member States using existing platforms of nuclear forensics, i.e. the Nuclear Forensics International Technical Working Group (ITWG) • Demonstration of measurement quality and interpretational skills through an interlaboratory comparison exercise • Staged training and education opportunities In order to achieve these objectives, the following project elements are foreseen:	JRC.G.II.6	9.1.2.b	HOME	HOME, HOME	IAEA - International Atomic Energy Agency (IAEA)	15/12/2016 31/12/2019	CON-AA, CON-AA	201901	Ensuring Quality and Building Expertise in Nuclear Forensics: Final Report	Final report describing results of the project	31/07/2019	Technical Reports		
											3660201702	Training in nuclear forensics	Provide comprehensive training strategy to various experts from member states	30/04/2019	Technical Reports	
											3660201801	Ensuring Quality and Building Expertise in Nuclear Forensics: Final report	Final report describing results of the project	30/06/2019	Technical Reports	
277 - NUSEC JRC.G.II.6	6560 - EDS Enhanced detection & standardisation	The WP aims to test and assess novel RN detection technologies and methods, such as gamma-ray imaging systems, robotic/drone ported RN detectors all of which currently have no standards. New He-3 alternatives for neutron detection which were not previously tested or assessed in ITRAP+10 could also be concerned as would be e.g. bubble detectors. A summer school or/and workshop will be organized in particular concerning Gamma-ray imagers and Robotic/drone ported RN detectors. Testing procedures will be developed to test and evaluate the performance of these systems as regards not only nuclear security but also safeguards. These important steps will ultimately help the development of new standards as we have successfully done for the legacy equipment within ITRAP and later applied and benefited EU projects such as Scintilla (FP7) and CBORD (H2020). Furthermore a newly acquired mobile detection system shall be tested and its performance evaluated within this WP. The new RIGA RID (Radioisotope Identification Device) developed within an exploratory research project will be tested, MC modelled, its performance evaluated and relevant software developed. Within this WP, methodologies, algorithms and if required technologies to minimize innocent alarms and manage NORM will be investigated and a novel algorithm developed. NORM data from e.g. end users, operators and from other projects will be collected. Where warranted specific testing and experimental verification would be carried out. In 2019-2020 the following are scheduled: 1. Testing and assessment of novel technologies for nuclear security: • Gamma imaging: Workshop, evaluation and inter-comparison (re. 2018 exercise in KRH and 2016 IAEA WS) • Robotic/Drones ported detector systems: summer school with demonstrations, exercises and collaboration with G2 (JRC-Geel) and E2 (JRC-Ispra) • Explore other novel technologies application to nuclear security (e.g bubble detectors, active interrogation, muon tomography) • Testing and evaluation of the JRC-Ispra gamma ray Imager and development of testing procedures • Testing and evaluation of the JRC-Ispra Mobile detection system • Testing, performance, assessment, Monte Carlo modelling and Software development of the RIGA RID • Develop algorithms and methodologies for the analysis and management of NORM	JRC.G.II.7	9.1.2.b	HOME	JRC	ENER TAXUD	01/01/2018 31/12/2020	INS-RS	Active Interrogation	R&D on usage of active interrogation techniques to detect SNM, drugs, explosives and tobacco	This deliverable aims to explore and conduct in collaboration research and development on the usage of active interrogation techniques to detect SNM, drugs, explosives and tobacco.	31/12/2020	Technical systems		
											Testing	Testing and assessment of novel technologies for nuclear security		25/12/2020	Technical Reports	
												UserLab	Provide User Lab access for R&D, testing and evaluation	Provide user laboratory open access for R&D, testing, evaluation and standardisation of nuclear security detection systems for the benefit of EU members states, sister DGs, collaborators and partners	31/12/2020	Validated methods, reference
277 - NUSEC JRC.G.II.6	7322 - IDENTICLASS Development of new methods for IDENTification and CLASSification of	The IDENTICLASS project contributes to the Exploratory Research (ER) Programme. This ER project will focus on developing a new approach for the characterization of uranium containing powders, primarily UOC. It combines different image texture analysis methods (such as AMT, angle measure technique; GLCM, grey level co-occurrence matrix; GLRM, grey level run matrix, Heterogeneity, locally binary pattern; etc.) with information on the molecular structure (obtained by	JRC.G.II.6	9.1.2.b	JRC	JRC	DEVCO ENER HOME	- University of California, Los Alamos National Laboratory CEA - Commissariat à l'Energie Atomique et aux Energies Alternatives EEAS - European External Action	16/03/2018 15/03/2020	ER-17	UserID732220202	Final Report on the ER results on analysis of uranium ore concentrate powder samples	Study on the potential application of the colour, image texture analysis and hyperspectral image analysis/spectroscopy to create a classification model for a rapid identification of uranium ore concentrate powder samples. The samples collection available in JRC-KRU will be used for the model development.	15/03/2020	JRC technical reports	

JRC 2019 - 2020 DETAILED WORK PLAN

Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
9.1.2.c Contribute to the EU nuclear non-proliferation analysing open source information and providing technical and statistical support to the modernisation of EU dual-use export control policy and the development of an EU export control network; provide training and operational support for Member States and international organisations.															
7839 - STRIKE JRC.G.II.7	681 - STREX Strategic Trade Control implementation support	The WP supports the harmonised implementation of dual-use items' export control policies (EC Regulation 428/2009 and amendments; restrictive measures against certain countries). This has been recognised officially in various statements by Member States, by DG TRADE and in the annual REPORTS FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT. The main activities encompass capacity building; contribution to EU Guidelines for harmonised implementation of the dual-use controls; periodical analyses of confidential denied export authorisations; EU dual-use Pool of Experts' technical advices to national authorities;	JRC.G.II.7	9.1.2.c	TRADE	JRC	ENER FPI HOME TAXUD	- United States Department of Energy EAS - European External Action Service ESARDA - European Safeguards R&D Association NSG - Nuclear Suppliers Group (NSG)	01/01/2014 31/12/2020	INS-RS	STRIKE01	Strategic export control implementation support	The output includes EU Guidelines for harmonised implementation of the dual-use controls; periodical analyses of confidential denied export authorisations and the EU dual-use Pool of Experts' technical advices. Very important is also the contribution to the annual amendments of EC Regulation 428/2009's Annex I ("EU dual-use control list") deriving from the international export control regimes; amendments to sanctions regulations' annexes (e.g. Reg. 1375/2016 with measures targeting Iran); JRC awareness raising; research on compliance and dual-use technologies; Training for export control licensing and customs officers.	31/12/2020	Science for Policy reports
7785 - MEDAKNOW JRC.G.II.7	756 - STANP Strategic trade analysis for non proliferation	Trade analyses on strategic goods in support to non-proliferation, IAEA nuclear safeguards, and to inform EU policies for export controls and outreach activities in Third Countries. Research and development on strategic trade analysis techniques mutated from statistical and economic methods. Design and development of information technology tools to host, structure, visualise and present trade data by commodities, geopolitical areas, regulations and export guidelines on strategic trade.	JRC.G.II.7	9.1.2.c	TRADE	JRC	DEVCO ENER TAXUD	IAEA - International Atomic Energy Agency (IAEA) US DoE - US Department of Energy (DOE) WCO - World Customs Organization	01/01/2014 31/12/2020	INS-RS	110	The Big Table admin tool - 2017	Development of an administration tool to maintain The Big Table (TBT) database up-to-date. The tool will facilitate the addition of new documents to the collection as well as the revision of existing ones. The tool will support the maintenance of correspondence tables linking related items listed in different documents of the collection. The tool will be used to maintain a database of registered users.	31/12/2019	Sci information systems and databases
7839 - STRIKE JRC.G.II.7	5181 - DUSE Dual Use Technical and Trade Analysis Support	Administrative Arrangement with DG TRADE in the field of dual-use export controls (follow-up of AA WPK 1782 DUAL USE, Dec. 2011 – June 2016).	JRC.G.II.7	9.1.2.c	TRADE	TRADE, TRADE	DEVCO ENER TAXUD CNECT	- KING'S COLLEGE LONDON EAS - European External Action Service	01/01/2017 31/12/2020	CON-AA, CON-AA					
7839 - STRIKE JRC.G.II.7	6562 - STC-KMD Strategic Trade Control - Knowledge Management Development	The concept of knowledge management and Community of Practice for EU strategic trade control will be developed building up on JRC experience in supporting the common commercial policy and dual-use export controls, relying on experience and practice of support to the direct implementation of export controls in the EU and cooperation with third countries, as well as relying on the diffused dual-use technologies competence of JRC directorates.	JRC.G.II.7	9.1.2.c	TRADE	JRC	DEVCO ENER FPI GROW HOME	ESARDA - European Safeguards R&D Association FPI - Foreign Policy Instruments	01/01/2018 31/12/2020	INS-RS	201901	Tool and activities supporting Strategic Trade Control Knowledge management development	The WP wishes to improve and adapt the features of existing JRC tools (European Media Monitoring, EMM and Tool for Innovation Monitoring, TIM) for applications tailored to technological and related open source data and text mining focussing on strategic trade control. The integration of the two systems requires development of algorithms, basic system architecture and routines for data formatting and compatibility. Relevant and available data sources will be assessed. Other IT tools will be also considered.	31/12/2020	Sci information systems and databases
9.1.2.d Increase technical knowledge of nuclear security using the European Nuclear Security Training Centre to help Member States, partner countries and international institutions (IAEA, etc.).															
65 - DANTE JRC.G.10	3625 - SUCAB Support capacity building	The capability to address nuclear security threats depends on the availability of an appropriate technical infrastructure and on the human capital for operating it. Capacity building activities are	JRC.G.II.6	9.1.2.d	DEVCO HOME	HOME, JRC	DEVCO ENER	Cust Aut MS - MS Customs Authorities	01/01/2016 30/12/2020	CON-AA, CON-	1909	Nuclear Security Trainings	Coherent set specific training courses (programme, teachers, training material, etc.) delivered in 2019 and 2020 and their organisation.	29/12/2020	Training
9.1.2.e Contribute to safeguards, proliferation resistance, and the physical protection of innovative designs of nuclear reactors in collaboration with the GIF.															
7785 - MEDAKNOW JRC.G.II.7	712 - CONTE Concepts, methods and techniques for non-proliferation	The work-package supports the evolution of the nuclear non-proliferation regime with various activities. It investigates concepts such as: safeguards by design (SbD), proliferation resistance (PR) evaluation methodologies for nuclear energy systems, and the IAEA State Level Concept for nuclear safeguards". It explores techniques and tools and looks into the potential of various types of information to support the non-proliferation regime taking a "systems thinking" perspective. It develops and – where needed - applies dedicated tools for the acquisition, processing of such information". It also monitors open source information related to nuclear non-proliferation and security and retains the capability to perform upon request technical analyses on selected technical non-proliferation issues as performed in the past in support to the Iran nuclear file and related deal. It includes technical work in support to the International Partnership for Nuclear Disarmament and	JRC.G.II.7	9.1.2.e	ENER	JRC	DEVCO TAXUD TRADE	EAS - European External Action Service EU SITCEN - EU SITCEN - EU Situation Centre GIF - Generation-IV International Forum IAEA - International Atomic Energy Agency (IAEA)	01/01/2014 31/12/2020	INS-RS	202001	Nuclear non-proliferation conceptual aspects-2020	Investigation of conceptual aspects of Nuclear Nonproliferation regimes, including EURATOM and IAEA International Safeguards, on the following lines: (a) R&D on the use of open source (OS) information to support nuclear non-proliferation (NP), (b) R&D on concepts and methods to support the effective application of the IAEA State-Level Concept (SLC), (c) domain-related EC Support Programme contributions to the IAEA Tasks, (d) technical support and contribution to the GIF-PRPPWG activities and (e) technical support and contribution to the International Partnership for the Nuclear Disarmament Verification (IPNDV).	31/12/2020	Technical Reports
											202002	Open Source Monitoring and Analysis 2020	Daily monitoring and collection of nuclear security related open source information. The most pertinent information will be distributed as Nuclear Security News to interested stakeholders in the EU institutions and stored in the Nuclear Security News Archive (NSNA) that will be maintained and further optimized according to emerging needs. The collected information will feed the WPK R&D activities and will also be used for awareness on on-going non-proliferation issues. Analysis of selected nuclear non-proliferation issues on specific customer requests. Operation, maintenance and update of the Nuclear Security Media Monitor (NSMM) in collaboration with I.3 and exploration of new tools of relevance to non-proliferation open source information collection.	31/12/2020	Sci information systems and databases
9.2. International cooperation and development															
9.2.1. 2030 Agenda for Sustainable Development															
9.2.1.a In line with the new European Consensus on Development, contribute to the implementation and monitoring of SDGs and to the analysis of development aid by developing knowledge management tools, methodologies, information, indicators and data. In doing this, make it easier to design and formulate programming along relevant SDGs, incorporate the social, economic, environmental and Policy Coherence for Development (PCD) dimensions into design and formulation of programming needed to achieve the SDGs in partner countries, identifying and addressing interlinkages between the 17 Goals; develop analytical tools to assess SDG integration at country level; explore how Science Technology and Innovation (STI) roadmaps can support the SDGs implementation in developed and developing countries; support Policy Coherence for Development (PCD), aid effectiveness and accountability and mainstream the SDGs across sectorial policies to support the formulation of a sustainable strategy post 2020, taking into account international monitoring frameworks, the global definition of cities and rural areas, which is being developed by the EU, FAO, OECD, UN-Habitat and WB, and indicators and national monitoring efforts, and collaborating with relevant international Earth Observation monitoring programmes (including in-situ and space-borne measurements).															
6485 - DESSIRES JRC.E.7	292 - RCDFA Funding beyond Aid DaTa (FEAT)	FEAT addresses one of the challenges and commitments of 'A Global Strategy for the European Union's Foreign and Security Policy (EUGS)': Shared Vision, Common Action: A Stronger Europe, that the EU will adopt a joined up approach to its humanitarian, development, trade, investment, infrastructure, education, health and research policies. In particular FEAT provides the research and development necessary to address the coherence between the internal and external dimensions of the Commission's policies across financial instruments, primarily from the viewpoint of funding flows including those for Development Aid, Humanitarian Aid, Migration Trust funds (KCMD), and also Triangular Cooperation and provides indications on security implications and trends. The 3 relevant policy areas are: International Development & Cooperation, European Neighbourhood Policy and Humanitarian Aid, Civil Protection.	JRC.E.7	9.2.1.a	DEVCO	JRC	ECFIN ECHO FPI HOME NEAR	MS EU - Member states EU	01/01/2014 31/12/2020	CON-AA, INS-RS	201901	Annually updated data on state of funding	To curate, regularly update and extend the financial flows repository (from development and humanitarian aid to remittances, foreign direct investment and other financial flows) and analytical capabilities that enables the Commission to meet its commitments for Goal 17 of the Sustainable Development Goals: Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development. This will directly feed into the current framework by extending data described in the Total Official Support for Sustainable Development from the OECD (TOSSD) as it becomes available and provide analysis of the same data. Provide ad hoc support to DEVCO such as for MADC (Most advanced Developing Countries), including that for south-south and triangular cooperation. This would mainly require automating data extraction for beneficiary countries from the varied data in the database.	31/12/2019	Sci information systems and databases
9638 - FOCUS JRC.B.3	374 - GHSL-CORE GHSL - Baseline data production, methodological developments and international partnerships	The Commission has committed itself to the 'The Global Partnership for Effective Development Co-operation' to deliver long lasting results and contribute to the achievement of the Sustainable Development Goals (SDGs). FEAT focusses on one of the four effective cooperation principles of this partnership: Mutual accountability and accountability to the intended beneficiaries of development co-operation, as well as to respective citizens, organisations, constituents and shareholders (the other three principles being Ownership of development priorities by developing countries, Focus on results and inclusive development partnerships). GHSL-CORE establishes the core methods and the baseline spatial data for development of global human settlement and exposure indicators using satellite and socio-economic census data. It consolidates scientific methods and systems for reliable, automatic information gathering, extraction, and analysis. In order to achieve this the workpackage uses advanced machine learning algorithms developed in previous years. DG REGIO relies on the information and tools developed by the work package to inform the EU Urban Agenda and the New Urban Agenda. In addition, the work supports the post-2015 Int. frameworks, namely Sendai framework for Disaster Risk Reduction (DRR), Sustainable Development Goals (SDG's), particularly its Goal 11 (make cities & human settlements inclusive, safe, resilient, sustainable), and the Paris Agreement on the reduction of climate change.	JRC.E.1	9.2.1.a	REGIO	JRC	DEVCO ECHO ESTAT RTD	GEO - The Group on Earth Observations OECD - Organisation for Economic Co-operation and Development (OECD) UN HABITAT - United Nations, Human Settlement Programme (UN HABITAT) UN ISDR - United Nations International Strategy for Disaster	01/07/2016 31/12/2020	INS-RS	ATLAS2019	Atlas of the Human Planet 2019	The Atlas of the Human Planet provides updated information on the human presence in the planet focussing each year on different cross-cutting thematic issues related to the monitoring of the implementation of the post-2015 international frameworks. It is based on the GHSL data produced by the GHS-Core work package. The Atlas is edited by the GHS-Core workpackage and includes contributions from the GEO Human Planet Initiative.	30/11/2019	Science-for-policy reports
											ATLAS2020	Atlas of the Human Planet 2020	The Atlas of the Human Planet provides updated information on the human presence in the planet focussing each year on different cross-cutting thematic issues related to the monitoring of the implementation of the Agenda 2030 international frameworks. It is based on the GHSL data produced by the GHS-Core work package. The Atlas is edited by the GHS-Core workpackage and includes contributions from the GEO Human Planet Initiative.	30/11/2020	Science for Policy reports
											201901	Science for EU Arctic Policy	The deliverable will be a science for policy report examining the impact of the JRC Arctic project on EU Arctic policy objectives. Timed for the completion of the Finnish chairmanship of the Arctic Council and three years after the adoption of the EU Arctic policy, it review the effectiveness of the JRC ARCTIC project in meeting its' objectives, including engagement with Arctic council bodies, including AMAP, SDWG, AACA and the expert group on black carbon and methane.	30/06/2019	Science-for-policy reports
4856 - ARCTIC JRC.C.5	4915 - ARCTIC Coop International cooperation and sustainable development in and around the Arctic	This work-package has been revised to contain activities supporting the EU Arctic policy priority "Sustainable development in and around the Arctic". Headline JRC "science for diplomacy" contributions to assessments and policy documents from the International bodies such as FISCAO (in the workpackage ECO-Arctic), Arctic Council and its subsidiary bodies have been moved up to the project level, while underpinning research justifying these contributions is collected here. Continuing studies on traditional knowledge and its links with conventional science; The assessment of resilience in the Arctic; the role of Smart Specialisation in sparsely populated areas including the Arctic are joined by a new activity seeking to exploit synergies between the Global Covenant of Mayors and the new Arctic Council Sustainable Development Working Group project "Arctic Sustainable Energy Futures Toolkit". Where there are not deliverables for an activity in any given year, this is because the deliverables will be at the project level.	JRC.C.5	9.2.1.a	MARE	JRC	CLIMA ENV REGIO RTD	AACA - Adaptation Actions for a Changing Arctic AMAP - Arctic Monitoring and Assessment Programme EAS - European External Action Service	01/01/2017 31/12/2020	INS-RS	201902	Insights, expectations and visions of Arctic communities	Unit I.2 will cooperate with Unit C.5 to plan and carry out engagement with Arctic communities in futuring the governance of their environment and livelihoods tapping into different insights including "traditional knowledge" and existing scenarios. The outcomes of these engagements include a report of insights, expectations and visions of the Arctic communities involved.	30/06/2019	Article contribution to periodicals or to conference proceedings listed in the
											202001	Arctic Resilience Indicators	Building on the pilot study undertaken in 2018 (201801), a science for policy report providing a comprehensive description of indicators of Arctic Resilience will be produced in support of the Arctic Resilience Action Framework of the Arctic Council Sustainable Development Working Group. It draws on activities foreseen under both the ARCTIC work package PACAR and the activities of Project 7596 Resilience4EU. Link with Project 7596 Resilience4EU.	30/11/2020	Science for Policy reports

JRC 2019 - 2020 DETAILED WORK PLAN																
Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category	
		given year, this is because the deliverables will be at the project level.											Inter-regional cooperation on Smart Specialisation and Smart Specialisation for Sustainable development in the Arctic	Policy brief based on the outcomes of a workshop examining opportunities for inter-regional co-operation on Smart Specialisation between different Arctic regions, encouraging for more coordinated approach towards addressing the common challenges. The outcomes of the workshop together with the discussions of Sustainable Development Working Group of the Arctic Council concerning the sustainable development of food production, sustainable use of resources, sustainable tourism and other topics related to smart specialisation priorities of the Arctic regions will support the development of the policy brief on the application of the smart specialisation to advance one of the development areas.	31/12/2020	Science for Policy Briefs
222 - DRMKC JRC.E.1	6782 - ECHO AA 2018-2019 ECHO AA 2018-2019	The Integrated Analysis Framework (IAF) of ECHO, developed and piloted in 2013 following an internal process review of ECHO's needs-based decision making, is an integrated annual exercise leading to the preparation of Humanitarian Implementation Plans and prioritisation of countries for the WWD annual funding allocation (i.e. ECHO's humanitarian assistance budget allocations). The Integrated Analysis Framework website, called IAFPortal (http://iafportal.jrc.ec.europa.eu) was developed and launched under the DRM2014 (AA33522) arrangement. The system was used in	JRC.E.7	9.2.1.a	ECHO	ECHO		OECD - Organisation for Economic Co-operation and Development (OECD) UN OCHA - United Nations, Office for the coordination of Humanitarian Affairs	01/12/2018 30/11/2019	CON-AA	201901	Final report	Report on implementation of the AA and its completed tasks. These tasks include adding any new functionalities and tailoring existing ones, as defined by DG ECHO for IAF (Integrated Assessment Framework)	30/11/2019	JRC technical reports	
9496 - PathToSDGs JRC.D.1	7483 - CRESSIDA CoheREnce and Systemic modelling for SuSustainable Development	The UN 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs) formulate a comprehensive and holistic agenda for sustainable development. The European Commission in November 2016 has set out a strategic approach for achieving sustainable development in Europe in its Communication "Next steps for a sustainable European future". An EU reflection paper "Towards a sustainable Europe by 2030 is expected by the end of 2018 on the follow-up to the UN SDGs. The successful implementation of this strategy achieving sustainable development in Europe and the world will require a coordinated and coherent response, which can be facilitated if informed by evidence. The CRESSIDA Workpackage will support this effort by developing an analytical tool for policy coherence for Sustainable Development for the SDGs implementation in EU and globally via the EU external policy. It will consist of two main strands: 1) knowledge production to cope with new requests for science, and 2) knowledge management. With regard to the first strand the focus will be on inter-linkages and integrated assessment. A deeper policy-specific approach will be developed for the identification and consequences of interlinkages, with a particular focus on climate change. It will support the identification of investment priorities within the context of Sustainable Finance. The longer-term perspective will also be pursued through a towards 2050 narrative developed in cooperation with external partners, notably IIASA, Stockholm Resilience Centre, etc. The second strand on knowledge management will organise information on policies, indicators, methods, data and policy position documents related to the achievement of the SDGs. It will support the Better Regulation Tools to ensure further mainstreaming of sustainable development into European policies and initiatives Flagship initiative. The EC Community of Practice on SDGs will be implemented	JRC.D.6	9.2.1.a	DEVCO	JRC	ENV ESTAT REGIO RTD SG	OECD - Organisation for Economic Co-operation and Development (OECD) UNDESA - UN Department of Economic and Social Affairs	01/01/2019 31/12/2020	INS-RS	012019	Interlinkages among SDGs and Policy Coherence	An analytical tool to support policy coherence for Sustainable Development for the implementation of the SDGs in EU and globally via the EU external policy will be developed. A deeper policy-specific approach will be developed for the identification and consequences of interlinkages.	30/11/2019	Science for Policy reports	
											012020	EC Community of Practice on SDGs	Implementation of the CoP on SDGs. The on line Community of Practice in Connected will be complemented with offline activities such as workshops, meetings, conferences involving external stakeholders from the international scientific community, private sector, civil society. It will contribute to the global community of organisations and experts committed to collaboratively generating, managing and sharing knowledge and data to mobilise a sustainable future.	31/12/2020	Technical Reports	
											022019	Distance analysis	A so called distance analysis for Member States of the EU but also for other countries of interest will be performed. This analysis will help to identify how far countries have to go in order to achieve the SDGs. Performing this task repeatedly, year by year, will then allow to identify which countries are progressing more on which dimensions. Moreover, identification of best practices and problems will be performed. Such an analysis will for each country exhibit sectors for which implementation is relatively weak. In addition, it will identify priority areas for investments. This could be an important supportive tool for the EU regional and cohesion policies. Its results could also be showed at the Un High level political forum 2019 when the first review of the SDGs implementation will be done.	31/12/2019	Journal contributions (Scopus)	
											022020	The World in 2050	The TWI2050 project is project relying on a consortium of International research Institutes around the world. It will contribute to the development of a long-term vision for Sustainable Development to assist the implementation of the SDGs	30/09/2020	Books	
											032019	SDGs Narrative	Workshop on SDGs narrative for EU and globally will be organised on policy coherence for sustainable development to define a narrative for EU society by adopting a back casting approach from 2030 to 2020 and a forecasting approach from 2030 to 2050.	29/12/2020	Technical Reports	
											042019	Analysis of modelling-related workflows for Sustainable Development Goals	In close collaboration with the Competence Centre on Modelling and the CoP on Modelling, we will propose initial improvements to existing modelling-related workflows to better understand how they support Sustainable Development Goals. This entails the initial analysis of workflows and recommendations towards SDGs-related improvements and streamlining, and can potentially contribute to the distance analysis.	31/12/2019	Science for Policy reports	
											052019	SDG Interaction Toolkit	An SDGs toolkit will be designed to create an interactive computer interface that allows the weighting of interactions between the 169 SDG targets according to local perspectives. JRC D6 will be partner of a consortium of international scientific Institutions such as IIASA, ICSU, SEI	31/10/2019	Books	
9638 - FOCUS JRC.B.3	7669 - FOCUS - AFRICA Future of Cities and Urban Spaces in Africa	With rapid rates of urbanisation in Africa, the need for policy initiatives and interventions in support of integrated urban development is widely recognised. However, the data and knowledge on actual situation in African cities are often not very detailed, not collected on a regular basis or not presented at suitable spatial disaggregation to adequately support policy analysis and monitoring. This WkP aims to provide knowledge (methods, tools and data) in support to the implementation and monitoring of EU external policy and cooperation initiatives related to urban development. The overall framework is detailed in the EC Staff Working Document on "EU cooperation with Cities and Local Authorities in third countries". The Work-Package focuses on African Cities and paves the way for potential applications to other	JRC.B.3	9.2.1.a	DEVCO	JRC	NEAR REGIO RTD	OECD - Organisation for Economic Co-operation and Development (OECD) UN HABITAT - United Nations, Human Settlement Programme (UN HABITAT)	01/01/2019 31/12/2021	INS-RS	012019FO CUSAFRIC A	African Cities - First Assessment	The first assessment of Africa Cities is performed on a sample of cities, following the (adapted) methodology defined by UN-Habitat for the monitoring and reporting of SDG #11 and other urban-related targets.	20/12/2019	Technical Reports	
											012020FO CUSAFRIC A	African Cities - Web tool	On-line web tool for the interactive visualisation of quantitative indicators describing the state of African Cities - as extension of the coverage of the Urban Data Platform and Territorial dashboard. Information on EU investments / initiatives will also be made available. The web tool is developed in an incremental fashion and the first release will be focused on a sample of cities.	27/11/2020	Sci information systems and databases	
9.2.2. Food security and nutrition, rural development and sustainable agriculture																
9.2.2.a Monitor agricultural resources and identify hot spots of agricultural shortage globally, in support of SDG implementation; analyse situations of food and nutrition security and support partner countries on the development of their information systems; provide support with economic and biophysical modelling and information systems to help policy making and resilience building; better understand nutritional needs in particular for mothers in reproductive age and children; play a key role in international initiatives such as the Integrated food security Phase Classification (IPC) Cadre Harmonise (CH), Global Report on Food Crises and the Global Network Against Food Crises (European food security is covered under key orientation 1.1.c); building on the work of the Knowledge Centre on Global Food and Nutrition Security, provide an advanced knowledge base to help achieve zero hunger in 2030; foster exchange and use of data, information and tools between Commission services involved in food and nutrition security; identify key topics where better knowledge is needed for action at EU level and help make collective progress, in liaison with relevant partner DGs and main international agencies concerned (see also key orientation 1.1.c for European food security)																
482 - Food & Nutrition Sec JRC.D.5	616 - AGRO-DEV Analysing Agriculture for Developing Countries	AGRO-DEV analyses the impact of policies measures and programmes (in Partner Countries as well as EU cooperation policies/programmes) on the farming sector and on food security and poverty level in selected Developing Countries, namely African economies, in support and/or anticipation of competitive activities for DG DEVCO (TS4FNS administrative arrangements) and	JRC.D.4	9.2.2.a	DEVCO	JRC	AGRI RTD	FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) AREC - African Regional Economic	07/01/2013 29/01/2020	INS-RS	2	Modelling Agriculture for Dev. Countries (Macro)	Improvement of the Methodology for Quantitative Impact Analysis of Country Policies on selected African Countries at Macro level, with particular focus on the nutritional, demographic aspect of the single-country CGE model (STAGE_DEV) and link with the micro level analysis, in support to activities under TS4FNS 1, 2, 3 and 4	29/01/2020	Science-for-policy reports	

JRC 2019 - 2020 DETAILED WORK PLAN																
Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category	
482 - Food & Nutrition Sec JRC.D.5	1003 - MARS-FS Monitoring Agricultural Resources for Food Security	The work package will support the EU food security related policies and projects by providing regular information on global agricultural production hotspots and by further improving crop monitoring and modelling methods. The analyzed information about global Anomaly hotSpots of Agricultural Production (ASAP) is crucial for providing timely and easily understandable warnings to policymakers about food production shortages to come, and to support their decisions regarding early response measures. The information produced will be made available in near-real time to colleagues in DG DEVCO and in EU Delegations and to the public. This enables the JRC to contribute to international monitoring systems that produce consolidated food security early warning information, such as the GEOGLAM Crop Monitor for Early Warning, which includes contributions by major international agencies such as the World Food Programme (WFP), the Food and Agriculture Organization of the United Nations (FAO), FEWSNET, etc.). The work package will also focus on the scientific improvement of existing methods in the global agricultural production and food security monitoring domain, for example by using innovative Earth observation data such as those made available by the Copernicus Programme. The data and methods produced by this work package will feed other work packages (such as for example TS4FNS and the KC on Food and Nutrition Security) as one of the main information sources for food availability in countries exposed to high risk of food insecurity. The work package will also contribute to providing improved estimates on postharvest losses, an important component of food balance sheets, through the APHLIS+ project (African Postharvest Losses Information System). APHLIS is a central and well-acknowledged source of information of FAO's Food Loss Index (SDG 12.3).	JRC.D.5	9.2.2.a	DEVCO	JRC	AGRI ECHO RTD	FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) AREC - African Regional Economic Communities AU - African Union CGIAR - Consultative Group on International Agricultural Research ECOWAS - Economic Community of West African States EEAS - European External Action Service IFPRI - INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE IGAD - Intergovernmental Authority on Development NEPAD - OST - New Partnership for Africa's Development (NEPAD) SANSa - South African National Space Agency WFP - World Food Program of the United Nations	01/01/2016 31/12/2020	INS-RS	201901	Timely agricultural early warning information and contribution to GEOGLAM Crop Monitor for Early Warning (CM4EW)	Monthly updates about global hot spots of agricultural anomalies visible in the ASAP (Anomaly hot Spots of Agricultural Production) system and monthly contribution to GEOGLAM's Crop Monitoring for Early Warning (CM4EW). The warning messages will be edited by D5 agriculture analysts supported by an automatic classification using remote sensing and agro-meteo indicators as well as auxiliary data sources. The warning messages will be understandable to non-remote sensing and spatial data experts in policy DGs and outside the EC. The monthly contribution to the GEOGLAM Crop Monitor for Early Warning will be done through the dedicated Crop Monitor online platform and the JRC contribution will be acknowledged by the monthly GEOGLAM Crop Monitor 4 Early Warning publication. https://mars.jrc.ec.europa.eu/asap/ https://cropmonitor.org/	31/12/2019	Science for Policy reports	
												Improved crop monitoring methods for food security	Continue the methodological improvement of crop monitoring methods for food security based on Earth Observation and Agro-meteorological data such as for example using Sentinel data for project implementation and monitoring and improving quantitative yield forecasting in countries outside Europe with limited data availability. Include new methodological developments in the crop monitoring platform ASAP (Anomaly hotSpots of Agricultural Production) and CST (Crop Statistical Tool) which are publicly available and also used for knowledge transfer in developing countries in collaboration with GMES&Africa. Support the development of more quantitative information about crop area and yield inside JRC and in the scientific community on Global Agricultural Production Monitoring (GEOGLAM). Produce scientific publications on the above.	31/12/2020	Journal contributions (Scopus)	
												Timely agricultural early warning information and contribution to GEOGLAM Crop Monitor for Early Warning (CM4EW)	Monthly updates about global hot spots of agricultural anomalies visible in the ASAP (Anomaly hot Spots of Agricultural Production) system and monthly contribution to GEOGLAM's Crop Monitoring for Early Warning (CM4EW). The warning messages will be edited by D5 agriculture analysts supported by an automatic warning classification using remote sensing and agro-meteo indicators as well as auxiliary data sources. The warning messages will be understandable to non-remote sensing and spatial data experts in policy DGs and outside the EC. The monthly contribution to the GEOGLAM Crop Monitor for Early Warning will be done through the dedicated Crop Monitor online platform and the JRC contribution will be acknowledged by the monthly GEOGLAM Crop Monitor 4 Early Warning publication. https://mars.jrc.ec.europa.eu/asap/ https://cropmonitor.org/	31/12/2020	Science for Policy reports	
482 - Food & Nutrition Sec JRC.D.5	1023 - RESIFOOD Resilience-building for improved food & nutrition security	This work package will address the determinants of household vulnerability and resilience to food and nutrition insecurity, in line with the Commission's Communication COM(2012) 586 and with geographic focus on Africa. It will (i) assess household and community resilience to food and nutrition insecurity, and (ii) investigate the determinants of resilience to food and nutrition insecurity in different environments and settings. Nutrition as an input and outcome of resilience will also be addressed, in particular those nutrition policies that promote the 1 000-day window of opportunity (to improve nutrition for mothers and children in the 1 000 days from a woman's pregnancy through to her child's 2nd birthday). This work package will contribute to the JRC horizontal project on resilience with input on the	JRC.D.5	9.2.2.a	DEVCO	JRC	ECHO EEAS NEAR RTD	FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) AU - African Union ECOWAS - Economic Community of West African States EEAS - European External Action Service IGAD - Intergovernmental Authority on	01/01/2014 31/12/2020	INS-RS	1	Reports on modelling determinants of resilience to food and nutrition insecurity	Technical reports on the modelling results and policy recommendations to improve resilience to food and nutrition insecurity in selected countries to be defined in consultation with DG DEVCO. Recommendations on indicators for monitoring progress on the resilience agenda.	31/12/2019	JRC technical reports	
												2	Scientific publication on approaches to measuring resilience to food and nutrition insecurity	Scientific paper on alternative approaches to resilience assessment for food and nutrition security with focus in developing countries. Contribution to the JRC flagship report on resilience. Contribution to the Community of Practice of the Resilience4EU Project.	31/12/2019	Science for Policy reports
482 - Food & Nutrition Sec JRC.D.5	4906 - TS4FNS - 4 Technical and Scientific Support for Food and Nutrition Security - Part 4	The objective of the AA is to support EU institutions and the partner countries in the formulation of policies and programmes on sustainable agriculture and food and nutrition security, through the provision of demand-driven technical and scientific advice. The JRC provides support for: i) improvement of information systems on agriculture, nutrition and food security, ii) policy and economic analysis to support the policy decision-making process, and iii) scientific advice on selected topics concerning sustainable agriculture and food and nutrition security. The main geographical focus is Sub-Saharan Africa, with actions in other areas of the world affected by food crises or areas of particular relevance to DG DEVCO.	JRC.D.5	9.2.2.a	DEVCO	DEVCO	ECHO EEAS NEAR	FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) ARC - AGRHYMET Regional Centre (ARC) AREC - African Regional Economic Communities AU - African Union CILSS - Comité permanent Inter état de Lutte contre la Sécheresse au Sahel WFP - World Food Program of the United Nations	01/01/2017 31/12/2019	CON-AA	2	Global report on food crises	Preparation of the Global report on food crises in the framework of the Global Network Against Food Crises	31/12/2019	Science for Policy reports	
												3	Microeconomic analysis of public policies	Modelling impact analysis of selected policy measures - e.g. input subsidies, price support, etc. - at the micro/local levels in selected African countries, to be decided in agreement with DG DEVCO.	31/12/2019	JRC technical reports
												4	Food and nutrition security reports	Drafting of food and nutrition security assessment reports or contribution to joint bulletins in the event of crises, including political or natural disaster-related crises and conflicts, which could produce or exacerbate food crises.	31/12/2019	Technical Reports
												5	Food security information systems	Reports related to JRC support to regional and national information systems on food security and nutrition in DG DEVCO priority countries. The reports will cover activities related to the JRC support to the Cadre Harmonise, IPC, SADC VAC and similar initiatives in other regions of the world.	31/12/2019	Technical Reports
												6	Improved food and nutrition security analysis	This item covers several products contributing to the elaboration of improved resilience, food and nutrition security analysis methodologies and processes, as well as JRC support to regional and national information systems on food security and nutrition in DG DEVCO priority countries. It also includes the maintenance of the data infrastructure and tools to maintain the capacity to monitor and assess the food security situation in countries at risk of food crises.	31/12/2019	JRC technical reports
												1	Information and knowledge web-based portal	Design and development of a Commission web-based information and knowledge portal. The portal aims at gathering, facilitating access and sharing of information and knowledge existing in various Commission services under a single, easily reachable entry point.	31/12/2020	Sci information systems and databases
482 - Food & Nutrition Sec JRC.D.5	7463 - KC-FNS Knowledge Centre for Global Food and Nutrition Security	In line with the JRC Strategy 2030 and the Communication C(2016) 6626 on Data, Information and Knowledge Management at the European Commission, a "Knowledge Centre for Global Food and Nutrition Security" (KC-FNS) will be established as to support the EU global commitment to end hunger, achieve food security and improved nutrition through a dedicated, reinforced science-policy interface and a fostered inter-policy dialogue. The Knowledge Centre will aim at providing to EU decision-makers improved knowledge on food and nutrition security, including food safety aspects directly influencing food and nutrition security. Through a reinforced partnership between EU services, it will facilitate access to and exchange of existing knowledge within the Commission, the European External Action Service and beyond, building on existing international partnerships.	JRC.D.5	9.2.2.a	DEVCO	JRC	AGRI CLIMA ECHO ENV MARE NEAR RTD SANTE TRADE	FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) AREC - African Regional Economic Communities AU - African Union ECOWAS - Economic Community of West African States EEAS - European External Action	01/01/2019 31/12/2022	INS-RS	2	KC priority topic analysis	Tailored analyses and other contributions produced in answer to the KC Steering Committee requests on specific topics of high priority.	31/12/2019	Technical Reports	
												4	KC priority topic analysis	Tailored analyses and other contributions produced in answer to the KC Steering Committee requests on specific topics of high priority	31/12/2020	Technical Reports
												1	Food and nutrition security reports	Drafting of food and nutrition security assessment reports or contribution to joint bulletins in the event of crises, including political or natural disaster-related crises and conflicts, which could produce or exacerbate food crises.	31/12/2020	Technical Reports
482 - Food & Nutrition Sec JRC.D.5	7464 - TS4FNS - 5 Technical and Scientific Support for Food and Nutrition Security - Part 5	The objective of the AA is to support EU institutions and the partner countries in the formulation of policies and programmes on sustainable agriculture and food and nutrition security, through the provision of demand-driven technical and scientific advice. The JRC provides support for: i) improvement of information systems on agriculture, nutrition and food security, ii) policy and economic analysis to support the policy decision-making process, and iii) scientific advice on selected topics concerning sustainable agriculture and food and nutrition security. The main geographical focus is Sub-Saharan Africa, with actions in other areas of the world affected by food crises or areas of particular relevance to DG DEVCO	JRC.D.5	9.2.2.a	DEVCO	DEVCO	ECHO		01/01/2020 31/12/2022	CON-AA	2	Global report on food crises	Preparation of the Global report on food crises in the framework of the Global Network Against Food Crises	31/12/2020	Science for Policy reports	
												3	Improved food and nutrition security analysis	This item covers several products contributing to the elaboration of improved resilience, food and nutrition security analysis methodologies and processes, as well as JRC support to regional and national information systems on food security and nutrition in DG DEVCO priority countries. It also includes the maintenance of the data infrastructure and tools to maintain the capacity to monitor and assess the food security situation in countries at risk of food crises.	31/12/2020	Science for Policy reports
												4	Food security information systems	Reports related to JRC support to regional and national information systems on food security and nutrition in DG DEVCO priority countries. The reports will cover activities related to the JRC support to the Cadre Harmonise, IPC, SADC VAC and similar initiatives in other regions of the world.	31/12/2020	Technical Reports
9.2.3. Climate change, environment, natural resources, water and energy																
9.2.3.a Carry out analysis, help build capacity and provide data, maps and methodologies on the extent of the vulnerability and exposure to climate change in developing countries, in support of SDG implementation, including the role of climate change in food and nutrition security; inform and support the preparation and implementation of programmes aimed at climate change adaptation and sustainable energy under the global Covenant of Mayors for Climate and Energy, building on the experiences with the EU Covenant of Mayors and the Global Climate Change Alliance flagship initiative; share best practices in support of international, bilateral and regional climate and energy cooperation initiatives, including on energy efficiency, renewable energy and climate adaptation as well as how to use modelling tools to prepare and inform climate policies.																
337 - CoM JRC.C.2	4480 - CAP4DEV Mapping electrification impacts and sustainable energy planning for African cities	The JRC will support DEVCO's Electrifi initiative and will extend the Covenant of Mayors work on sustainable energy planning to African cities. There are 2 components: 1) Creating a web-based application to show the results and status of the Electrifi projects in a geographically-based context. 2) Supporting the implementation of the Covenant of Mayors (CoM) in Africa.	JRC.C.2	9.2.3.a	DEVCO	DEVCO	CLIMA CNECT		01/03/2017 28/02/2020	CON-AA	3	Interactive progress-tracking toolkit for DEVCO energy projects	Development a user-friendly web-based application to give a geographically-based context to the DEVCO energy projects	28/02/2020	Technical systems	
												4	Covenant of Mayors: sustainable energy planning in cities in Sub-Saharan Africa	The JRC will support the implementation of the Covenant of Mayors (CoM) in Sub-Saharan Africa with adapted methodologies and reporting tools. The JRC will participate in the advisory board of the CoM for Sub-Saharan Africa to share experience from the Covenant EU-28, ENPI East and ENPI South. Up to 6 cities of the region will be supported to join the CoM.	28/02/2020	Science for Policy reports

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Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category	
<p>9.2.3.b Monitor, provide scientific advice, develop ICT tools, disseminate information and build capacity for partners in third countries to support multilateral or bilateral agreements on natural capital and sustainable management of natural resources, in support of SDG implementation, with a focus on forestry, land, and land use change, soil, biodiversity, ecosystem services, agricultural and non-agricultural raw materials, air and water, where appropriate in cooperation with relevant international organisations and conventions, including the African Union (through the dedicated knowledge platform for Africa organised according to the SDGs), FAO, the United Nations Educational, Scientific and Cultural Organization (UNESCO), the UN environment programme, the Union for the Mediterranean, the UN Economic Commission for Europe, UNCCD, IPBES, the Arctic Council and its subsidiary bodies and the International Resource Panel.</p>																
568 - WEFE Nexus JRC.D.2	2143 - ACE WATER 2 African Center of Excellence Phase 2	Aims at supporting the development of the NEPAD Water African Network of Centres of Excellence in linking research and policy making in the field of transboundary water management. It will enlarge the existing Water Centres of Excellence, currently active in Western and Southern Africa, to Eastern and Central Africa, and facilitate the establishment of a Human Capacity Development Programme addressing junior professional and technician level capacity in the water sector in Africa.	JRC.D.2	9.2.3.b	DEVCO	DEVCO			11/12/2015 31/08/2020		CON-AA	3 4 7	2018 Annual Report Final Report Establishing Common Water Sector Priorities	JRC technical report describing the activities implemented during 2018 Technical report describing the activities implemented during the implementation period Technical report describing the Water Sector Priorities in 14 African Countries and Strategy Implementation Plan	15/02/2019 31/12/2019 15/10/2019	JRC technical reports JRC technical reports JRC technical reports
4842 - GCAD JRC.D.6	3784 - GLOBES Global Observatories for Biodiversity and Ecosystems Services	This WPk is about the provision of reference information and web services that are supporting the access to knowledge products on global biodiversity and ecosystems services including the associated development goals that are essential to EU policies on development and biodiversity. This institutional WP also serves as the scientific and technical backbone of other WPks and its web services are designed to support web applications developed in other WPks (e.g. Africa Platform, BIOPAMA, INCA,) More precisely, this WPk will further maintain and develop the information tools required to assess, monitor and forecast biodiversity and ecosystem services at the global scale (with a focus on protected areas), help the EU ensure maximum aid effectiveness, and underpin indicator development for Sustainable Development Goals 14 and 15 as well as 17. Overall project results will further update and improve the baseline information and knowledge products sought by the EC and the UN Convention on Biological Diversity (CBD) to assess progress on key targets and support developing countries in establishing their National Biodiversity Strategies and Action Plans (NBSAPs). We will further anchor JRC's support to developing countries through the development of e-learning tools, capacity building, and the improved access to essential information required to support the global strategic plan for biodiversity 2020, including Aichi Biodiversity Targets of the CBD.	JRC.D.6	9.2.3.b	DEVCO	JRC	AGRI CLIMA ENV GROW	EEA - European Environment Agency EAS - European External Action Service UN CBD - UN Convention on Biological Diversity UNDP - United Nations Development Programme UNEP - United Nations Environment Programme (UNEP) WB - World Bank	01/01/2017 31/12/2020		INS-RS	10 11 12 13 14 15	Update and further development of GLOBES services 2019 & support to Africa Platform, BIOPAMA, INCA Beta version of a Web application for KIP INCA Update and further development of DOPA Applications (DOPA Explorer and eConservation) Update and further development of GLOBES services 2020 & support to Africa Platform, BIOPAMA, INCA Support to the 15th COP of the CBD Operational version 1.0 of a Web application for KIP INCA	The reference information generated by the Digital Observatory for Protected Areas (DOPA) needs to be regularly updated with new indicators and with data from the World Database on Protected Areas (WDPA), the IUCN Red List of Threatened Species, the Copernicus Global Land Services and the data produced from DOPA's modeling tools. This information needs to be further processed and distributed through web services supporting third parties (e.g. Africa Platform, BIOPAMA2, INCA, ENV, EEA, DEVCO, CBD). Using the DOPA infrastructure and services, a web version of the Knowledge Innovation Project on an Integrated system of Natural Capital and ecosystem services Accounting (KIP INCA) will be further developed a set of experimental accounts at EU level. The application is developed in support to D3 which is providing the components on Ecosystem service potential, the amount of service ecosystems can provide in a sustainable way, Ecosystem service demand, the need for a specific ecosystem service by the society and The service use, the service flow that is actually mobilized contributing to the different components of the human well-being. Reported in the accounting tables. DOPA Explorer and eConservation are two flagship web based applications allowing end-users to access data, indicators, maps on biodiversity, anthropogenic pressures, ecosystems and funding at the global scale at regional, country, ecoregion and site level. These applications need to be updated, reviewed and enriched, in particular using Copernicus services on water & land degradation. The methods and services to produce the reference information on ecological connectivity, global coverage statistics by protected areas requested by the Biodiversity Indicators Partnership will be updated. DOPA Explorer and eConservation are providing the reference material to the UN CBD and to developing countries drafting their National Biodiversity Strategic Action Plans (NBSAPs). The web services distributing the reference information underpinning the knowledge products of the Digital Observatory for Protected Areas (DOPA) need to be further updated and developed to allow more frequent, automatic and higher resolution updates when processing data from the UNEP-WCMC, the Red List of Threatened Species, Copernicus, etc.. to further support requests from third parties (e.g. Africa Platform, BIOPAMA, DG ENV, DG DEVCO, CBD). The web services will be further organized along the covered SDGs (14, 15, 17). The 15th Conference of the Parties of the UN Convention on Biological Diversity will require from GLOBES to 1) update the country indicators of the Digital Observatory for Protected Areas (DOPA) for the CBD Secretariat; 2) contribute to the Protected Planet Report 2020 published by UNEP; 3) Support to the EU Delegation for and at the COP 15; 4) further develop and update connectivity and pressure indicators on protected areas. Using the DOPA infrastructure and services, an operational web version of the Knowledge Innovation Project on an Integrated system of Natural Capital and ecosystem services Accounting (KIP INCA) will be further developed a set of experimental accounts at EU level. The application is developed in support to D3 which is providing the components on Ecosystem service potential, the amount of service ecosystems can provide in a sustainable way, Ecosystem service demand, the need for a specific ecosystem service by the society and The service use, the service flow that is actually mobilized contributing to the different components of the human well-being. Reported in the accounting tables.	01/10/2019 31/07/2019 31/10/2019 31/07/2020 01/11/2020 01/11/2020	Sci information systems and databases Sci information systems and databases Validated methods, reference methods and measurements Sci information systems and databases Whole parts of policy documents Sci information systems and databases
568 - WEFE Nexus JRC.D.2	3888 - WEFE4Dev WEFE Nexus perspectives in developing countries	The WEFE4Dev Work Package links scientific and technical capacity at the JRC on data, modelling and information systems on Water-Energy-Food-Ecosystems (WEFE) in Developing Countries with a particular focus on Africa. By working with regional and international organisations and the African networks of excellence in water sciences, it facilitates mainstreaming of Nexus policy recommendations and action plans for future investments in EC regional and global policies thus complementing the EC WEFE Nexus Dialogues Programme and providing assistance to the EC Water Diplomacy and Migration initiatives. It will provide scenario and trade-off analyses to explore opportunities for sustainable economic growth through an integrative cross-sectoral approach. It will help measure progress by African countries towards the SDGs by assessing the policy impacts across different sectors (energy, food, industry, urban, environment, ...) taking into account e.g. structural reasons for resource scarcity, increased urbanization and population growth trends, increasing migration, adaptation to climate change and variability, use of clean technologies and non-conventional supply. A cross-disciplinary flagship deliverable will be the report addressing the spatial interdependence of the energy and agriculture sectors and their physical and socio-economic exposure to water and climate variability in transboundary river basins in Africa. In this way, this WorkPackage will ensure the coordination of the different WorkPackages (WEFE-Energy, WEFE-Agriculture, WEFE-2030, WEFE4Dev, EC NEXUS Dialogues, WEFE-SENEGAL, ACEWATER2) contributing to the main WEFE report "Fairness in access to resources: addressing trade-offs in water, energy, food and ecosystem security in Africa".	JRC.D.2	9.2.3.b	DEVCO	DEVCO, DEVCO, JRC	ENV HOME NEAR	FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) AMCOW - African Ministers' Council on Water UN ECE - UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE UNEP MAP - Barcelona Convention for the Protection of the Mediterranean Sea Against Pollution (United Nations Environment Programme for the Barcelona Convention) UNESCO IOC - United Nations Educational Scientific and Cultural Organization - Intergovernmental Oceanographic Commission	01/01/2016 31/12/2022		CON-AA, CON-AA, INS-RS	201901 201902 202001	WEFE Nexus Analyses in the Niger river basin to support the NIGER NEXUS Dialogues Specific applications of the African Water Cooperation Atlas Scenarios and intervention solutions for water, energy, food and ecosystem security in Africa	As part of the EC NEXUS Dialogues initiative and with reference to the EC NEXUS Position Paper recommendations, the Niger River Basin (NB) has been identified as a practical NEXUS case study with the objective of developing a new NB Operational Plan. The deliverable will provide a NEXUS analysis in collaboration with the AGRHYMET, Niger River Basin Authority (NBA) and the German Cooperation Agency (GIZ) with the estimation of water requirements for agriculture and energy. These analyses will support the Niger NEXUS policy dialogues lead by GIZ and the next NB Operational Plan. Building on the analyses developed for the previous stages of the activity, and benefiting from the feedback received from local stakeholders, practitioners and decision makers, the online African Water Cooperation Atlas tool will be adapted to address the specific water management critical issues in a selection of four African River Basins (Zambezi, Senegal, Niger, Lake Victoria and Blue Nile). The implementation of specific applications of the tool will allow to make the tool operational for the day-by-day management of the African river basins taken into consideration. This will also reinforce the ability of countries to downscale SDG targets into national targets and actions, and support EC initiatives to water diplomacy. WEFE Nexus scenarios and projections impacting the sustainable development of the African continent with diagnostic overviews on priority river basins (Senegal, Niger, Blue Nile and Zambezi). Based on the spatial and temporal analyses of biophysical stressors (including climate change and variability) and their impacts on the management of the WEFE resources, the deliverable will include the coordination of JRC analyses and scenarios coming from the several WEFE Work Packages (WEFE-Energy, WEFE-Agriculture, WEFE-2030, WEFE4Dev and Administrative Arrangements) contributing to the WEFE-Nexus report for Africa (project level deliverable 2020_2). Potential intervention solutions and development priorities will be discussed and analysed with African stakeholders under the five priorities areas of the "NEW EU CONSENSUS on Development".	31/10/2019 31/12/2019 30/06/2020	Science-for-policy reports Technical Reports Science for Policy reports

JRC 2019 - 2020 DETAILED WORK PLAN															
Project / Owner Unit	Work Package ID, Acronym and Title	Work Package Description	Owner Unit / Work Package Contact	JRC KO	Main Pol. DG	Funding DG	Add. Pol. DG	External Beneficiaries	Start / End	Funding Type	Del. Id	Title	Description	Expect. Rel. Date	Category
4842 - GCAD JRC.D.6	4902 - BIOPAMA 2 Biodiversity and Protected Areas Management in ACP countries, Phase II	Biodiversity and Protected Areas Management - Addressing the challenges of a sound knowledge base for decisions on biodiversity, protected areas and development by providing an authoritative Reference Information System (RIS), hosted at JRC and with instances within mandated regional Institutions as part of the BIOPAMA Regional Observatories, covering the 79 countries of the ACP (Africa, Caribbean, Pacific) Partnership. Part of the overall BIOPAMA 2 project, funded by the European Development Fund (EDF 11) and administered by DG DEVCO on behalf of the ACP Secretariat. Implemented in partnership with IUCN, who lead the capacity building part of the project. As a follow-on from BIOPAMA, this project will further develop and reinforce the RIS and the existing regional observatories, as well as building new Observatories, and taking the information platform of BIOPAMA to a level where it is directly supporting local, national and regional decision making. The work directly supports the EU Biodiversity for Life Flagship Initiative, national agencies and the UN Convention on Biological Diversity (CBD) in their activities to help developing countries to manage biological resources in a sustainable way, including support to development of DOPA. BIOPAMA 2 will underpin much of the institutional work of project 4842, providing a critical mass of resources, skills and experience in biodiversity, ICT and natural resource management. BIOPAMA 2 is in line with the EU Agenda for Change, the EU Biodiversity Strategy 2020 and contributes directly to at least 4 Sustainable Development Goals and three RIO principles.	JRC.D.6	9.2.3.b	DEVCO	DEVCO	AGRI CLIMA ENV	ACP Sec - African Caribbean and Pacific (ACP) Secretariat - The Secretariat of the African, Caribbean and Pacific Group of States AREC - African Regional Economic Communities AU COM - African Union Commission COMIFAC - Commission des Forêts d'Afrique Centrale (COMIFAC) Forest commission of central africa IUCN - International Union for Conservation of Nature SADC - Southern African Development Community UN CBD - UN Convention on Biological Diversity	09/06/2017 08/06/2023	CON-AA	10	Protected Area Ecosystem Services	Review of methods for measuring ecosystem services provided by protected areas	30/11/2019	Article contribution to periodicals or to conference proceedings listed in SCOPUS
											12	DOPA Analyst 1.0	DOPA Analyst will be developed as a Beta release during 2017-18. Reviewed and updated according to feedback received, DOPA Analyst will further focus on the use of the Copernicus Global Land Services to improve the monitoring of biodiversity and ecosystems services at the global scale. The public release of DOPA Analyst 1,0 should further strengthen support to developing countries which don't have the means to perform locally complicated analyses and will support the objectives of BIOPAMA2.	30/06/2020	Scientific information systems and databases
											3	State of Protected Areas	Bi-annual reports for the ACP region, compiled using input from each project region on the state of protected areas, using the knowledge base of the BIOPAMA Reference Information System and its regional nodes	30/06/2019	Science-for-policy reports
											4	ACP Protected Areas Database	Reference database of Protected Areas across the ACP region combining information gathered and compiled by BIOPAMA Reference Information System, containing base data, indicators and trends on themes including: Site location, geometry and basic geographic characteristics Key landscape features Socio-economic context Ecosystem Services Pressure and threats Management effectiveness and governance Species occurrence and diversity	31/05/2023	Scientific information systems and databases
											6	Management Effectiveness and Governance Assessment	Testing, development and enhancement of the IMET (Integrated Management Effectiveness Toolkit), and the analysis and visualisation of the results of the on-site assessments through the BIOPAMA RIS, presented as a JRC Technical Report to be updated every 2 years	30/06/2019	JRC technical reports
											7	BIOPAMA Annual Project and Technical Report	Technical report summarising the developments of the BIOPAMA Reference Information System and its links to other reference data sources and systems, produced annually. The administrative aspects will be presented annually in line with the annual Steering Group Meeting (expected in September each year), and with an annual public technical report at the end of each calendar year.	31/05/2023	JRC technical reports
											8	Information Management for	An up-to-date, independent source book on the state of the art in information technology for conservation, planning and reporting.	30/06/2020	Books and monographs
											9	Management Effectiveness & Governance	Review of methods and indicators for assessment of protected areas management and governance, including IMET and equivalent tools	30/06/2019	Article contribution to periodicals or to
											568 - WEFE Nexus JRC.D.2	4904 - WEFE SENEGAL Managing the Water-Energy-Food Nexus in the Senegal River basin	The Senegal River Basin Development Authority (OMVS, in French) is an organisation grouping Guinea, Mali, Mauritania and Senegal with the purpose of jointly managing the Senegal River and its drainage basin. With the development of important activities in processing industry, water, agriculture and energy, the OMVS aims to promote a sustainable development at economic and human level to stabilise migration in the region. Key issues linked to environmental degradation and water management in the river basin will be considered to identify and implement concrete mitigation and adaptation measures through the integration of a NEXUS Water-Energy-Food Security Dialogue developed at the scale of the river basin. The project aims at fostering	JRC.D.2	9.2.3.b
202001	WEFE Case Studies (High Mali, Fouta Djallon, Delta)	The case studies examine how we can optimise water infrastructure (built and natural) to sustainably meet the needs across the water, energy and food sectors, looking at new innovations, institutional arrangements, policy, decision making and financing.	31/12/2020	JRC technical reports											
9494 - JRC and Africa JRC.D.6	5013 - GMES&Africa Global Monitoring of Environment and Security in Africa	The Land Resources Monitoring (LRM) Unit of JRC has been involved from the very beginning in the process launched by the EC in the late '90ies" to support Africa in the use of Earth Observation Technologies for sustainable development. Upon demand of DEV and AIDCO services (now DEVCO), the JRC was particularly active in the conception and the implementation of the PUMA (2000), AMESD (2005) and MESA (2012) projects. The implementation of the "GMES&Africa Action Plan" is now concretely starting, with this 1st "Pan-African GMES&Africa project" which is the natural evolution of the 18 years' PUMA-AMESD-MESA process, now to be extended also to the Northern Africa countries. The focus of the Project will be on Water resources, on Coastal and Marine resources and on Sustainable Management of Natural Resources and its The follow-up is carried out in support to and in close coordination with DEVCO, GROW, the EU Delegations in Africa and EUMETSAT. Beyond providing the necessary advice and technical support to the EU services and to ensure capacity building for all the beneficiaries, the JRC will support all the technical activities of the project. Moreover, as the JRC has developed an operational and distributable open-source data	JRC.D.6	9.2.3.b	DEVCO	DEVCO	JRC	ACP Sec - African Caribbean and Pacific (ACP) Secretariat - The Secretariat of the African, Caribbean and Pacific Group of States AMCOW - African Ministers' Council on Water ARC - AGRHYMET Regional Centre (ARC) AREC - African Regional Economic Communities AU COM - African Union Commission CICOS - Commission Internationale du bassin Congo-Oubangui-Sangha - International Commission of Congo-	01/01/2017 31/12/2020	CON-AA	2	Training	Training activities, to be carried out by the JRC both in Europe (Ispra and other location according to the needs) and in Africa, will focus on the use of the eStation and the use of low and medium resolution satellite data managed by the system. On aspects related to other data than those indicated above and other information systems than the eStation (for instance high resolution data for forest inventories), the JRC is willing to provide support.	31/12/2019	Training
											2019eNexus	Integration of e-Water into the e-Station	The full integration of the different e-Water functionalities will be analysed paying special attention to the "Climate Variability" module. The e-Water desktop tool will be made available to GMES-Africa beneficiaries including technology transfer and capacity building.	15/12/2019	Technical systems
											2020eNexus	e-Nexus Decision Support Tool	e-NEXUS Decision Support Tool (DST) will provide the African Platform DB, GMES-Africa WkP and African partners working at river basin level with biophysical indicators related to water balance monitoring, including data and analysis to support the monitoring of the biophysical parameters of major African lakes. The e-NEXUS DST will also run simulations supporting agriculture seasonal monitoring in collaboration with the GMES&Africa beneficiaries (OSS, ICPAC and SADC-CSC).	15/12/2020	Technical systems
											Final	Final Report	Final Report of GMES & Africa project for DEVCO	18/12/2020	Technical
9494 - JRC and Africa JRC.D.6	7670 - Africa Platform Africa Platform	Turning the systematic review of JRC work in Africa and the flagship report "Science for the AU-EU Partnership: Building Knowledge for Sustainable Development" into a dedicated knowledge platform for Africa organised according to the Sustainable Development Goals and supporting the priority objectives of the AU-EU partnership. Providing the coordination activity for the "JRC & Africa" project, with year 1 dedicated to setting up the necessary coordination structures and designing a prototype platform. Year 2 will be focused on implementing the platform and encouraging knowledge sharing with institutional partners and linking to policy and decision making. The WP also incorporates a proposed indirect action to support the sustainable intensification of agriculture in Africa through the development of a harmonised soil information system. Overall, this work package contributes to the main objectives of AU-EU research cooperation, namely: * Providing scientific evidence for integrated policymaking * Developing knowledge management tools and practices, especially those with a geospatial focus * Sharing experience and lessons on science policy interface * Developing bespoke training and capacity building.	JRC.D.6	9.2.3.b	DEVCO	JRC	AGRI ENV	ACP Sec - African Caribbean and Pacific (ACP) Secretariat - The Secretariat of the African, Caribbean and Pacific Group of States ADBG - African Development Bank AREC - African Regional Economic Communities AU COM - African Union Commission ECOWAS - Economic Community Of West African States IGAD - Intergovernmental Authority on Development NEPAD - OST - New Partnership for Africa's Development (NEPAD) RCMRD - Regional Centre for Mapping of Resources for Development, Reg Aut AU - Regulatory Authorities from Africa	01/01/2019 31/12/2023	CON-IA, CON-IA, INS-RS	001	Africa Platform Design	Vision, design and information architecture for the Africa platform and design and vision for capacity building and collaboration roadmap, which together set out the key objectives and implementation measures for the "JRC & Africa" project. Development of prototypes, integrating data and information and connecting experts from existing JRC platforms and Knowledge Centres, to produce a comprehensive platform design and framework built to support the SDGs. Consultation with relevant Commission Services and external partners to ensure their needs are addressed in the design, and that the platform has a clear and distinct identity and purpose, focusing on the initial contribution of earth observation and geospatial information to joint AU-EU policy objectives on sustainable development. Review of feedback on Africa report with EU Delegations in Africa, with report on "assessment of AU-EU partnership needs".	30/08/2019	Technical Reports
											002	Africa Information Platform	An online platform bringing together the JRC and African partner's data, information, knowledge products and experts in a coherent platform, organised according to SDG's, and built in line with the findings of the deliverable "Africa Platform Design". Pending additional dedicated resources, this deliverable could be extended to providing specific policy briefs and undertaking detailed studies based on the information delivered by the platform, and could be extended to cover a broader set of themes.	30/06/2020	Sci information systems and databases
											003	Capacity Building Portfolio	Design of a portfolio training, courses, staff exchanges and institutional development activities focused on the key issues addressed by the Africa Platform. This deliverable will be on hold pending additional resources and based on a detailed requirement assessment during the design of the platform hence currently postponed until 2021.	31/12/2021	Training
											004	Soil information for Africa - approval of methodology	Africa is facing the challenge of moving towards more sustainable ways of agricultural production. Both the EU and Africa aim to ensure food production and reduce the environmental impact of agricultural activities in the face of climate change, more unpredictable water supply, increased degradation of (land) resources. Systems approaches are needed to optimise agricultural productivity and the delivery of ecosystem services. For the implementation of DG AGRI's EU-Africa R&I Partnership on food and nutrition security and sustainable agriculture (FNSSA), a comparable and open database on agricultural soils characteristics and condition will be developed (based on JRC's LUCAS SOIL for the EU) for a minimum of 20 000 sampling points to create specific indicators to assess the long-term implementation of FNSSA and its contribution to the SDGs discussion. This deliverable will assess and validate the methodology for the programme, and is dependent on results of a call for tender early 2019.	31/12/2022	Technical Reports

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9.3. Neighbourhood and enlargement negotiations																
9.3.a Capacity building - support the development and implementation of smart specialisation strategies in enlargement and Horizon 2020 associated countries; strengthen the technology transfer capacity; provide urban data and analysis in Syria to support humanitarian and development actors in monitoring and responding to humanitarian and recovery interventions; support the implementation of the Eurocodes in the Balkan non-EU countries.																
146 - S3 Platform JRC.B.3	5039 - S3P-NEAR Smart specialisation and organisational development in the enlargement countries	This competitively financed action targets Western Balkan economies and Turkey. By agreement and indication of DG NEAR, there can be also other beneficiaries of the activities carried out within the action. As agreed with DG NEAR in Administrative Agreement, the Joint Research Centre's mission is to accompany the design phase as well as the implementation of smart specialisation strategies with the appropriate methodological development and related tools through a mutual learning methodology using benchmarking and trans-national co-operation and focusing specifically on the main designing blocks of the smart specialisation concept: stakeholder involvement ("entrepreneurial discovery process"), open participatory governance mechanisms, solid policy-mixes and systematic monitoring systems. The activities in this Administrative Agreement will aim to support the approach in the concerned economies by integrating the smart specialisation principles in the design, development and eventual implementation of national (and regional) innovation strategies. The activities in this Action Document will also aim to carry out policy-relevant analysis on horizontal themes, and to generate lessons, tools and approaches tailored to these countries. This action builds directly on the successful activities performed by the Smart Specialisation Platform within the following projects: 1) JRC institutionally funded project "Smart Danube" supporting the EU Strategy for the Danube Region (covering 3 EU accession WBC and 2 neighbourhood countries MD and UA); 2) JRC institutionally funded project "Smart EU	JRC.B.3	9.3.a	NEAR	NEAR	RTD		01/01/2019 31/12/2020	CON-AA		NEAR1	Open Data S3 Platform for the countries with collaborative functions	Open Data S3 Platform for the E&N countries will include collaborative functions created for the policy-makers and other stakeholders to be directed to the relevant information linked to their needs. This online platform will include sections for economic, innovation and scientific data, key stakeholders, facilitation of the establishment of quadruple helix partnerships in the targeted countries along with the entrepreneurial discovery process, as well as the guidelines towards the establishment of the effective policy mixes, evaluation and monitoring practices, etc. This new collaborative open data platform will facilitate concrete engagements and effective R&I cooperation of the Enlargement and Neighbourhood countries with the EU regions	23/12/2020	Sci information systems and databases
												NEAR2	Report on gaps and barriers and report on policy recommendations on the WB economies.	The report will focus on the identification of major gaps and barriers in organisational development and strategic management of STI policies in the Enlargement and Neighbourhood countries embracing main S3 features to develop tailor-made capacity building actions for these countries. Another part of the report will be relevant country specific policy recommendations regarding the S3 process in the targeted WB economies and guidelines for transition countries preparing for S3 process	30/11/2020	Science for Policy Briefs
												NEAR3	Review and assessment of the S3 strategies developed within the project	The written assessment will be conducted in cooperation in DG NEAR and include assessment of the diagnosis, SWOT analysis, shared vision, policy mix and monitoring, implementation and financing scheme of the strategies.	30/11/2020	Technical Reports
222 - DRMKC JRC.E.1	7785 - USI4 Post-Conflict Urban Syria	The Syria crisis is a profoundly urban crisis: damage, destruction and displacement are concentrated in major urban centres and cities. UN-Habitat and the JRC have been analysing these developments jointly to support humanitarian and development actors to respond more effectively to this complicated and dynamic urban reality. The Phase III projects aims for a continuation of the urban information and analysis in Syria in order to better plan, target and monitor humanitarian and recovery interventions, while extending the number of cities to 75 and to	JRC.E.1	9.3.a	NEAR	NEAR	DEVCO ECHO FPI	UN HABITAT - United Nations, Human Settlement Programme (UN HABITAT) WB - World Bank	14/02/2019 31/12/2020	CON-AA						
146 - S3 Platform JRC.B.3	7826 - S3P-E&IA Smart Specialisation and organisational development in enlargement and H2020 associated countries	This Wpk builds on the results of the pilot action implemented in the years 2017-18. The pilot Action focused on 3 target countries (Serbia, Ukraine, Moldova) brought very good results and raised substantial interest in the Enlargement and Neighbourhood countries. As the development of smart specialisation strategies is advanced or initiated in 10 countries at the moment, with more requesting JRC assistance, the Action should be continued in order to achieve wider policy impact. Due to the increased interest in smart specialisation in the Eastern and Southern Partnership, continued work in the Western Balkans (supported within S3P NEAR Wpk) and more interest in other countries outside the EU (S3P Worldwide), a development of the pilot action is needed, working towards the achievement of 4 main goals: - Conceptual development and building evidence bases for the application of smart specialisation concept and, more widely European style STI policies in different administrative and political contexts outside EU, - Institutional capacity building to develop partnerships and frameworks allowing for design, implementation and monitoring of smart specialisation strategies and their coordination with STI.	JRC.B.3	9.3.a	NEAR	JRC	REGIO RTD		01/01/2019 31/12/2020	INS-E&IA		EIA1	Institutional capacity, technological change and societal challenges in transition economies	Published methodological guidance on advanced mapping methodologies for smart specialisation and participative methods for entrepreneurial discovery outside EU	30/11/2020	Books
												EIA2	Analytical overview of Eastern Partnership countries' readiness for smart specialisation	An analytical report on economic, scientific and innovation potential of Eastern partnership countries	31/12/2019	Science for Policy reports
												EIA3	Analytical overview of Southern Partnership countries' readiness for smart specialisation	An analytical report on economic, scientific and innovation potential of Southern partnership countries	31/12/2020	Science for Policy reports
												EIA4	S3 Roadmaps	Roadmaps for all interested target countries	31/12/2019	Technical
9.3.b Sustainable policies - provide neighbourhood countries with technical and scientific assistance, analytical methodologies and tools to support local authorities in formulating and implementing sustainable policies in the framework of the Covenant of Mayors, including by providing guidelines for Sustainable Energy and Climate Action Plans; provide information and data about air quality and greenhouse gas emissions in support of the accession process of the Western Balkans to the EU.																
337 - CoM JRC.C.2	6360 - CoM South Med Covenant of Mayors South Mediterranean	The project aims to adapt the "Covenant of Mayors" (CoM) to the ENPI South Mediterranean Partner Countries. The purpose is to provide the ENPI South countries and the project beneficiaries with technical and scientific assistance, analysis and input to support the project implementation, including Sustainable Energy and Climate Action Plans guideline and implementation and monitoring guidelines. The WPK contributes to the achievement of the project's objective by supporting the development of the capacities of local authorities in the region to formulate and implement sustainable local policies, such as those implied by joining the CoM and developing the related SECaAPs. In the WP the following activities will be undertaken: adapting the existing methodology and tools; evaluation of SECAPs, feedback to the Covenant Cities, the Project and the EC (DG NEAR); monitoring of the CoM South implementation; providing technical help desk service; developing methodology, including adaptation and access to energy. In the WP the following activities will be undertaken: adapting the existing methodology and tools; evaluation of SECAPs, feedback to the Covenant Cities, the Project and the EC; monitoring of the CoM South implementation; providing technical help desk service; developing methodology. The main methodology to be used is in line with the one applied to the CoM initiative with some adaptations. The technical support provided by the JRC will have a nature of guidance as well as methodological and technical support to the Project and its beneficiaries wishing to become Covenant Signatory Cities in the development and implementation of SECAPs. The JRC will assist the signatory cities by establishing the overall	JRC.C.2	9.3.b	NEAR	NEAR	CLIMA ENER FPI		21/09/2018 20/09/2022	CON-AA		1	Annual evaluation of the CoM South initiative	Production of an annual report to summarize the results achieved and the lesson learned in the CoM South initiative up to September 2018, based on SEAP and SECAPS. The main CO2 emission and sustainable energy indicators will be presented based on SECAPs and Monitoring Reports. The report will also cover adaptation and access to energy. Best practices in policies (mitigation, adaptation and access to energy) by cities will be identified.	31/12/2019	Science for Policy reports
												1	Revision of the Guidebook	The current Guidebook for the CoM South will be revised to include access to energy and the new harmonised reporting methodology of the GCoM	31/12/2020	Science for Policy reports
												2	Technical training	Training of city experts on the development of SECAPS and monitoring reports	31/12/2020	Technical Reports
												2	Analysis of the submitted SECAPs	The JRC will evaluate the final SECAPs as submitted officially by the cities, including Baseline emission inventories, climate mitigation and adaptation. A report on the analysed SECAPs will be prepared.	31/12/2019	Technical Reports
												3	Revision of the monitoring guidelines	Under this task the monitoring guidelines of the SECAP implementation will be developed to include adaptation and access to energy. Then by using these guidelines the monitoring of the SECAP implementation will be carried out	31/08/2019	Technical Reports
												4	Methodological adaptation of the CoM South to the new Global Covenant of Mayors	With the methodological developments in the frame of the Global Covenant, there is the need to adapt the CoM South Guidebook to the Global harmonised methodology, where possible, and at the same time to preserve the regional specificity in relation to climate actions.	31/12/2019	Technical Reports
337 - CoM JRC.C.2	6363 - CoM East Covenant of Mayors for Eastern Countries	This Work Package contributes to the adaptation of the European initiative "Covenant of Mayors" (CoM) to the East Neighbouring countries (Georgia Azerbaijan, Armenia, Ukraine, Moldova, Belarus) and the successful implementation in the region. The purpose is to provide these countries and the project beneficiary cities with specifically designed technical and scientific assistance, analysis and input to support the project implementation, including Sustainable Energy Action Plans guidelines, implementation and monitoring guidelines (addressing mitigation of climate change, adaptation to climate change & access to energy). The initiative will be closely monitored and an annual progress report will be published with aggregate data on CO2 emissions reductions and local climate action policies to identify the efficacy and results.	JRC.C.2	9.3.b	NEAR	NEAR	CLIMA ENER FPI		17/12/2017 16/12/2021	CON-AA		1	Revision of the Guidebook	The current Guidebook will be revised to include access to energy and the new harmonised reporting methodology of the GCoM	31/12/2019	Science for Policy reports
												2	Analysis of the submitted SECAPs	The JRC evaluate the final SECAPs as submitted officially by the cities, including Baseline emission inventories, climate mitigation and adaptation. A report on the analysed SECAPs will be prepared	31/03/2019	Technical Reports
												2	Technical training	Training of city experts on the development of SECAPS	30/09/2021	Technical Reports
												3	Assessment of SECAPs (Methodological)	Assessment and feedback to cities of submitted SECAPS and Monitoring Reports	30/06/2021	Technical Reports
												4	Adaptation of the CoM East Guidebook to the Global Covenant of Mayors	With the methodological developments in the frame of the Global Covenant, there is the need to adapt the CoM East Guidebook to the Global harmonised methodology where possible and at the same time to preserve the regional specificity in relation to climate actions.	15/10/2019	Technical Reports
												4	Overall Assessment	The overall assessment of the SECAPS and Monitoring Reports submitted by the cities in the region will be prepared	31/10/2021	Science for Policy reports
4854 - AIR JRC.C.5	7754 - AC-WB Air and Climate in the Western Balkans	The work package supports the process of accession of the Western Balkans Countries as envisaged in the EU strategy for the Western Balkans (COM(2018)65) and the Enlargement package (COM(2018) 450) with particular reference to the chapter of the "acquis" 27: Environment and climate change. It aims at accomplishing a detailed analysis of the status of atmospheric pollutants and greenhouse gases (GHG) with a view to providing scientific evidence to: a) support the screening of the accession processes, b) back the implementation of the EU "acquis" in the accession countries, c) the assessment of the Instrument for pre-accession Assistance (IPA II) implementation, d) anticipate emerging issues, e) populate open data infrastructures (e.g. One Health Cloud) and map the potentials for eco-innovation in the area. Systematic information about air quality and GHG in the Western Balkans countries will be collected including data submitted to international conventions such as the one on long range transport of pollutants and the Paris agreement. The resulting mapping of emissions and concentrations will be used to identify knowledge gaps and define the status of the Western Balkans compared to the EU legislation in this field. After the assessment phase, the activity will focus on the most critical topics with the aim of helping to close the gaps. To that end dedicated modelling work and training on areas ranging from emission inventories development, air quality monitoring harmonisation and tools to support action plan design, will be carried out depending on	JRC.C.5	9.3.b	NEAR	JRC,JRC	CLIMA ENV	EEA - European Environment Agency IAEA - International Atomic Energy Agency (IAEA)	01/01/2019 31/12/2020	INS-E&IA,INS-RS		201901	Assessment of the status of air pollutants and greenhouse gases in the Western Balkans	Systematic information about the situation air pollutants and greenhouse gases (GHG), including mapping levels of emission and concentrations and data submitted in the frame of international agreements such as the Convention on Long Range Transport of Pollutants and the Paris agreement will be collected and summarised to provide scientific advice about existing knowledge gaps with respect to the EU legislation requirements. The analysis aims at providing elements for benchmarking the progress in the accession process. This activity will be carried out in collaboration with the Task Force on Air Quality and the IAEA (project RER 7011) which are focused on air quality and emissions in the Balkan area.	30/11/2019	Science for Policy reports
												202001	Filling the knowledge gaps about air pollutants and greenhouse gases in the Western Balkans	Modelling tools will be used to assess the most critical areas identified in Deliverable 201901 with a view to supporting the alignment of the legislation implementation in the Western Balkans countries with the EU standards. The contribution from sectoral and spatial sources of pollutants (e.g. PM and NO2) will be estimated with source apportionment tools (SHERPA, receptor models) and the impacts on climate, health will be analysed with integrated assessment tools (FASST, SHERPA).	30/09/2020	Journal contributions (Clarivate)
												202002	Building Western Balkans capacity in the fields of air quality and greenhouse gases	On the basis of the gaps identified in Deliverable 201901 and the interest expressed by authorities, training courses on either measurement of pollutants, preparation of emission inventories or use of modelling tools will be dedicated to the experts of the Western Balkan countries. Deliverable relevant for the E&I Action.	30/11/2020	Training

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10. A Union of democratic change															
10.1. Methodological support for better regulation															
10.1.a Competence Centre on Modelling - contribute to the development of high-quality methodologies and tools to assist impact assessments of policy proposals and policy options, and promote a responsible use of modelling at EU and Member State level.															
10.1.b Competence Centre on Microeconomic Evaluation - provide technical advice, methodological support, specialised training and exchange on counter-factual impact evaluations.															
603 - CC-ME JRC.1.1	7541 - CC-ME Competence Centre on Microeconomic Evaluation	The Competence Centre on Microeconomic Evaluation (CC-ME), supports capacity building in counterfactual impact evaluation and provides scientific expertise and methodological support to the Commission and Member States for the evaluation of impact of interventions and policies. Finally, many of the foreseen output reports are relevant for the economic as well as social impact of policies of the European Union. Organisation of Conferences and communities of practices (CoP) are foreseen to complete the institutional activity.	JRC.1.1	10.1.b	SG	BUDG,C NECT,C NECT,E MPL,JRC	BUDG CNECT COMP EMPL		01/01/2019 31/12/2020	CON- AA,CON- AA,CON- AA,CON- AA,INS-RS	1	Collaboration with DG EMPL	This deliverable includes support work performed by the Centre for Research on Impact Evaluation (CRIE). CRIE was established in May 2013 by DG Employment, Social Affairs and Inclusion (DG EMPL) and the Joint Research Centre (JRC).	03/05/2020	Technical Reports
											10	Collaboration with DG BUDG	This deliverable consists of a report aimed at estimating the potential changes in administrative arrangements (staff numbers, contracting modalities, organisational arrangements) according to various scenarios for future budget planning.	31/12/2020	Technical Reports
											2	Research outputs	This deliverable includes research papers in the area of: labour economics, education, health, migration, security, the impact of conflicts and econometric methods. It also includes a series of studies on the impact of interventions on firm performance (productivity, innovation, R&D), impact of regulatory measures on outcomes defined at the regional or local level (regional studies), and further studies on trade, innovation, research policy and econometric methods. All these outcomes of this research will target for publications leading academic journals in the specific fields above mentioned and they will be made available to everyone.	31/12/2020	Journal contributions (Clarivate)
											2019001	Collaboration with DG CNECT	The deliverable will provide support to DG CNECT in the reviewing of the EU roaming rules that entered into force on 15 June 2017.	31/05/2019	Technical Reports
											2020AA35 065006	Collaboration with DG COMP	The deliverable will consist of a report the overall assessment of the experience and a comparative analysis of the quality, strengths and weaknesses of all documents (evaluation plans, interim evaluations, final evaluations) assessed.	31/12/2020	Technical Reports
											3	Workshops and international collaborations	Organisation of events, such as communities of practice, workshops and conferences on data for evaluation and methods (COMPIE2020, Health Econometrics Workshop 2020), with practitioners from the European Commission and Member States. Training on evaluation theory and practice of interest to EC officials and/or Member States authorities and practitioners at large. The training also aims to harmonize the methods used within EU for carrying out evaluations by means of counterfactual impact evaluation approaches	03/05/2020	Training
											4	Ad-hoc support	Cross-cutting activities and services to help the JRC implement its work programme and strategy.	03/05/2020	Technical Reports
											5	Support to RSB on evaluation	Support to the Regulatory Scrutiny Board (RSB) and Central Commission Services on evaluation, monitoring, and data plans. This includes plans for the next MFF post 2020. This activity will support policy DGs to improve their tools for monitoring and evaluation purposes.	03/05/2020	Technical Reports
											6	Data and Management for evaluation	Activities that promote the use of linked administrative data for policy evaluation purposes. This includes support to SG and central services, as well as demo projects and dedicated meetings to foster cooperation on the use of administrative data so as to harmonize data and its use within EU.	03/05/2020	Technical Reports
											7	Training on counterfactual impact evaluation methods	Training on evaluation theory and practice of interest to EC officials and/or Member States authorities and practitioners at large. The training also aims to harmonize the methods used within EU for carrying out evaluations by means of counterfactual impact evaluation approaches.	03/05/2020	Training
8	Support to evaluation for REFIT and the European Semester	Support for the evaluation of structural reforms in the context of the European Semester. This involves network activities to strengthen the evidence base for the Country Specific Recommendations, as well as the demonstration of pilot projects for evaluation of impacts of structural reforms. Support for the evaluation within the REFIT initiatives. This involves providing advice on technical issues associated with ex post evaluation of interventions in line with the "Better regulation for better results - An EU agenda", with a specific focus on REFIT initiatives.	03/05/2020	Technical Reports											
9	ECA mapping data gaps	This deliverable consists of conducting a gap analysis of data collection and management capabilities, following up the recommendation 3 of ECA's Special report No 16/2018: "Ex-post review of EU legislation: a well-established system, but incomplete". In particular, this activity aims at identifying gaps in data availability and data collection procedures within the Commission. The objective is to provide advice on how to collect and (re)use the data required for sound evidence-based ex-post reviews, and implement the corresponding actions best suited to each situation.	30/06/2019	Technical Reports											

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10.1.c Competence Centre on Composite Indicators and Scoreboards - help to develop monitoring and benchmarking tools.															
661 - COIN JRC.1.1	1030 - COIN International Strengthening the JRC International network on Composite Indicators & Scoreboards	The WP includes nine strands of activity: (1) contractual support to DG GROW on the Small Business Act, (2) contractual support to DG REGIO on regional indices and population dynamics, (3) contractual support to DG RTD on Innovation and R&D activities, and institutional work on (4) the development of the ASEM Sustainable Connectivity Monitor (requested by F. Mogherini, collaboration with the European External Action Service and the Foreign Policy Instrument), (5) the Cultural and Creative Cities Monitor (requested by Commissioner T. Navracsics), (6) ad-hoc support to EC and EU services on the revision of indicator frameworks, (7) ad-hoc support to JRC on auditing/advice on indices and scoreboards, (8) ad-hoc support to international organisations and Member States (either directly or indirectly through private organizations) on auditing/advice on indices and scoreboards that are of high relevance to the EU policies, and (9) tools, research activities and capacity building/training to EC officials and Member States (& open to the wider public where applicable) on the development, quality assurance, communication and visualization of composite indicators and scoreboards.	JRC.1.1	10.1.c	JRC SG	GROW, JRC, REGIO	AGRI CLIMA COLLÈGE DIGIT EAC ECFIN EEAS EMPL ENER ENV EPSC ESTAT FPI GROW JRC JUST REGIO RTD TAXUD	- MASSACHUSETTS INSTITUTE OF TECHNOLOGY - Columbia University - Yale University FAO - THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) CEDEFOP - The European Centre for the Development of Vocational Training CU - Cornell University DFI - Development Finance International ECB - European Central Bank EIGE - European Institute for Gender Equality EMCDDA - European Monitoring Centre for Drugs and Drug Addiction HKS - Harvard University (Kennedy School of Government) INSEAD - Institut européen d'administration des affaires ITU - International Telecommunication Union OECD - Organisation for Economic Co-operation and Development (OECD) Oxfam - Oxfam THE EUROPEAN HOUSE - AMBROSETTI - THE EUROPEAN HOUSE - AMBROSETTI UN ECE - UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE UNDP - United Nations Development Programme WB - World Bank WIPO - World Intellectual Property Organization	01/01/2014 31/12/2020	CON-AA, CON-AA, CON-AA, INS-RS	2017013	COIN Explorer Platform Update	Update to the COIN Explorer (beta version 2016), an open access platform to hundreds of indices and scoreboards in use by the EC. The platform provides quick access to the index definition and aims, conceptual framework, underlying indicators, short methodological description, interactive visualisation of results, and related documents where these indices are used and/or support the EU policy formulation and impact assessment.	20/12/2019	Sci information systems and databases
											201901	Small Business Act Principles Scoreboard 2019	The JRC report will describe the development of the SBA thematic indicator and an analysis as to whether an overall index of the ten SBA principles is meaningful. It will include the literature review and the technical steps undertaken to develop the composite indicator(s) and eventually a cluster analysis. The report will also investigate how SBA framework is related to the main indicators that measure countries' economic structural indicators. The basis of the analysis will be the 9 dimensions of the SBA framework as well as the main structural economic indicators on SMEs such as the number of enterprises, the number of employees and the value added. The findings will help to shed light on the inter-linkages between SBA framework on the one side and economic indicators on the other. This work feeds into the European Semester and the country-specific recommendations on Small and Medium Enterprises.	30/10/2019	Technical Reports
											201902	Regional indices and population dynamics	The work will involve the review of main drivers of population dynamics, an empirical analysis of population growth determinants in the EU regions, and long run association between population and economic development. Regional spatial effects will be discussed. The contributing outputs will include a report and a paper to be submitted to a peer-reviewed journal which will present the indicator framework, the methodology employed and the main empirical results. Furthermore, the work includes the developments of regional indices on gender equality and updates to the regional Europe 2020 Index (and by degree of urbanization). This work will be of added value to the LUISA Territorial Modelling Platform (JRC B.3) and to the ex-ante evaluation of Cohesion policies and to the next Cohesion Report.	22/05/2019	Technical Reports
											201903	Statistical analyses and composite indicators in research and innovation 2019	This activity builds on past JRC work carried out between 2011 and 2018 (financed by the Capacities work programme of FP7 and H2020). Aims: (a) to provide statistical support for the development and update of indicators related to science, technology and innovation; (b) to carry out statistical and econometric analysis in order to better understand the nature, needs and determinants of high-growth enterprises, as well as the policy responses and the framework conditions needed to facilitate the growth of companies in innovative sectors; (c) to explore the relationship between inward and outward foreign direct investment flows in R&D and framework conditions such as the tax system/tax incentives (R&D tax incentives in particular).	11/12/2019	Technical Reports
											201904	ASEM Sustainable Connectivity Monitor 2019	The ASEM Sustainable Connectivity Monitor (pilot version presented at the ASEM Summit in October 2018) assesses connectivity between Asian and European members of ASEM from the angle of sustainability. The Monitor supports ASEM discussions on Connectivity, helping to underpin policy formulation, identify gaps and encourage cooperation. It contributes to enhancing the visibility of ASEM and its role as a platform for networking and strategic dialogue between Asia and Europe. This report discusses methodological advances on the development of the index, new key findings and policy implications for the EU-Asian connections.	17/12/2019	Science for Policy reports
											201905	Cultural and Creative Cities Monitor 2019	The report discusses the features and properties of the second release of the Cultural and Creative Cities Monitor. The first version was released on 6/7/2017 by Commissioner Navracsics. It is an evaluation tool that aims at monitoring cultural and creative initiatives at city level in Europe and at assessing the impact of specific culture-oriented initiatives on cities' economic and social development. The tool helps to better prioritise resources and to advocate for building upon one of Europe's key strengths: its talented and diverse creative population, with a focus on smart specialization in terms of cultural and creative activities. The report describes all the steps undertaken for the development of the cultural and creative cities monitor, from the development of the framework, selection of indicators, refinements to the data, inclusion of new data sources including crowdsourced- and web-scraped data, statistical analysis, quality assurance and policy implications.	30/11/2019	Science for Policy reports
											201906	Ad-hoc support to EC and EU services on auditing/advice on indices and scoreboards 2019	Up to 5 fully-fledged statistical audits to be conducted by the JRC-COIN group on indicator frameworks that are currently being developed by policy DGs and EU services (recent examples include: Retail Restrictiveness Indicator (GROW.E4), international indices on trade facilitation (DG TAXUD A.1), Macroeconomic Imbalances Procedure (DG ECFIN.B1), Restrictiveness Index for seven Regulated Professions (DG GROW.E5), European Interoperability Network (DG DIGIT D2), European Skills Index (CEDEFOP), Single Digital Gateway (DG GROW.E3), Indicator framework & Impact Assessment of the EIT, Gender Equality Index (EGEI), Flexible and Secure Markets (DG EMPL.B1).	30/11/2019	Whole parts of policy documents
											201907	Ad-hoc support to JRC units on auditing/advice on indices and scoreboards 2019	This activity groups the JRC-COIN support to JRC units on the quality assurance of indicator frameworks that are used to provide the big picture on multidimensional phenomena (such as fairness, resilience, innovation, social rights).	29/11/2019	Technical Reports
											201908	Ad-hoc support to international organisations on the quality assurance of indicator frameworks for policy monitoring 2019	Up to five fully-fledged statistical audits to be conducted by the JRC-COIN group on indicator frameworks that are currently being developed by international organizations on issues that are of high relevance to EU policies. Recent examples of audits include: Financial Secrecy Index (Tax Justice Network), Social Progress Index (Social Progress Imperative), Gender Index for the SDGs (Equal Measures 2030), ICT Regulatory Tracker (ITU), Natural Resource Index (Natural Resource Governance), Global Innovation Index (WIPO, INSEAD), Global Talent Competitiveness Index (INSEAD)/Global Attractiveness Index (European House Ambrosetti), Global Presence Index (Elcano Royal Institute).	30/11/2019	Whole parts of policy documents
											201909	Tools, trainings and methodological advances on composite indicators and scoreboards 2019	This work groups all the cross-cutting activities undertaken by the JRC-COIN on methodological advances, development of tools and online platforms and training related to indices and scoreboards. More specifically, it includes: the further development and policy analysis of the Social Scoreboard for the European Pillar of Social Rights (flagship activity and key priority for the current Commission), the COIN Tool (Excel based tool that helps "automatically" assesses some of the statistical validity properties and robustness of composite indicators), the COIN Hub (an online inventory of more than 300 indicator frameworks developed by the EU services and international organizations), the COIN Explorer (open data access platform to over 100 indices developed or used by the Commission), the new Handbook on composite indicators and scoreboards (follow up to the 2008 Handbook co-authored with the OECD), fostering the Community of Practice on Composite Indicators and Scoreboards.	20/12/2019	Training
											202001	Statistical analyses and composite indicators in research and innovation 2020	This activity builds on past JRC work carried out between 2011 and 2019 (financed by the Capacities work programme of FP7 and H2020). Aims: (a) to provide statistical support for the development and update of indicators related to science, technology and innovation; (b) to carry out statistical and econometric analysis in order to better understand the nature, needs and determinants of high-growth enterprises, as well as the policy responses and the framework conditions needed to facilitate the growth of companies in innovative sectors; (c) to explore the relationship between inward and outward foreign direct investment flows in R&D and framework conditions such as the tax system/tax incentives (R&D tax incentives in particular).	14/12/2020	Technical Reports
											202002	Sustainable Connectivity Monitor 2020	The ASEM Sustainable Connectivity Monitor (pilot version presented at the ASEM Summit in October 2018) assesses connectivity between Asian and European members of ASEM from the angle of sustainability. The Monitor supports ASEM discussions on Connectivity, helping to underpin policy formulation, identify gaps and encourage cooperation. It contributes to enhancing the visibility of ASEM and its role as a platform for networking and strategic dialogue between Asia and Europe. This report presented methodological advances on the development of the index, key findings and policy implications.	14/12/2020	Science for Policy reports
202003	Cultural and Creative Cities Monitor 2020	The report discusses the features and properties of the second release of the Cultural and Creative Cities Monitor. The first release took place (6/7/2017) by Commissioner Navracsics. It is an evaluation tool that aims at monitoring cultural and creative initiatives at city level in Europe and at assessing the impact of specific culture-oriented initiatives on cities' economic and social development. The tool could help to better prioritise resources and to advocate for building upon one of Europe's key strengths: its talented and diverse creative population, with a focus on smart specialization in terms of cultural and creative activities. The report describes all the steps undertaken for the development of the cultural and creative cities monitor, from the development of the framework, selection of indicators, statistical analysis, quality assurance and policy recommendations.	14/12/2020	Science for Policy reports											

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7653 - ENGAGE JRC.H.1	2880 - JRCXSTS Community of Practice on Citizen Engagement [ENGAGE-COP]	This Wpk implements and maintains the Community of Practice (CoP) on Citizen engagement at the JRC, which is an initiative that helps with rising the transversal feature of the ENGAGE project. The CoP on Citizen Engagement will have a physical and a virtual presence (both in Connected and a dedicated web site). Through the CoP will be embracing all practices (and practitioners) that foster citizen engagement in the co-production of knowledge that informs different steps of the policy cycle. It will be itself a place of experimentation where different methodological and political challenges of deploying citizen engagement practices can be examined. It will, moreover raise awareness, build capacity through trainings on specific engagement methodologies, establish transdisciplinary spaces of collaboration within existing policy projects, contributing to develop a culture of reflexivity and quality assurance that a boundary institution such as the JRC ought to preserve. Ultimately, it will explore the necessary conditions to deliver socially and ethically robust knowledge to underpin policy making in the EU. The CoP on Citizen Engagement will, to start with, involve JRC colleagues but will be gradually extending to other EC services and networks outside European institutions.	JRC.H.1	10.2.a	JRC RTD	JRC	CNECT EMPL GROW RTD SG		01/01/2015 31/12/2020	INS-RS	JRCXSTS1	CoP Annual Activities	In order to implement the CoP, the following outputs are envisaged: 1. Annual meeting of the CoP 2019 2. Trainings available through EULearn 3. Series of invited seminars (Contro--corrente STS talks - at least four seminars per year - 2019 and 2020 - will be organised with renowned scholars and practitioners of science and technology studies and post-normal science. This will be available from the CoP [ENGAGE] website. 4. Delivery of the CoP [ENGAGE] website and Connected pages 5. Conference on Citizen Engagement in 2020 6. PhD thesis on Citizen Engagement in Policy institutions An annual report will collect all annual activities of the CoP on Citizen engagement.	31/12/2020	Technical Reports
											JRCXSTS2	DIY Science and Technology - quality issues	PHD project focusing on frameworks of knowledge assessment in a era where expertise is highly distributed and not confined to traditional systems of knowledge production, as well as received notions of excellence, validity and relevance. The project will examine DIY science, including citizen science, open science formats, maker spaces, etc., in different Member States. The project includes a data-base development of the makerspace movement in Europe as well as social research enquiry.	30/06/2019	PhD thesis
											JRCXSTS3	Heterogeneous engagements - practices and tools guidance	A number of collaborations that deploy STS methodologies, namely heterogeneous engagements and critical review of narratives sustaining policy and action in different domains where science and technology are relevant have been developed with Units: C.5 (WPK Arctic Coop 4915 (Project 4856)) - plan and carry out engagement of the Arctic communities in futuring the governance of their environment and livelihoods; D.2 (WPK H2Ocities Flagship Project WFEFenexus 568) to plan and carry out societal engagement in 2 different case studies (Europe and the Mediterranean) aiming at fostering a debate about governance of the nexus WEF in those regions; F.1 (WPK ToolDev 426 (Project 270) development of guidance on public food procurement for schools based on participatory in schools of 5 MS; F.7 (Flagship Project 'Omics in Society, with a focus on Genomics' 7523) to study narratives and engage societal actors in dialogues about ethics and other social issues.	20/12/2019	JRC technical reports
7761 - CC-FORESIGHT JRC.I.2	3765 - FOR-KNOW Generation of anticipatory knowledge	The objective of this work package is to maintain and update the infrastructure for the foresight work of the unit. In 2019 and 2020, the Megatrends Hub (MT Hub) will be continuously updated and improved. Since beginning of June 2018 the Megatrends Hub is open and hosted on the Knowledge for Policy platform. Based on a request of the JRC senior management, the continuous update of the MT is done in collaboration with the other Directorates of the JRC. The continuous updates are focusing on development and forecasts; potential implications; indicators and relevant European Commission's work. The MT Hubs is also open to updates and relevant insights from external experts. The content of the MT Hubs will be curated in periodic publications. Another objective of this WPK is having the JRC working more systematically with SG (as described in the Better regulation toolbox), to assist policy DGs with system thinking and future-proofing of their policy initiatives. To this aim, the 'megatrends engagement tool' will be further promoted and used with policy DGs to explore policy issues. This workpackage will continue, with the active involvement of the Knowledge Management Units, the Horizon Scanning process that complements the other forms of monitoring that the JRC conducts through observatories and knowledge networks. The aim is to identify emerging issues, weak signals of change and events that might have significant future implications for the EU, but This is an umbrella work package that brings together the design for policy activities of the EU Policy Lab in support of innovation in policymaking and policy delivery. Activities will include testing and experimentation with different tools and methods complementing existing ones and giving more space to the integration of visual oriented and collaborative methods and processes. More	JRC.I.2	10.2.a	JRC	JRC	DEVCO EMPL ENV	OECD - Organisation for Economic Co-operation and Development (OECD)	04/01/2016 31/12/2020	INS-RS	1	Activity Report 2018	The deliverable will outline the methodological approach, selection process and outcomes of the activities carried out in 2018.	30/06/2019	Technical Reports
											11	Activity report 2018	This deliverable will describe and summarise in a report all the activities and outcomes achieved in the context of the workpackage.	15/04/2019	Technical Reports
											201802	design of a proof of concept programme for the western balkans	a regional programme for proof of concept funding will be designed with EIB and the beneficiary countries with a view to its possible launching in 2019	31/12/2019	Technical Reports
											2019001	Annual report 2019 activities	This deliverable will describe and summarise in a report all the activities and outcomes achieved in the context of the workpackage	31/12/2019	Technical Reports
											2020001	Annual report 2020 activities	This deliverable will describe and summarise in a report all the activities and outcomes achieved in the context of the workpackage	31/12/2020	Technical Reports
											21	FTA Conference: how to use foresight insights for present policymaking	The deliverable will consist of the information package in preparation to the FTA Conference that will be organised by JRC. It will contain the results of a number of interviews with experienced policy-makers discussing how (strategic) foresight can be planned, structured and delivered to maximise its use for policy-makers.	30/11/2019	Books
											DP19	Design for policy 2019	Report summarising the activities, the outputs, the outcomes and the learnings of the Design for Policy activities during 2019	02/03/2020	JRC technical reports
761 - SciArt JRC.A.5	4305 - SciArt Art for Science in a policy support context	This work package provides the theoretical foundations for increasing and intensifying collaboration between JRC scientists with artists, social scientists, philosophers and policy makers beyond what has already started to take place within the organisation. Epistemological research will be carried out, with a survey of current practices, in support of the strictly scientific and artistic initiatives of the SciArt project. The epistemological underpinning should allow for developing an improved understanding of the opportunities and benefits of an integrated art and science approach for both science and also for art. A well-founded JRC policy proposal must be the result.	JRC.A.5	10.2.a	JRC	JRC	CNECT COMM EAC RTD		01/01/2016 31/12/2020	INS-RS	201901	2019 Artist-in-Residence Programme	Organise the 2019 edition of the Artist-in-Residence programme, complete with 2018 Report, call for expression of interest, selection and logistics.	31/03/2019	JRC technical reports
											201902	Resonances III - 2019 Edition of the Resonances Festival	Book or catalogue on the 2019 edition of the Resonances Festival on Big Data, based on the results of the Workshop of the 2018 Summer School, complete with events, talks, performances, in a European city to be decided, making it a success, in the summer or early autumn 2019.	31/10/2019	Books and monographs with JRC editorship
781 - MAGIC JRC.H.1	4400 - Nexus-DiSp Nexus Dialogue Space	This Wpk represents the main contribution of the JRC to the project MAGIC even if the JRC contributes to other work packages of the project MAGIC. This work package conceptualises, establishes, implements and manages a Nexus Dialogue Space to be used during the entire duration of the project. This (virtual and physical) space will develop science input to policy using a rich spectrum of actors and competences. Specific objectives are: (i) the formation of mixed teams covering transdisciplinary scientific expertise and European staff working in different offices - DGs, Eurostat, Offices of the European Parliament - this will be done with other WPs of MAGIC; (ii) the formation of a platform of interaction with EU institutions in relation to the activities of MAGIC (broadcasting of briefs, handling feed-back, help-line); (iii) extend the number and the type of social actors involved in knowledge sharing and in quality check of the social robustness of the narratives behind the framing of the nexus; (iv)	JRC.H.1	10.2.a	RTD	RTD	CLIMA CNECT ENER GROW JRC		01/06/2016 31/05/2020	CON-IA	2	LEARNING FROM NEXUS DIALOGUE SPACE	Report on the lessons learned in the interaction with EU administration, expression of interest in participating to the activities of the project, actual commitment and participation, list of mixed teams assigned to the different WPs of the MAGIC project	01/12/2019	JRC technical reports
											3	ROUGH GUIDE TO NEXUS DIALOGUE SPACE	Report on lessons learned in the 4 years of operation of the Nexus Dialogue Space	14/02/2020	JRC technical reports

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7653 - ENGAGE JRC.H.1	4941 - MAKER-TNT Citizen Engagement Collaborative Activities [ENGAGE-COLLAB]	The Wpk implements the following objectives of the ENGAGE project: (1) participatory activities across selected policy areas in which the JRC is active; (2) maintenance of citizen engagement infrastructures. Through selected science for policy files, this Wpk implements in practice the ideas and methodologies of quality assurance of science that informs policy making firmly rooted in the Post-normal Science (PNS) framework and in Science and Technology Studies (STS) scholarship. The Wpk consolidates a strong competence of the JRC on critical thinking using the STS and PNS frameworks and toolboxes applied to science-policy files lead by JRC units or with direct requests from other services of the EC. In relation to the 1st objective, a strong emphasis is put on implementing heterogeneous engagements, including citizen engagement about S&T that is relevant for policy making, as a means to contribute to the social and ethical robustness of the knowledge that informs the relevant policy. By heterogeneous engagements it is meant not only engagement of different actors but also mobilisation and mediation of different types of knowledge to address policy issues. Bringing together different ways of knowing is understood in this Wpk as a matter of quality assurance of policy making by what is called in PNS as "extended peer communities". The 2nd objective focuses on the maintenance of a makerspace at the JRC to be understood as infrastructure to carry out citizen engagements. A makerspace is a physical open space oriented towards community engagement. Typically a makerspace is a space where people gather and share their experience and expertise as well as work on their projects, developing critical thinking about what they develop. Makerspaces are designed to promote active participation, knowledge sharing, citizenship and collaboration of its users through experimentation. The aim of a makerspace at the JRC is primarily to foster citizen engagement activities about science and technology that feeds into the policy cycle. The first development is in Ispra and is placed in the collaborative space to start with, together with a mobile version of the makerspace. This space is open to ALL units of the JRC and will experiment with material and deliberative citizen engagements on a nr. of planned collaborations and demonstrators.	JRC.H.1	10.2.a	CNECT SG	JRC	CLIMA ENV JRC MARE RTD		02/01/2017 31/12/2020	INS-RS	1	Technical Report 2018	This deliverable consists of a technical report analysing the experiment and drawing recommendations for future work in this field.	20/12/2019	Technical Reports
											ENGAGECOLLABS	Citizen Engagement in Science-Policy Guidance: Collaborations and Demonstrators	The following outputs are envisaged to complete the DEL: 1. Citizen Engagement Report from collaboration with WPK Arctic Coop 4915 (JRC.C5) - engagement of the Arctic communities in futuring the governance of their environment and livelihoods; 2. Citizen Engagement Report from collaboration with WPK H2OCities 6440 (JRC.D2) - societal engagement in 2 different case studies (Europe and the Mediterranean) aiming at fostering a debate about governance of the nexus WEF in those regions; 3. Guidance Document from collaboration with WPK ToolDev 426 (JRC.F1) - public food procurement for schools based on participatory in schools of 5 MS; 4. Citizen Engagement Report from collaboration with WPK OMICS (JRC.F7) – engagement of societal actors in dialogues about ethics and other social issues. 5. Report and web platform in the form of rough guidance/portfolium about the application of these frameworks in the context of JRC science for policy practices. 6. Scientific papers 7. Other demonstrators	31/12/2020	Science for Policy reports
											ENGAGEMENTFOOD	Citizen engagement - food in schools	Unit JRC.F.1 is producing a guidance document on public food procurement for schools. An engagement process with all relevant actors will be carried out by DDG1.01 in schools of 5 MS in order to get insights, the expectations and the imaginaries of social actors that will both inform the guidance document and provide the grounds for a communication strategy to address schools.	30/06/2019	Whole parts of policy documents
											MATERIALETHICS	Ethics dialogues based on material deliberation	The makerspace will organise citizen engagement activities to deliberate about ethics for selected techno-scientific developments in collaboration with different Units, namely E.3. (WP 4020 - Project Armour) and B.6 (WP 3826- Citizen Science Platform) on smart sensors and apps to collect environmental data in order to test smart city concepts with regards to ethics; this is developed at request of partnering DGs and agencies of the Environmental Knowledge Community (EKC). Moreover, I.2 will develop engagement activities with A.5 and F.7 using the makerspace "Thinkers 'n' Tinkers" in respectively SciArt collaborations and the OMICS project (7523). Joint reports and papers from these activities will be produced.	20/12/2019	Journal contributions (Clarivate)
5102 - BIs JRC.I.2	5113 - BIs-SUPPORT BIs support and horizontal activity for policy DGs	This WPK brings together complementary support activities in the field of behavioural insights (BIs) for EU policy-making. In the European Commission (EC), BIs are applied at different stages of policy-making, from the conception of policy initiatives to their design and ex-ante impact assessment. BIs activities have spanned a number of policy areas e.g. consumer protection, competition, environment, energy, and health. BIs inform policy-making by offering an empirically-based explanation of human behaviour. This is relevant to policy-making since (a) often the overarching policy objective is behaviour, (b) people's responses are likely to affect the effectiveness of any given policy, and (c) a better understanding of how people can be influenced is needed to effectively protect consumers from unfair marketing practices. This WPK will: - Provide support to EC services wishing to apply BIs to their policy initiatives (i.e. policy DGs as well as other JRC units), in reviewing the existing behavioural evidence, co-drafting calls for proposals, organising workshops and/or seminars, and carrying out ad-hoc behavioural studies to inform potential policy initiatives. - Bring together BIs teams working at Member State level to follow-up previous work documenting the breadth of their activities. Activities will strengthen collaboration with Member States through a	JRC.I.2	10.2.a	JRC	JRC	CLIMA CNECT COMM DIGIT ENER ENV FISM GROW MOVE SANTE SG TAXUD		01/01/2017 31/12/2020	INS-RS	201921	Increase Tax Compliance by signalling conditional cooperation	The study "Increase Tax Compliance by signalling conditional cooperation" is expected to be published on a scientific journal in a field relevant to experimental economics, while the results and conclusions are expected to be communicated to DG TAXUD and Tax authorities of Member States.	13/12/2019	Journal contributions (Scopus)
											201922	Citizens' perceptions on fairness	On top of unit I2's contribution to the 2019 JRC Flagship report on fairness, this deliverable will consist in a stand-alone paper on citizen's perceptions of fairness. This issue is particularly policy-relevant, as subjective perceptions may deviate from objective measures and are the ones contributing to individual wellbeing. The paper will be based on the results of the fairness Eurobarometer and of the behavioural experiment to be carried out in late 2018 – early 2019. Its primary goal will be to provide policy recommendations to increase citizen's perceptions of fairness.	19/12/2019	Journal contributions (Scopus)
											201923	Setting-up and running of a cross-national behavioural trial with national authorities	This deliverable will provide an account of the steps taken towards setting-up a cross-national behavioural trial on tax compliance with national bodies. It will encompass an update on the progress made and lessons learnt (including preliminary results of the field trial, if available).	20/12/2019	Science for Policy reports
											202021	Social Capital under Good and Bad Governance	The study will contain the results of the data collected in 2016-2020 on the study "Social Capital under Good and Bad Governance" and it is expected to be submitted for publication in relevant journal while the results and conclusions will be communicated to DG TAXUD and Tax authorities of Member States.	30/06/2020	Journal contributions (Scopus)
213 - TMA CC JRC.I.3	6370 - TIM analytics TIM analytics	TIM analytics regroups several projects applying text mining techniques to partially-structured datasets relevant for policy. It both contains projects of significant size with planned deliverables and ad-hoc activities that cannot be planned. Significant projects are: TIM Technology (tech/innovation monitoring), TIM Trends (detection of new technologies), TIM Compared (semantic similarity applied to R&D grants), TIM OMICS (visualisation in the field of genomics). Information systems are also developed (TIM Edge, TIM Energy, TIM Cybersecurity). In addition, customized versions of the TIM technology system are implemented for clients through specific agreements or collaborations (see deliverables). TIM analytics is the incubator where new systems, new features, and new services are being explored. It is essential to explore new ways to support policy making in the broad sense and to have the flexibility to react to short term requests. TIM EMA, TIM Fusion, TIM ENV, TIM Science parks, TIM F4E, TIM ESMH(), TIM EDA (Examples of ongoing projects (May 2017): TIM for genomics, applying TIM techniques to the field of genomics (Dir F JRC); ConnectedTIM, applying TIM techniques to monitor flow of information on connected platform (DG and DDG offices); use of TIM for finding JRC strategic partners (DIR A JRC). This wpk contains activities that are hard/impossible to plan ahead. Examples of possible projects for 2018: TIM for RSB, applying TIM techniques to support the Regulatory Scrutiny Board; support to DG COMP (related to competition cases data); support to DG ENV (related to environmental legislation); contribution to the Data4policy project (project 7599).	JRC.I.3	10.2.a	JRC	EA,EP,E P,JRC,RTD	DIGIT ENV RTD	EDA - European Defense Agency EMA - European Medicines Agency (EMA) EP - European Parliament Fusion for Energy - European Joint Undertaking for ITER and the Development of Fusion Energy IMI - Innovative Medicine Initiative - FUEL CELLS AND HYDROGEN JOINT UNDER	01/01/2018 31/12/2020	CON-AA,CON-AA,CON-AA,INS-RS	1	TIM Technology Editor	TIM technology Editor is the TIM application for monitoring of innovation and technological trends. It is accessible to most staff of the EU institutions and relies on data about innovation (sc. literature, patents, grants, ...). The tool is under continuous development.	16/12/2019	Sci information systems and databases
											10	TIM for Science Parks	Project linked to work package 7525 of Unit I.4. This project is under the umbrella of the JRC collaboration with the AREA science park in Trieste. The goal is to develop a customized version of TIM Tech to serve the needs of the Science parks and start-up companies.	11/12/2019	Sci information systems and databases
											11	TIM for EMA	This deliverable is provisional. A customized technology monitoring system may be developed for the European Medicine Agency. This will be formalised in an agreement with EMA.	17/12/2019	Sci information systems and databases
											12	TIM IMI	This deliverable is provisional. A customized technology monitoring system may be developed for the Innovative Medicine Initiative. This will be formalised in an agreement with IMI.	11/12/2019	Sci information systems and databases
											2	TIM OMICS - Visualisation system for genotype-phenotype associations	Context: JRC strategy on "Omics", led by Dir F. Omics technologies, and in particular genomics, are disruptive technologies that will impact significantly the individual's life and society in general and therefore there will be a permanent need for policy makers to have hands-on scientific support in this complex and heterogeneous field. I.3 collaborates with F.7 to develop a system to make associations between genome sequences and individual or population traits. I.3 brings in the project its expertise of text mining and IT engineering.	16/12/2019	Sci information systems and databases
											201901	Report on the contribution to the EU Dual-use and Defence Research Observatory (WPK 5843)	A yearly report will account for the activities performed in support of unit E.7. These support activities include: support for landscape mapping and horizon scanning; technology monitoring support to EU Defence Research Observatory; contribution to Space & Security Landscape; setting up of a Technology innovation monitoring system for security and defence technologies.	31/12/2019	Technical Reports
											3	Activity report on ad-hoc requests	Requests for support or analysis are coming on a regular basis and they are by essence impossible to plan. This support function is key to the competence centre on text mining and analysis. A yearly account of these activities will be produced for TIM under the form of a brief internal report.	16/12/2019	Technical Reports
											4	TIM Trends	Joint projects between I2-I3. Goal: develop new methods/process for detection (weak signals) and monitoring of technologies. Combines qualitative and quantitative methods. This ability is key for the JRC to anticipate technology future and react rapidly to fast moving tech landscape. For TIM this means: develop quantitative methods to detect the emergence of unknown new scientific concepts and trends, new innovations and technologies, and new applications of known technologies or products. This will be done by developing new algorithms to detect weak signals of technological changes. The system TIM EDGE (monitoring of emerging technologies) will be constantly updated with outcomes of qualitative foresight processes run y unit I.2.	18/11/2019	Sci information systems and databases
											6	TIM for European Science Media hub	Technology monitoring system for the European Parliament in the context of the European Science Media hub. TIM system will be used to help debunking fake news in science and fake debates.	23/12/2019	Sci information systems and databases
											7	TIM for European Defence Agency	Technology monitoring system for the European Defence Agency.	16/12/2020	Sci information systems and databases
8	TIM for Fusion Programme	Under the umbrella of an AA with DG RTD. A customized TIM System will integrate data from the fusion programme archive and allow for technology monitoring activities in the field of fusion research.	16/12/2020	Sci information systems and databases											
9	TIM for F4E JU	This deliverable is provisional. A customized technology monitoring system may be developed for the Fusion 4 Energy JU. This will be formalised in an agreement with F4E.	16/12/2019	Sci information systems and databases											
7596 - Resilience4EU JRC.B.1	6434 - ResilCoP Resilience Community of Practice	This work package has two main objectives. The first is to establish and vitalize a JRC-wide Community of Practice on Resilience (CoP), and to connect it to the Commission-wide Research Network on Measuring Resilience (resil-net). The second is to coordinate the work of the various work packages and linked activities of the JRC transversal project on resilience. The purpose of the CoP is to share knowledge and facilitate interaction among different areas of the JRC and policy domains of the EC. It enables the identification of synergies and areas of collaboration, and capitalizes the 360-degree expertise of the JRC. It organizes seminars, internal and external workshops, and maintains an active exchange of information and discussion forum on Connected. It also liaises with relevant international organizations, research institutes and leading academics. Within-JRC links has been established with the following activities (and reflected in the composition	JRC.B.1	10.2.a	JRC	JRC	CLIMA DEVCO EAC ECFIN ECHO EEAS ENER ENV EPSC ESTAT	OECD - Organisation for Economic Co-operation and Development (OECD) UNDP - United Nations Development Programme WB - World Bank	01/01/2018 31/12/2020	INS-UR	Dashboard 1 An EU-wide dashboard of resilience for cities, regions, and countries.	The resilience projects aims to produce a dashboard of resilience characteristics for cities, regions, and countries that can be used by policy makers as a tool for including the resilience dimension in their policy initiatives. Its main intended uses are the following: * A continuous monitoring of the resilience of the society of the EU and its Member States. * An assessment of the intended or unintended impacts of policies on resilience. * Based on such information, the forming of guidance for new policies improving resilience directly or indirectly. This main deliverable builds upon many small sub-deliverables and components: a report on the outcome of linking established JRC activities into the framework, scientific papers, workshops, policy briefs, reviews.	31/12/2020	Science-for-policy reports	

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		of the contributors of this work package): CAS on Population and Migration and on Governance of Human society; resilience of public finances; territorial resilience; education (including higher education), human capital and resilience; transversal project on digital transformation; resilience modeling of critical energy infrastructures; arctic resilience; materials for energy technologies and dual use; the Water-Energy-Food-Ecosystem transversal project; raw materials; ecosystem					FISMA GROW HOME JUST MARE					Resilreport 2	Building a scientific narrative towards a more resilient EU society: a progress report	Extending the first stock-taking exercise of the 2018 Flagship Report on Resilience, this report collects the results of the next wave of JRC work on resilience.	31/12/2019	Science for Policy reports
7596 - Resilience4EU JRC.B.1	6568 - ResilPeople Context specific risk perception and resilience patterns for individuals and communities (urban/non-urban)	It is proposed to study, depending on social, economic and cultural contexts, the place and the role of individuals (in urban/non-urban environments) and inter-dependency relationships with the rest of the society (being communities, local or national authorities) with respect to risk assessment, crisis management and post-crisis evolution/transformation. These interactions affect people's potential vulnerability (and the capacity to anticipate and prioritise), shapes people's resilience to crisis and reflects the way the society is/isn't organized to protect people. This granular analysis should help shaping the policies needed to provide meaningful support to building social resilience and resilient societies. It should help ensuring the appropriation of global measures at local level, and help taking into account local resilience capacities and the associated drivers. The knowledge acquired on strengths and fragilities of individuals and communities could be used to challenge	JRC.E.7	10.2.a	HOME	JRC	CLIMA DEVCO EAC EFCIN ECHO EEAS EMPL ENER ENV EPSC	IFRC - International Federation of Red Cross and Red Crescent Societies (IFRC) OECD - Organisation for Economic Co-operation and Development (OECD) WB - World Bank WHO - World Health Organization	01/01/2018 31/12/2020	INS-UR	WPK6568 PR2	"Enquêtes de terrain sur la perception du risque et la résilience des ménages en Guinée-Bissau" – Implementation of Phase 1 and first results, December 2018; Progress report 2	We set-up a collaboration with the CESA (Centro de Estudos sobre Africa, Asia e American Latina) in Portugal for a two-phase sociological field survey ("Phase 1" in 2018, and "Phase 2" in 2019) of the population from Guinea Bissau, one of the poorest countries on earth. It is a pilot study, centred on risks perception and drivers of fragility at households' level on a daily basis and in the case of exceptional disasters. We mandated the CESA (through a Service Contract signed in June 2018, on a negotiated procedure basis) to run and coordinate all surveys throughout the country in both rural and urban areas according to technical specifications we produced. This deliverable is the progress report 2, reporting on the implementation of Phase 1.	11/01/2019	Technical Reports	
213 - TMA CC JRC.I.3	7662 - TMA CC Support TMA Competence Centre Support	Provide the support as described in the concept note for the Competence Centre as far as not already covered in the EMM and TIM related work packages. This includes institutional support to the EU Agencies, coordination of requests, support to data broker activities, coordination of contract negotiations with external providers.	JRC.I.3	10.2.a	JRC	JRC			01/01/2019 31/12/2020	INS-RS	Support	TMA CC Support	Continued support to the TMA CC user community as described in the TMA CC Concept Note, specifically for the Institutional support to EU Agencies and data broker activities of the CC	31/12/2020	Technical Reports	
											TMATOO S001	TMABOX Release 1	The mandate of the Text Mining and Analysis Competence Centre is to support the analysis of textual information by users across the Commission, through the provision of advanced tools and services, building on the research performed and expertise available at the JRC. To make JRC's expertise more visible and more accessible to the rest of the Commission, and also to build interest in and capacity for text mining and analysis, the TMA-CC will develop and make available tools to support common text mining tasks. Tools will be gradually introduced, to maintain interest in the TMABOX by increasing its functionality, based on user interest. The first tools to be released will include named entity recognition, word frequency analysis.	31/12/2019	Technical systems	
											TMATOO S002	Automated acquisition and analysis of textual EU documents	Acquisition, pre-processing and analysis of selected textual documents like impact assessments, studies, and policy documents in Eurolex, the EU Bookstore, CORDIS, and Pubsy.	30/06/2020	Technical systems	
213 - TMA CC JRC.I.3	7663 - DISINFO Support to the fight against disinformation	Identify techniques and define prototypes conceived to support analysts working on misinformation by extending existing Media Monitoring tools with state of the art technology. Research features of misinformation which could be used to increase the effectiveness and precision of the tools. Identify requirements and constraints and assess business workflows. Prepare integration of prototypes in the main EMM platform. Facilitate collaboration between EU institutions in building capacity to identify misinformation articles and sources.	JRC.I.3	10.2.a	JRC	n/a	CNECT COMM EEAS HOME	EEAS - European External Action Service	01/01/2019 31/12/2020	INS-RS	D1	Quantitative claims extraction and checking.	Building a prototype module to extract quantitative claims from English language news using IE grammars, converting them into a database-like formal representation for querying reference statistical resources and check the truthfulness of the claims with respect of those resources. Explore potential ways of exploiting timelines extraction module to provide background knowledge on claims of interest (e.g., relevant facts/events reported in other news articles gathered over time) for facilitating assessment of the claims by analysts.	30/06/2019	Technical Reports	
											D2	Identify current misinformation messages.	Search social media (Twitter) for most active users that are advertising content from unverified sources. Aggregate and visualize content to analysts for moderation. Improve reference list of unverified sources/messages.	01/06/2019	Technical Reports	
											D3	Extend social media coverage to Facebook (public pages).	Automatic identification of candidate misinformation messages currently being propagated in Facebook. Identification of new misinformation sources (web sites and/or Facebook influencers).	31/12/2019	Technical Reports	
											D4	Classify news articles according to the emotion and values they trigger.	Automatic ranking of single news articles (regardless the topic) as candidates for misinformation. Search news based on emotions or values they try to trigger	31/12/2020	Technical Reports	
											D5	Screen news articles and score title against full text: related/unrelated.	Automatic ranking of single news articles (regardless the topic) as candidates for misinformation.	31/12/2019	Technical Reports	
											D6	Classify news articles according to the emotion and values they trigger.	Automatic ranking of single news articles (regardless the topic) as candidates for misinformation. Search news based on emotions or values they try to trigger.	31/12/2020	Technical Reports	
											D7	Extend social media coverage to YouTube and/or Instagram (based on textual content only).	Automatic identification of candidate misinformation messages currently being propagated in to YouTube and/or Instagram. Identification of new misinformation sources (web sites and/or to YouTube and/or Instagram influencers).	31/12/2020	Technical Reports	
7761 - CC-FORESIGHT JRC.I.2	7705 - FOR-CoP&Tools Advancement of foresight tools & methods, development of	The focus of this workpackage is on the development of innovative foresight tools and processes to explore how future-oriented qualitative and quantitative methods can be better combined to ensure more effective and robust foresight approaches. One objective of this workpackage for 2019 and 2020 is the continuous exploration and experimentation to bridge methods and tools from	JRC.I.2	10.2.a	SG	JRC	AGRI EMPL GROW RTD		02/01/2018 31/12/2020	INS-UR	2019001	Annual report 2019 activities	This deliverable will describe and summarise in a report all the activities and outcomes achieved in the context of the workpackage	31/12/2019	Technical Reports	
											2020001	Annual report 2020 activities	This deliverable will describe and summarise in a report all the activities and outcomes achieved in the context of the workpackage	31/12/2020	Technical Reports	
7761 - CC-FORESIGHT JRC.I.2	7707 - FUTURES Foresight studies and foresight processes on demand	This workpackage will undertake all short and targeted future-oriented policy support activities, and all the longer-term (from 6 to 24 months duration) foresight processes and studies that will be co-designed with and tailored to the needs of policy DGs and carried out in close collaboration with other JRC units. To carry-out these activities the Competence Centre has already at its disposals a number of methods, tools, processes and formats that have been developed either in the context of the EU Policy Lab work or are part of the array of tested foresight methods (eg. trends analysis sessions using the Megatrends Exploration and Analysis tool, development of shared visions and roadmaps, scenarios development and analysis to support priority setting, integration of quantitative or semi-quantitative and qualitative methods). For 2019-2020 the workpackage is envisaging to start a foresight study for DG AGRI on the future of the farming profession in support to the Common Agriculture Policy (CAP). The study will focus on the main future challenges and developments for agriculture and food, (i.e. technological	JRC.I.2	10.2.a	JRC	AGRI,CN ECT,JRC ,TAXUD	AGRI TAXUD	EEA - European Environment Agency	02/01/2019 31/12/2020	CON- AA,CON- AA,CON- AA,INS-RS	1	Distributed Ledger Technologies (DLTs) for Social and Public Good	This report will present policy frameworks and other guidelines for investment, experimentation and further spread of DLTs for social and public good, across identified major policy priority issues affecting governments, public administrations and not-for-profit organisations in the EU (Institutions and Member States) and beyond. This final deliverable is connected to other deliverables as agreed in the AA workflow with DG CNECT: First Interim Report: Literature review, stakeholder mapping, and project webpage (March 2019) Second Interim Report: Review of Support to Accelerator and EIC Prize (March 2020)	30/06/2020	Science for Policy reports	
											2019001	Annual report 2019 activities Description	This deliverable will describe and summarise in a report all the activities and outcomes achieved in the context of the workpackage	31/12/2019	Technical Reports	
											2020001	Annual report 2020	This deliverable will describe and summarise in a report all the activities and outcomes achieved in the context of the workpackage	31/12/2020	Technical Reports	

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5102 - Bls JRC.I.2	7726 - Bls-SPE Bls Specific Support	<p>The application of insights from psychology and behavioural economics to policy analysis has received significant attention by policy-makers around the world. Since 2008, the European Commission (EC) has been a front-runner in using behavioural insights to inform legislation and regulatory policy. Following the path-breaking work of DG Justice and Consumers (JUST) - supported by the JRC - , a number of other DGs (including FISMA, DEVCO, ENER, ENV, MOVE, HR, SANTE and COMM) have decided to incorporate behavioural insights in policymaking. This WKP comprises the work to be carried out - often within Administrative Arrangements (AAs) formalising support by JRC - to various DGs.</p> <p>Information disclosure is an area where building capacity and expertise cannot but benefit our Unit and the JRC, due to the pervasive role that this plays on a number of European interventions, by various DGs, including ENV, ENER, AGRI, MARE, SANTE. In line with this approach, a behavioural experiment will be run on the relative effectiveness of continuous vs. discrete product labelling on consumers' perceptions and choices. This experiment has already received the interest of DG JUST for future product policies.</p>	JRC.I.2	10.2.a	JUST	FISMA, JRC, JUST	AGRI COMM FISMA HR MOVE SANTE		01/01/2019 31/12/2020	CON-AA, CON-AA, CON-AA, INS-RS	201901	Final report on applying behavioural insights to consumer switching of financial products	The final report will encompass the literature review, background, detailed methodology, and data analyses for the lab and online experiments, conclusions and policy recommendations	30/04/2019	JRC technical reports
											201902	Social Biking (2019): Preliminary results and draft of a scientific article	The draft will contain the first results of the data collected in the end of 2018 and will target to the replication of the study in September 2019 and a scientific publication in 2020. As part of this project, the results (HEAT MAPS) will be shared with the cities of member states participating in the study and also with DG MOVE.	01/10/2019	Datasets
											201903	Front of Package Labelling	This deliverable includes: 1) the building of a database and the drafting of a thorough analysis of its content, including a comparison of current front of pack labelling schemes available in the EU, their understanding by consumers and effect on their behaviour, dietary choices and potential health 2) the design and the implementation of an experimental study on the effectiveness of FOPs in shifting consumers' behaviour, with the aim to fill some of the gaps of the existing literature.	20/12/2019	Science for Policy reports
											201904	Behavioural insights to reduce drop-outs and absences in EULEARN trainings	This deliverable includes: 1) a literature review on common practices used in education to increase voluntary and active participation to courses and trainings 2) the design and the implementation of a field study within the EULEARN framework to be complemented with the analysis of EC internal data on EU trainings and their attendance.	30/06/2019	Science for Policy reports
											201905	Product labelling - behavioural evidence	This deliverable will summarise the results of an behavioural experiment designed to test the relative effectiveness of continuous vs. discrete product labelling. Product labelling policies may either be based on continuous labelling (e.g., the EU energy label places products on a continuum for energy performance) or discrete labelling (e.g., the EU organic label and the EU Ecolabel are only granted if a product is particularly performing on environmental impact). This report will contribute to the cross-policy debate regarding the best strategy (continuous vs. discrete) to follow in order to inform consumers and encourage them to choose more sustainable products.	20/12/2019	Science for Policy reports
											201906	Final report on applying behavioural insights to consumer switching of financial products	The final report will encompass the literature review, background, detailed methodology, and data analysis of the lab and online experiments, conclusions and policy recommendations. A toolkit will also be produced.	31/05/2019	Technical Reports
											202001	Social Biking (2020): Scientific publication	Data collected in the period 2018-2020 from S-b challenges will be included in paper which will be submitted to a scientific Journal. Results will be shared again with member states and DG MOVE.	18/12/2020	Journal contributions (Scopus)
402 - EUPolicyLab JRC.I.2	7778 - LAB-EXPLORE EU policy lab exploration	<p>LAB-EXPLORE is intended as the entry point to the EU Policy Lab for new service requests.</p> <p>The key objective with LAB-EXPLORE is to ensure coherence with the strategic direction of the EU</p>	JRC.I.2	10.2.a	HR JRC SG	JRC	DIGIT		02/01/2019 31/12/2020	INS-RS	EPL19	EU Policy Lab 2019	Report on the conceptual and strategic developments of the EU Policy Lab	31/12/2019	Technical Reports
											EPL20	EU Policy Lab 2020	Report on the conceptual and strategic developments of the EU Policy Lab.	31/12/2020	Technical
402 - EUPolicyLab JRC.I.2	7832 - EFFECT EU External Factors From Emerging Countries	<p>The aim of the project is to integrate available data in order to advance policy-relevant knowledge through the interdisciplinary approach about the new emerging powers on global governance scale, that affect human development, economic stability, regional security and geo-political interdependence and anticipating the game changing factors.</p> <p>Through the open exploration possibilities offered by the EU Policy Lab, this work package will directly contribute to the Megatrends nr.1 "Diversifying inequalities", nr.7 "Expanding influence of East and South" and nr.13 "Increasing influence to the new governing systems" through the cross cutting anticipatory knowledge of political, economic, legal, social, cultural and governance system analyses of emerging global actors within the Global South context and anticipating its influence to the Global North.</p> <p>The EU's Global strategy 2016 as well as the New European Consensus for Development 2015 are making explicit reference to the need of "tailoring" development policies and external relations for each country and paying particular attention to the more advanced developing countries and emerging economies. In March 2018 DG DEVCO has suggested six pilot countries (tbc Argentina,</p>	JRC.E.7	10.2.a	DEVCO	JRC	EEAS SG	<p>- Columbia University OECD - Organisation for Economic Co-operation and Development (OECD) WB - World Bank WEF - World Economic Forum</p>	01/01/2019 31/12/2020	INS-RS	1	Game-changing factors	Country profiles will highlight emerging trends for the six pilot advanced developed countries, taking into account possible tailored future bilateral relations. The profiles will look beyond usually used "market" approach and will highlight other criteria that influence country development index. Particular attention will be paid to spatial differentiation and its implication to future of work and sustainable development.	21/12/2020	Technical Reports
											2	Global trends and shifts of power	This science for policy report will highlight emerging global trends and shifts of power that eventually affect EU's relations with developing countries. In particular, it will highlight trends and factor that influence and distinguish Advanced Developing Countries from Middle and Low Income Countries, requiring therefore a differentiated and tailored approach. The report will point to the rising South-South cooperation aspects that will help policy makers to inject new rigour and effectiveness into the ways EU operate with developing countries through Triangular cooperation. Ultimately this new gained knowledge from the SS and SST will enable policy makers to tailor and adjust the full range of EU tools, expertise and resources to the benefit of these countries by providing the added value and focusing on impact and efficiency.	20/12/2019	Science for Policy reports
											3	Methodology for the advanced developed country index development	Based on initial findings from country profiles and global trends, the methodology for emerging country index establishment will be prepared. this methodology would lay the ground for the development of online interactive and automatized system, providing regular updates to policy makers, which will be developed in the next WP cycle.	21/12/2020	Technical Reports
11. A stronger knowledge management capacity															
11.1. Tools and skills for knowledge management															
11.1.a Translation of knowledge into policy - develop new concepts, methods, and skills to support better evidence-informed policy making; facilitate translation of data, information and knowledge into EU policies through: research and training on evidence-for-policy; greater collaboration; improvement of collecting, sharing and sense-making of country, regional and local knowledge; contribute to the development of knowledge management capacity and to its translation in evidence for policy making also outside the EU.															
6820 - JPB4EC JRC.A.1	4460 - JPB4DGENV Environmental Knowledge Community Planning Tool	<p>The objective of the project is the development of an information system, Environment Knowledge Browser (EKB), to support the Environment Knowledge Community (EKC) to set up a joint knowledge planning tool. This is a web based tool, accessible to the EKC and includes the knowledge generation from the agreed work programmes of JRC, EEA, ESTAT, RTD and LIFE</p>	JRC.A.1	11.1.a	ENV	ENV	CLIMA ESTAT RTD	EEA - European Environment Agency	29/03/2016 31/12/2019	CON-AA	201901	Maintenance of the Environment Knowledge Activity Browser	One year Maintenance and bug fixing of the EKAB (Environment Knowledge Activity Browser) system delivered to DG ENV; assisting with importing the work programmes of the Environment Knowledge Community partners for 2019; maintain and update the content for LIFE and Horizon 2020 topics and related projects.	31/12/2019	Technical systems
											5183 - KMHCJRC.F.7	5184 - KMGF-F Knowledge for Health and Consumer Safety	<p>The work package will anticipate knowledge needs, map knowledge gaps, analyse, elaborate and share available knowledge and suggest research topics to be carried out in the JRC in support to EU policies on consumers, food safety and health. While some topics have already been identified as of emerging priorities (e.g. genome editing, big data, artificial intelligence, biological safety, micro- and nanoplastics, chemicals, resistance to vaccination, ...) and will be elaborated in the near future, constant scanning, following meta-analysis and taking into consideration policy demand, available knowledge, feasibility, added value and potential policy impact will allow the early identification of trends and emerging areas of interest/impact.</p> <p>The work package will contribute to strengthen the analysis, elaboration, sharing and proper use of available knowledge via the development and implementation of tools and strategies to improve the mining of interesting knowledge, including horizon scanning.</p>	JRC.F.7	11.1.a
41	Reporting on priority topics and emerging issues	In line with its mandate to serve as knowledge reference for Commission services and EU policy makers and to provide state-of-the-art science and robust evidence base to support the development and implementation of EU policies on Health and Consumer Safety, Unit F.7 will provide briefings, ad-hoc reports and internal and external media communications on priority topics and emerging issues. To accomplish the task, it will also rely on and analyse opinions of external experts that will be consulted on demand.	31/12/2020	Science-for-policy reports											
51	Tools for improved knowledge mining & competence mapping	The deliverable is a set of tools that will be developed and applied to improve the mining and mapping of knowledge related to health and consumer protection derived from public resources including peer-reviewed scientific literature and the so-called "grey literature". Moreover, a prototype version of knowledge mapping of Dir F competencies, based on analysis of peer-reviewed publications, will be further expanded and improved to serve as a point of reference for the competence mapping of the whole JRC. Finally, the deliverable includes the Knowledge Management through Bioinformatics of laboratory data to support activities of Directorate F, like management and maintenance of the Central Core Sequence Information System (CCSIS), analysis of GMO sequence data for DG SANTE and EFSA, update and maintenance of Bioinformatics GMO decision support tools and databases, analysis and management of next generation sequencing data.	31/12/2020	JRC technical reports											
61	Horizon scanning	A series of horizon-scanning policy reports covering innovative developments in health and consumer issues that may be of relevance for policy makers as well as for internal JRC strategy development will be produced. Indeed, these reports will serve as input into the Work Programme and will contribute to the definition of the role of Directorate F in the medium to longer term. The report will include a review of the existing JRC clusters in the area of Health and Consumer Safety and will present options for their future roles.	31/12/2020	Science-for-policy reports											

JRC 2019 - 2020 DETAILED WORK PLAN

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241 - KM-EnU JRC.C.7	5381 - CVN Communication, Visualisation and Networking	<p>Strategic communication is key to the future success of the JRC as noted in the 2030 Strategy, and indeed the Energy Union. It is noted that communication on the Energy Union has been prioritised by the Energy Union Project Team in its recent meeting of May 2017 in Strasbourg. The communication initiatives aim to foster recognition – in both political circles and the wider community- that good energy policy decisions must draw on robust scientific evidence to be impacting on the society and our economy. The key objectives are:</p> <ul style="list-style-type: none"> Develop a stronger Social media and web presence of Dir. C activities in collaboration with the JRC social media & web teamsteam Perform activities defined in the service catalogue for the JRC Knowledge communication network including the harvesting of important content/deliverables and anticipate/plan communication actions using a team of antennas (communication correspondents) in each unit of Dir C Develop visualisation tools, competences, culture and knowledge within both Dir. C, and the JRC Web presence: edit and publish content related to Energy, Transport & Climate on the Science Hub (research topics pages, tools and databases, events etc.) Further develop the SETIS website to serve effectively the implementation of the SET Plan participate in the Web Steering Committee; approve requests for new websites of Dir. C in the Web Registry; Interactive dissemination tools: in collaboration with the scientists, develop new interactive tools for the Visitors Centre and the future Virtual visitor centre. <ul style="list-style-type: none"> Contribute to JRC corporate publications Events management/coordination for high level energy, transport and climate related events <ul style="list-style-type: none"> Connected: act as ambassador for Dir. C and local helpdesk for the directorate Develop innovative science communication excellence related to energy through collaboration with other centers of communication excellence, leading ultimately to the creation of a broader JRC European Science communication network. Develop a community of practise by networking with Commission colleagues through Connected, and in a later phase with Member States, academics and industries. <p>The WPK works closely with H1, H2 and A3 Units of the JRC.</p>	JRC.C.7	11.1.a	JRC	JRC	AGRI CLIMA CNECT ENER GROW IAS MARE MOVE REGIO	EP - European Parliament SET-Plan Com - SET-Plan Community	01/01/2017 31/12/2020	INS-RS	635561	Science communication, synthesis and visualisation development for Knowledge management	<p>Within the remit of science communication and KM visualisation skills, tools, and culture will be advanced within the Directorate and the JRC, together with H1, H2, and other key players within the JRC. a pragmatic user guide for the structured development of visualisation within the JRC will be developed, including an almanac of energy related info graphics and visualisations, issues such as compatibility issues with tools and DG COM guidelines will be addressed together with the web team from H2.</p> <p>An overview of the current state of art of science communication will be produced and a synthesis of relevant issues for the advancement of JRC KM developed</p> <p>Networking will be sought via other centres of expertise. , collaboration and cross fertilisation with other Commission and Parliament initiatives will also be sought. Visualisation tools, procedures, platforms, expertise and knowledge sharing will also be developed within the remit of science communication and knowledge management</p>	31/12/2019	Training
											635563	COCOM Network/JRC Science Hub / Web presence - Dir. C	<p>Within the remit of the COCOM network to ensure and improve promotion and flow of information regarding Dir C and relevant corporate communication initiatives. Content management / development - Update content related to Dir. C research topics, laboratories, news and events, develop new actions to enhance / promote Dir C work via modern web based communication tools. Develop means to structurally monitor Dir C web presence / impact. Develop synthesis for Km , from citizens summaries to policy briefings. This activity will be carried out both in 2019 and 2020.</p>	31/12/2020	Scientific information systems and databases
											635564	Development of an interactive tool to demonstrate how critical materials in energy technologies play a role in the future of EU energy scenarios and the life of citizens	<p>The interactive tool will: Create awareness of the issue of critical materials for energy technologies Audience EU citizens / EU politicians Specifically: <input type="checkbox"/> What is a critical material <input type="checkbox"/> What are the key issues surrounding critical materials in the EU <input type="checkbox"/> Provide concrete examples of the materials, needs, supply etc based on JRC data <input type="checkbox"/> Focus on the issues in electric cars, solar energy, wind turbines <input type="checkbox"/> Provide solutions to the problems <input type="checkbox"/> The tool should be interactive allowing participants to engage and learn Development of a concept and turn key working tool based on the messages provided in</p>	31/10/2019	Technical systems
											635566	Develop KM Communication skills / tools / culture	Develop cross cutting JRC communication tools /culture in collaboration with H2, H1, G10, D6, develop science communication knowledge base and network	31/12/2020	Sci information systems and databases
8636 - KM-P JRC.H.1	6514 - CoRe-KM Country & Regional Knowledge Management	<p>The primary objective of this work package is to make the JRC knowledge with a geographic dimension readily available (also using crowdsourcing methods) to support the knowledge demand and fill the knowledge gaps of policy DGs.</p> <p>With the Commission Country Knowledge initiative, 28 interactive spaces are available in Connected since May 2017 providing a full coverage of all EU MS and allowing sharing all the useful country knowledge, as well as being places where new knowledge needs and gaps can be identified. They aim to be the one-stop-shop to all the country-specific knowledge produced by the Commission on a Member State. The JRC will play a key role in establishing and managing knowledge communities, as well as ensuring that scientific and analytical country knowledge is available in the country spaces. Commission Country Knowledge is therefore also the shop window where all the JRC country knowledge should be showcased, to make sure that all the "hidden jewels" of JRC are easily identified by policy DGs. The big challenge to address is to stimulate, encourage and engage JRC staff to willingly publicise and share their knowledge.</p> <p>Another work strand is the Socio-economic mapping of Europe. Initiated in 2017 and to be continued as an on-going activity through 2019 and 2020, it aims to bring an original perspective and outlook, as well as open new avenues to the analysis of European socio-economic indicators down to the regional (NUTS3) level. It will identify and present the untold stories which can be told using socio-economic data, presenting ratios and, when possible, correlations between socio-economic indicators, building on existing JRC knowledge and outputs in the field.</p> <p>Experiences from Member States and Regions Knowledge Management will be further developed in the Evidence for Policy Centres in Africa. Third objective will therefore aim to establish a permanent network and communities of practitioners for evidence informed policy making in Africa, together with development of tailored-made tools, methodologies and trainings.</p>	JRC.H.1	11.1.a	JRC	JRC	COMM DEVCO GROW SG		01/01/2019 31/12/2020	INS-RS	CCK2019	Commission Country Knowledge 2019	<p>Country Knowledge spaces on Connected, actively used by Commission Staff, with Community Management by DG COMM. In 2019 we will see the follow up and implementation of the activities started in 2018, mainly: the refocus of the Commission Country Knowledge in support of the creation and facilitation of larger community of country "desks" officers in the Commission. In 2019 6 new "desk officers"/communities managers will be trained and engaged in active management of 3 country spaces (in addition to IT and BE). The Country Knowledge "spaces" will be devoted to support the interactions between the community members and will potentially be enhanced at a later stage by the co-existence of repositories of the main Country Knowledge. Country Spaces on Connected will be revised, revamped and reorganised. JRC staff will be encouraged to showcase their geographic knowledge on the respective country spaces.</p>	31/12/2019	Technical systems
											CCK2020	Commission Country Knowledge 2020	<p>Country Knowledge spaces on Connected, actively used by Commission Staff, with Community Management by DG COMM. In 2020 we will see the follow up and implementation of the activities started in 2019, mainly: support in creation and facilitation of larger community of country "desks" officers in the Commission. In 2020 8 new "desk officers"/communities' managers will be trained and engaged in active management of 4 country spaces (in addition to countries supported in 2019 and before). The Country Knowledge "spaces" will be devoted to support the interactions between the community members and will potentially be enhanced at a later stage by the co-existence of repositories of the main Country Knowledge. JRC staff will be continuously encouraged to showcase their geographic knowledge on the respective country spaces.</p>	31/12/2020	Technical systems
											CES2019	'Connected European Semester' project on collaborative working 2019	Roll out of the third phase of the Connected European Semester project on collaborative working - moving beyond the technology which supports collaborative working to focus on processes and culture change. The aim is to improve the effectiveness, efficiency and engagement of the Semester teams.	31/08/2019	Technical Reports
											CES2020	'Connected European Semester' project on collaborative working 2020	Roll out of the fourth phase of the Connected European Semester project on collaborative working - moving beyond the technology which supports collaborative working to focus on processes and culture change. The aim is to improve the effectiveness, efficiency and engagement of the Semester teams.	31/08/2020	Technical Reports
											EPCAfrica2019	Evidence for Policy Centres in Africa 2019	Establishment of operational and more permanent networks and communities of practitioners on use of evidence for policy making across Africa. In 2019 the focus of work will be on the preparation of a thorough Users' Need Analysis based on the results and recommendations of EIPM seminar in Africa in 2018, establishment of consortia with African partners, launch of the Evidence for Policy Centre(s) in Africa and development of capacities of African partners through successful implementation of Train the Trainers seminars. Evidence for Policy Centre(s) would also serve as a meeting point between African experts and JRC KM Units in using and developing more policy-specific skills, policy-relevant reports, briefs and visualisation skills and competences.	31/12/2019	Technical Reports
											EPCAfrica2020	Evidence for Policy Centres in Africa 2020	Work in 2020 will build on activities and results achieved in 2019 and will focus on development and application of place-based and tailor-made tools, methods and trainings for both scientists to better inform policies and for policy makers to better commission and use scientific evidence in Africa. On the other hand the network of included countries and cooperating scientific institutions will increase in both numbers and quality. In 2020 additional attention will be given to management of growing active community of practitioners on evidence informed policy. Through Evidence for Policy Centres in Africa connections and cooperation on thematic/policy-specific skills, policy-relevant reports, briefs and visualisation skills and competences between African experts and JRC KM Units will be further strengthened.	31/12/2020	Technical Reports

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8636 - KM-P JRC.H.1	6881 - SkiTrain Skills and Training	The project aims at implementing the JRC integrated approach to competence mapping and "KM for policy" training, identifying skills needed by scientists and policymakers to cooperate in evidence-informed policy making processes; developing, delivering and/or overseeing specific trainings to this effect. The "KM for policy" activities are centred around the JRC developed Skills Framework for evidence-informed policymaking, a collection of 8 skills clusters for scientists working at the science-policy interface. The 2-day introductory course for JRC scientists will be delivered by a team of external and internal trainers. Further conceptual work on skills for policymakers are being carried out in collaboration with the OECD.	JRC.H.1	11.1.a	JRC	JRC	HR SG	OECD - Organisation for Economic Co-operation and Development (OECD)	01/01/2019 31/12/2020	INS-RS	1	Conceptual work on competence-related aspects of the Skills Framework	In close collaboration with JRC B.4s, a review of the Skills Framework against the Competence Framework (developed by unit B.4) will identify learning and development aspects of the Skills Framework requiring further improvement. The findings will be incorporated in existing and future curricula, hence contributing to the effectiveness of future trainings.	30/10/2019	Training
											2a	Training and capacity building for JRC scientists in evidence and policy in 2019	Training and capacity-building activities contributing to the professionalization of the collective KM for Policy skill set of the JRC. During the year of 2019 around 200-250 JRC scientists will have completed two training courses: 1) the 2-day training of the role of the JRC in EU decision-making; and 2) the 2-day general introductory training for JRC scientists in working with policy-makers. This will not only benefit internal JRC colleagues, but also assisting the broader EC with achieving better evidence-informed policy-making	31/12/2019	Training
											2b	Training and capacity building for JRC scientists in evidence and policy in 2020	Training and capacity-building activities contributing to the professionalization of the collective KM for Policy skill set of the JRC. During the year of 2020 around 200-250 JRC scientists will have completed two training courses: 1) the 2-day training of the role of the JRC in EU decision-making; and 2) the 2-day general introductory training for JRC scientists in working with policy-makers. Following the completion of the in-situ experimentation, pilot training will be given based upon the outcomes of the Enlightenment 2.0 project, hence contributing to further improvement of the collective KM for Policy skillset in the JRC. This will not only benefit internal JRC colleagues, but also assisting the broader EC with achieving better evidence-informed policy-making.	31/12/2020	Training
											3a	Training and capacity building for external scientists and policymakers 2019	In a view to improve the KM for Policy skills of external scientists and policymakers working at the science-policy interface, JRC is co-organising Evidence and Policy summer schools with the participation of around 70 early to mid-career scientists and policymakers. Also, specific clusters of the Skills Framework will be piloted with scientists and policymakers, who are part of the IMAJINE, a H2020 funded project, project partners. At national level, the dedicated Science Meets Parliament project, will produce a training package on evidence-informed policy making. It will be made available to national administrations to be used for the professionalisation of their staff. The training package will be developed and delivered by contractors through ad hoc procurement done by A3.	31/12/2019	Training
											3b	Training and capacity building for external scientists and policymakers 2020	In a view to improve the KM for Policy skills of external scientists and policymakers working at the science-policy interface, JRC is co-organising Evidence and Policy summer schools with the participation of around 70 early to mid-career scientists and policymakers. Also, specific clusters of the Skills Framework will be piloted with scientists and policymakers, who are part of the IMAJINE, a H2020 funded project, project partners. At national level, the dedicated Science Meets Parliament project, will produce a training package on evidence-informed policy making. It will be made available to national administrations to be used for the professionalisation of their staff. The training package will be developed and delivered by contractors through ad hoc procurement done by A3.	31/12/2020	Training
											4a	Curricula development for training and capacity building for EC policy makers in evidence and policy	An assessment of the needs of EC policymakers, will result in the design of a curricula on how to understand, obtain, interrogate and apply evidence in decision-making, including engaging with scientists and knowledge brokers and evaluation of results. The training design will be done in collaboration with DG HR, SG and OECD. This will not only benefit internal JRC colleagues, but also assisting the broader EC with achieving better evidence-informed policy-making.	31/12/2019	Training
											4b	Pilot training for policymakers in evidence and policy in 2020	A joint JRC- OECD training will be organised to pilot the curricula developed under deliverable 4a.	31/12/2020	Training
7674 - DIFIG JRC.B.7	7844 - DIFIG Knowledge based Communication and visualisations for Innovation and Growth	In 2018 Unit B7 has led and/or contributed to several flagship reports and this work is expected to be continued and reinforced in 2019-2020. This WPK will cover the drafting and coordination of a limited number of Flagship reports on cross-cutting issues to support policy making in priority areas responding to key EU policy challenges within the competences of Dir. B. The European Semester policy priorities and knowledge gaps for 2019-2020 will also be taken into account. In addition, the Unit may undertake a deeper analysis of specific topics related to the Future of Education and Work flagship report or the China R&I report to be published by the end of 2018, and will support the preparation of priorities of the next Commission on the basis of this work. The WPK also covers the contributions of Unit B7 to Flagship reports prepared in 2019-2020 by other JRC Dir. B Units and Directorates. Independently from the flagships, an in depth analysis of the impact of JRC socio-economic science research will be carried out. This WPK will develop and oversee a number of tasks and activities to ensure that scientific knowledge and outcomes of Dir. B reach the right audience in the right format and time. Anticipate, plan and develop communication actions in coordination with Dir. A and H, coordinate the production of videos, infographics, interactive tools and the editorial design of selected publications for high-profile deliverables and projects, provide training and support to the use of communication tools, plan and manage JRC Events and Contribute to JRC corporate publications, are some of the foreseen tasks. The project will coordinate and provide input from DIR B to other JRC initiatives on	JRC.B.7	11.1.a	SG	JRC	CNECT EAC ECFIN EMPL ESTAT FISMA GROW REGIO RTD TAXUD TRADE	OECD - Organisation for Economic Co-operation and Development (OECD)	01/01/2019 31/12/2020	INS-RS	012019	A limited number (2-3) of Flagship reports within the competences of Dir. B.	Building on the experience of 2018 the project will draft and coordinate input to 2-3 JRC Flagship reports concerning cross-cutting topics which require the integration and coordination of contributions from different Dir. B units. The tentative topics for the Flagship reports to be led by Dir B in 2019-2020 will be identified through a forthcoming process of consultation involving stakeholders within and outside the JRC.	31/12/2019	Science for Policy reports
											022019	Report on lessons learned from the implementation of the Communication Strategy of Dir B (internal document)	The report will summarise and evaluate the tasks and procedures involved in knowledge dissemination at Dir B. It will build on the procedure developed in 2018 and will review key communication dossiers to extract lessons and identify areas for improvement. The goal of the document is to provide a tool for management to steer and improve the knowledge dissemination function in the directorate. The report will be done in co-operation with Units B1-B6 and input from Unit A3 and Dir. H, to reflect their experiences and incorporate their suggestions	31/12/2019	Technical Reports
											032019	Update and Extend the database and website content focusing on the IT component of the Knowledge Hub on Higher Education (WKP...)	Update/extension of the datastore available from the RIO-PSF website (data, key indicators and visualisations) including visual products to support the deliverables of the Unit. Further population of the data warehouse database with R&I data from primary sources, including those coming from relevant JRC studies as well as Higher Education knowledge tools. Planning of the IT component of the KH i.e. development of mock-ups. Technical support will be delivered by colleagues from unit I5 in Ispra. The Unit A4 of DG RTD will keep providing content for the PSF part. Bimonthly reports of the website usage – production of statistics.	31/12/2019	Sci information systems and databases
11.1.b Knowledge-management methods, tools and processes - develop thematic knowledge mapping capacity and deploy common methods for the acquisition, sharing and communication of knowledge in support of policy-making; further develop existing knowledge communities; provide access to knowledge sources and maximise the dissemination of JRC science results including the open access policy; facilitate communities of practice and promote a culture of knowledge sharing and learning.															
6519 - KM-KS JRC.H.2	5561 - K-Access Access to knowledge resources	The WPK manages the JRC eLibrary including access to bibliographic databases. It implements innovative scientific literature alert services and fosters synergies with "Research family DG" Libraries. It coordinates the JRC contribution to the Open Access strategy in collaboration with RTD. Activities also include managing the open access process for JRC publications and training on the use of bibliographic databases. This WPK also includes managing and maintaining the JRC publications and deliverables repository (PUBSY) and the implementation of the PUBSY simplification strategy. Collaboration with Publication Office for taxonomies and semantic technologies (CELLAR) will continue. The use of ALTMETRICS will be continued for tracing impact of JRC outputs (will link with metrics for impact for policy and with social media).	JRC.H.2	11.1.b	JRC	JRC	OP RTD		01/07/2016 31/12/2020	INS-RS	201901	Seamless access to scientific eResources	Review the library service offer in cost effective ways taking into account budget constraints and consolidate acquisition together with DG EAC and RTD. Finalise and implement the policy for selection of JRC Library acquisitions, created in the previous WP 2017-19.	01/07/2019	Scientific information systems and databases
											201902	Open Access Agreements	Annual report of JRC open access policy. It includes agreements with publishers to streamline and simplify the administrative burden in handling open access articles that until now are handled on individual basis.	31/12/2019	Technical Reports
											201903	Communication of e-Library Services	Plan and implementation of communication of the service of e-library on Connected (by means of presentations in the JRC Directorates). It includes collaborations with other DGs and EAC on a coherent Commission approach for e-library services.	31/12/2019	Training
											201904	PUBSY management and status 2019	Managing and maintaining the JRC publications and deliverables repository (PUBSY). Report on the PUBSY strategy action plan and implementation and PUBSY operations	27/12/2019	Technical Reports
											201905	Application of ALTMETRICS as impact indicator	Report on the use of ALTMETRICS as a measurement of impact of JRC output 2018-2019	31/12/2019	JRC technical reports
											202006	Access to e-resources	Operational continued implementation of the policy for selection of JRC Library acquisitions, on going, reviewed and renewed from the previous WP 2018-19. Includes the review of the cost effectiveness of service offer taking into account budget constraints.	01/07/2020	Sci information systems and databases
											202007	Open Access Agreements 2020	Annual report of JRC open access policy. It includes agreements with publishers to streamline and simplify the administrative burden in handling open access articles that until now are handled on individual basis.	31/12/2020	Sci information systems and databases
											202008	PUBSY Management and status 2020	Annual report on the management and maintenance of the JRC publications and deliverables repository (PUBSY). The report also includes the PUBSY strategy action plan and implementation and PUBSY operations.	27/12/2020	Technical Reports
											202009	Application of ALTMETRICS as impact indicator 2020	Follow up 2020 Report on the statistical use of ALTMETRICS as a measurement of impact of JRC output 2019-2020	30/09/2020	Technical Reports

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6519 - KM-KS JRC.H.2	5562 - K-Diss Corporate events and visitor centre knowledge dissemination	<p>This WPK aims at developing, in cooperation with Directorate A and the JRC thematic Directorates, guidance and support for communicating scientific knowledge for policy. The WPK objective is to support all events of corporate or thematic or global nature, both as JRC events and as JRC participation to global events as well as to program, manage and operate the JRC Visitor Centre.</p> <p>Specifically, activities include: i) managing events in Brussels, Ispra and the JRC, flagship events and coordinating with the vertical KM units the events management process in the other JRC sites; ii) managing the visitor centre and develop new programmes for the expansion of its operations and reach.</p>	JRC.H.2	11.1.b	JRC	JRC			01/07/2016 31/12/2020	INS-RS	201901	Annual report JRC Events Management 2019 and organisation of participation of JRC to external events for corporate visibility 2019	(1) Develop a fully harmonised QA process for JRC events planning management; (2) Coordinate and manage JRC -led events in Brussels, Ispra and the JRC flagship events and coordinate with the vertical KM units the events management process in the other JRC sites (3) annual report on activities and lessons learned. This also includes the organisation of participation of JRC to external events for corporate visibility 2019, which encompasses to (1) Develop, programme and organise incursions in stakeholders events in particular in the context of the EU presidency or the European Parliament (2) Develop participation of global presence to local venues of stakeholders outreach including for examples Science meets regions, (3) Continue a consistent deployment of a dedicated outreach towards science attractiveness via thematic coordination of presence at venues (e.g. ESOF, Researchers nights, etc.) (4) Collaborate to citizen engagement initiatives (with Dir I, unit I2)	30/12/2019	Technical Reports
											201902	Annual report JRC Visitor's Centre 2019	(1) Operate the JRC visitors centre including its extension to "virtual science" promoting virtual lab videos and multi-media content for maximising dissemination to policy DGs, stakeholders and students. (2) Operate and manage the inventory of up to date science multi-media content and story-telling for visitor centre, exhibits and events and deployment of a content management system. Annual report on statistics and lessons learned.	31/12/2019	Technical Reports
											201904	Creation and coordination a dedicated educational school programme 2019	This deliverable aims to enhance students' engagement by launching a proactive collaboration among the JRC and Secondary Schools. This Programme complements existing and ongoing events to showcase JRC activities on the Ispra site.	31/03/2019	Technical Reports
											201905	Design and develop the JRC flagship event 2019	The JRC has a large event every year termed the flagship event . It uses to be the annual conference and for 2018 has become the knowledge week. This will be continued as an H2 coordinated knowledge management action for 2019 under a similar format that may evolve with the feedbacks. The deliverable will consist in the proceedings of the event.	18/12/2019	Technical Reports
											202003	Co-creation of new contents	This deliverable will tackle the co-development of new materials both in digital forms and in physical forms intended to provide a new wave of dedicated thematic materials. It will focus in particular in three branches: 1) the socio economic thematic areas which are currently under-represented in the visitor centre, 2) the development of dedicated materials to support the school programme, and 3) materials enabling a narrative for improved citizen engagement and stronger embedded collaboration with unit I2 and maker space type activities to combine. These developments will serve in particular the school programme and a pilot thematic public programme.	30/06/2020	Technical Reports
											202006	JRC led thematic /corporate events 2020 and organisation and coordination of participation of JRC to external events for corporate visibility 2020	(1) Test and deploy the fully harmonised QA process for JRC events planning and management; (2) Coordinate and manage JRC -led events in Brussels, Ispra and coordinate with the vertical KM units the events management process in the other JRC sites.3) Annual report on activities and lessons learnt. This deliverable represent a yearly average of more than 100-120 events and visits organised to promote the visibility of the JRC work. It will also include the reporting on the organisation and coordination of participation of JRC to external events for corporate visibility 2020,	31/12/2020	Technical Reports
											202007	JRC Visitor's Centre 2020 - Annual report	(1) Operate and manage the inventory of up to date science multi-media content and story-telling for visitor centre, exhibits and events and deployment of a content management system (CMS). (2) Extend uptake of CMS to broader range of JRC products. Disseminate the approach and JRC contents to other DGs (in particular DG COMM) (3) Operate the JRC visitors centre including its extension to "virtual science" promoting virtual products and multi-media contents to maximise dissemination to policy DGs, stakeholders (including museums) and students. Annual report on statistics and lessons learned.	31/12/2020	Technical Reports
											202008	Coordination the dedicated educational school programme 2020	This deliverable aims to enhance students' engagement by launching a proactive collaboration among the JRC and Secondary Schools. This Programme complements existing and ongoing events to showcase JRC activities on the Ispra site.	31/12/2020	Technical Reports
											202009	Flagship event 2020	This H2-coordinated knowledge management action for 2020 may take a special form since it will also be the end of a Commission Cycle. The evolution will respond and evolve according to the feedbacks both internal JRC and external COMM and beyond	25/10/2020	Technical Reports
6519 - KM-KS JRC.H.2	6418 - MRR&SC Mixed Reality for Research and Science Communication	<p>Mixed Reality is the union of Augmented and Virtual Reality. It is widely considered to be a game-changing technology, which redefines ways to communicate information or visualize scientific data. This workpackage recognizes the vast synergies existing across all different uses for Mixed Reality, and endeavours to consolidate an emerging community of practice around the Virtual Reality Laboratory (VRLab) started in Unit E.2 in 2017.</p> <p>As such, the activities carried out under this workpackage will aim at offering a common state of the art Mixed reality platform, encouraging synergies, information sharing and cross-seeding of ideas, in a bid to incubate and develop new innovative ways to benefit scientific work, and define new paradigms to communicate science. In 2019 and 2020, the workpackage will support pilot knowledge management projects such as collaboration with science museums, and will provide innovative solutions for laboratory training in collaboration with directorate F.</p>	JRC.E.2	11.1.b	ENV JRC	ENV,JRC	COMM ECHO		01/01/2018 31/12/2020	CON-AA,INS-UR	D2	On the use of Mixed Reality in support of Research and Science communication in 2019.	This technical report will aim at reporting on how mixed reality impacted scientific and communication activities in the JRC in 2019.	20/12/2019	Technical Reports
											D3	On the use of Mixed Reality in support of Research and Science communication in 2020	This technical report will aim at reporting on how mixed reality impacted scientific and communication activities in the JRC in 2020	18/12/2020	Technical Reports

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8636 - KM-P JRC.H.1	6880 - KP-ConMet Knowledge for Policy: Concepts and Methods	<p>The project aims at developing methods and concepts for increasing the impact of knowledge and evidence on policy.</p> <p>From one side, the work will further JRC's and Commission's understanding of how to best develop, store, share, apply and communicate knowledge while using modern collaborative techniques and tools. From another, the work package will advance the concepts and methods supporting knowledge brokers to operate at the interface of evidence and policy. Key deliverables will contribute to the science of scientific support to policies, including a handbook for scientists and policymakers on how to transmit and apply evidence for better policies.</p> <p>Cutting edge cognitive, behavioural and decision-making research will be applied to understand better how facts, evidence and knowledge interact with values and emotions in the policy process. Throughout this work package a particular attention will be paid to developing networks inside the Commission (knowledge management), in Europe and worldwide (evidence-informed policymaking) to share the acquired knowledge with partners.</p>	JRC.H.1	11.1.b	SG	JRC	COLLÈGE COMM DEVCO EAC ECFIN EPSC ESTAT HR JUST RTD		01/01/2018 31/12/2020	INS-RS	1	KM methodology for the European Commission	Defining and refining the concepts and methods for KM and applying them in a coherent and consistent way throughout EC. The study "Worldclass public policy KM organisations" performed in 2018 has shortlisted about a dozen of organisations, which are considered top-class in terms of concepts, methods or implementation of KM processes. A series of visits to those organisations will be planned with the aim to collect from them stories, lessons learned, new concepts and methods to serve as benchmark and reference for the JRC and the EC in developing its own KM for policy methodology. This works will be very useful for the "One-Stop Shop on Collaboration" (see deliverable 2) to provide consultancy and advices to all DGs of the EC (including the JRC) in terms of KM practice. To build on the relationships with these "world-class" organisations, the JRC will also create and animate a network for continuous exchange and learning, starting with the "best-in-class".	31/12/2020	Technical Reports
											10	Values in a multi-cultural society – Analysis of the narratives about values	Transversal project on the fundamental values of the European Union. Are they challenged by anti-establishment and populist movements? To which extent are they shared by the European citizens? How have they been developing over time? Analysis of the main narratives about values at European and national level. Review of the work of main scholars and intellectuals in the field of European Union values.	31/12/2020	Science for Policy reports
											11	Deliberative platforms	Development of in-house online deliberation platform pilot, informed by the concept and methodology of existing online deliberative platforms like the "MIT Deliberatorium or ChangeMyView". Their main characteristic is a logic instead of time oriented organisation and representation of knowledge. In the context of complex policy problems, deliberative platforms could be used towards more comprehensively exploring the solution space, which often remains partially unknown, carving out arguments, evaluating their quality and coming to decisions.	30/06/2020	Technical Reports
											12	One-stop-shop for scientific knowledge	Database of flagship reports, science to policy briefs, KM tools, skills, and a space to share experiences gained from working together on cross-cutting KM integration projects. This would include the crowd-sourcing within the JRC of science-for-policy briefs on urgent and important policy issues with a scientific dimension.	31/12/2020	Sci information systems and databases
											2	One-stop shop for collaboration and knowledge sharing	Consultancy and support service advising managers and staff on available methods and tools to all Commission DGs and cross-DG working Groups at the Commission, within the context of the Information Management Steering Board (IMSB) Work Programme, 2018-2019. The consultancy service will be in its second year of existence and will integrate all lessons learned from its first year of launch. Depending on the demand, the One-stop shop might need to federate a growing base of 3rd level suppliers and build its own capacity to be able to cope with growing and more complex demands.	31/12/2019	Technical Reports
											3	Evidence mapping pilot project: new KM method for the European Commission	Evidence mapping (also referred to as evidence gap mapping or systematic mapping) is a novel knowledge management for policy method, aimed at systematically collecting robust evidence bases for specific policy topics. The method combines a systematic literature search and stakeholder engagement, to produce a database of policy relevant evidence, critically appraised and summarised, and a visual representation of the results. The pilot project aims to adapt the methodology to the needs and context of the European Commission. H.1 will offer methodological guidance, organise training and liaising with leading experts in the field, in support of evidence mapping work conducted by the collaborating units. The output, after a full cycle of producing evidence maps by the collaborating units, will consist of an internal methodological manual and follow-up consultancy to teams willing to include evidence mapping in their future KM offers to policy DGs.	31/12/2020	Sci information systems and databases
											4	Knowledge Visualisation	Pursuing of capacity building in visualisation of knowledge. Implementation of guidelines and best practice in visual communication of both qualitative and quantitative knowledge/infographics, connected with the work of the data visualisation Working Group within the Data4Policy Initiative. Establish a community of practice within the JRC and the Commission	31/12/2019	Technical Reports
											5	Evidence-Informed Policymaking: Concepts and Networks	Establish the JRC as a leading organisation in the theory and practice of evidence-informed policymaking (EIPM) through advancing EIPM concepts and engaging with major stakeholders on the demand and supply side. Increase of the JRC convening power. Establish & coordinate a network of academic institutions and public sector bodies interested in knowledge and evidence for policy worldwide. Build an EIPM community through systematic outreach at national & EU level, including EIPM events in IT & BE. Establish INGSA- EUROPE Chapter. Connect with relevant Science meets Parliament initiative. Maintain and further develop the on-line community of EIPM practitioners. Organise events and sessions at major conferences to improve our understanding of the knowledge for policy interface & to increase our connectivity with the community of professionals (incl. AAAS2019, ESOF). Support development and piloting of a new methodology for evidence impact evaluation. Share lessons with EIPM community.	31/12/2020	Technical Reports
											6	Cognition, behaviour and decision-making in policymaking	Following the publication of the JRC Flagship Report about the state of the science on cognition, emotion, self-interest, power relations, values and decision-making work in political discourse and relations, in-situ experiments will be designed to understand the key drivers identified in the Flagship Report. The experiments will be carefully designed in conjunction with core services (DG HR, SG) of the Commission and other participating Institutions. Upon completion of the experimental research by end Q2 2019, the JRC will compare and contrast the findings outlined in the Flagship Report to identify how the EU institutional and cultural context impacts decision-making and what this means for skills training, tools and the re-design of processes and procedures.	31/12/2020	Science for Policy reports
											7	'Science and Evidence in the Policy Ecosystem' Handbook	Handbook for scientists, policy makers and other players operating at the science-policy interface, providing JRC-curated and trustworthy advice on how to increase the impact of knowledge on policy, identifying key problems in the current 'post-fact' context of the policy and political worlds, and proposing solutions. It is a follow-up of the JRC 'EU4Facts' Conference. The Work in 2019 will mostly involve coordination with the publisher for the final content and layout. It might involve revisions following the peer-review process.	30/09/2019	Books
8	Cognition, behaviour and decision-making in policymaking	JRC Flagship report about the state of the science on cognition, emotion, self-interest, power relations, values and decision-making work in political discourse and relations. Economics and other aspects of behaviour are excluded. It will be developed jointly with Unit I2 as part of the Enlightenment 2.0 Programme.	30/04/2019	Science for Policy reports											
9	Optimising communication	Support capacity building in data visualisation of knowledge and storytelling techniques. This will benefit internal JRC colleagues as well assisting the broader EC with an improved understanding of our work. External partners, including specifically, major science centres and the ECSITE network will also benefit from clear and targeted communication on JRC science for policy.	31/12/2019	Training											

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6519 - KM-KS JRC.H.2	6900 - Co@Co Connected	<p>This Work Package is a key contribution to the on-going development of a future high quality, user-centric ecosystem of collaboration and connectivity tools which are necessary for the Commission. It will provide Commission processes and staff with an, easy to use, general purpose collaborative working tool. The JRC continues to act as business owner and support the rolling out to other EC DGs.</p> <p>This Work Package also comprises the continuous management of the internal collaboration platform by maintaining an updated homepage and featuring important internal communication initiatives. It entails channelling the two way management communication to staff, facilitating staff engagement with major business processes, e.g. through Digital Assemblies and crowd sourcing ideas, creating new collaborative spaces and tools for easy access and quick to information, as well as supporting Communities of Practice.</p>	JRC.H.2	11.1.b	HR	JRC	BUDG CNECT ENV FISMA GROW NEAR REGIO RTD SG TAXUD		01/07/2016 31/12/2020	INS-RS	201901	Connected@Commission Steering Committee 2019	Operation of the Connected@Commission Steering Committee in collaboration with SG, HR, DIGIT in 2019	31/12/2019	Technical systems
											201902	Connected Commission status report and strategic outlook 2019	Review report and strategic outlook of the Connected@Commission activities	30/06/2020	JRC technical reports
											201903	Connected @JRC status report and outlook 2019	This report provides an overview of the achievements of Connected@JRC based on the past experience, the strategy and the action plan produced in 2017 meant to further improve the collaboration practices and the tool.	31/12/2019	Technical Reports
											202006	Connected @JRC status report and outlook 2020	This report provides an overview of the achievements of Connected@JRC based on the past experience, the strategy and the action plan produced in 2017 meant to further improve the collaboration practices and the tool. It also takes stock of the report 2019.	31/12/2020	Technical Reports
											4	Connected@Commission Steering Committee 2020	Operation of the Connected@Commission Steering Committee in collaboration with SG, HR, DIGIT.	28/12/2020	Technical systems
											7	JRC internal Communication Calendar	Maintain a calendar of JRC internal communications actions in collaborations with AMC8, BC, and by building on the Commission Calendar	31/12/2020	Technical systems
6519 - KM-KS JRC.H.2	7882 - K-MAP Thematic mapping for knowledge sharing and communication	<p>This WPK aims at developing a thematic mapping, new methodologies and new contents encompassing knowledge management and knowledge communication. It will branch on communication contents' gap analysis, but also explore methodological aspects for contents' crowdsourcing, new forms of interactions with stakeholders and outreach. This will include research on knowledge communication best practices and innovations and prioritisation for future developments. It will also focus on a strong underpinning of thematic coordination via knowledge mapping both on knowledge management and its actors within and outside the Commission. A pilot project for mixed Reality for Research and Science Communication will be conducted with JRC E.2 under their project leadership.</p>	JRC.H.2	11.1.b	HR JRC	JRC	COLLÈGE COMM EAC EPSC RTD SG		01/01/2019 31/12/2020	INS-RS	1	Guidance for Knowledge communication impact	Review of innovation in knowledge communication of worldwide best in class to investigate approaches, methodological aspects for contents' crowdsourcing. The report will stem and expand on relevant chapters of the JRC handbook on "science and evidence in the policy ecosystem" as well as from concepts developed for the CAS on new forays in communications, from the WPKs related to data visualisation and storytelling, values and engagement, and metrics. It will focus on defining in a JRC mission context the impacts and success criteria of knowledge communication activities as function of their typology and targets of engagement.	31/07/2019	Technical Reports
											2	Communication contents mapping and prioritisation	Following the launch and dissemination of the new Content Management System (CMS, inventory of communication materials of the JRC), this deliverable will apply the tool to a systematic mapping and identification of new priorities for communication materials both physical and digital. The mapping will combine an intelligence screening of the CMS and stakeholders engagement (CoComs and Scientific directorates) to produce a review and appraisal of the current contents and to support the development of a roadmap for the (co-)creation of new contents. It will draw lessons from the handbook and from deliverable 1. The output will include a prioritisation for new developments and proposal which will both support both the citizen space, new materials for outreach, school programme(s) and stakeholder engagement.	30/11/2019	Technical Reports
											3	Innovative interactive communication approaches with science museums	Following the first pilot and development in 2018 with the science museum in Berlin, this deliverable will further develop and implement the programme on science and museums for 2019 with the Paris- Milan on Big data theme, and for 2020 (theme and collaborations to be defined). This activity will support the capacity building of the JRC in the visualization of knowledge, its narrative, its interactive engagement with the public at large. It will benefit the broader visibility of the work of the JRC in a new format to a wide audience. It will also support the exploitation of innovative technologies such as Virtual and mixed reality in targeted communication of the benefits and value of both the EU Commission and of the JRC work of science for policy.	20/12/2020	Technical Reports
											4	Novel format(s) for JRC exhibitions	This deliverable will tackle a format of cost effective lighter deployment as a next version of the JRC exhibition. It stems from the great success of the pioneering creation of the first large JRC exhibition. It will aim to respond to the success encountered which raised more requests and thus the need of travel more flexibly to different locations in similar modular formats that can adapt to geographical constraints, themes selections, and different target stakeholders or audience. The developments will feed into WPK 5561 K-DISS and serve in particular the deployment of corporate events foreseen for Science meets Parliament and Science meets Regions.	30/03/2019	Technical systems
											5	Mapping of JRC and Commission Actors in Knowledge Management	The implementation of Data, Information and Knowledge Management Communication and in particular one of its flagship initiatives Knowledge Week 2018 organised by the JRC brought to the forefront a number of key Commission initiatives and actors involved in Knowledge Management. Stemming from this, the present deliverable will aim to systematically and comprehensively map JRC and Commission Actors in knowledge management and ensure these resources are easily and widely accessible by all staff. It will have a two-fold objective: function as an organised repository of knowledge but also and most importantly connecting people to people and their knowledge.	30/06/2019	Technical Reports
											6	Competence mapping and people finder tool	This deliverable will expand on the competence mapping and people finder application developed in 2018 and will extend it to scientific outputs of the JRC.	29/02/2020	Technical Reports
											7	Knowledge sharing of Commission studies	This deliverable will report of a fact finding activity and intelligence scenario of what the JRC can do in the centralisation of and mapping of the studies contracted by the European Commission by different DGs.	30/06/2019	Technical Reports
7642 - JRC-ES JRC.B.7	7883 - ES2019 European Semester 2019	Units B7 and H1 joined 14 European Semester Country Teams and take an active part in the elaboration of the corresponding country reports in collaboration with policy DGs. As a knowledge management Unit and through its participation to the Country Teams, B7, working in close collaboration with H1, will anticipate the need for JRC inputs as well as consolidate current inputs in liaison with knowledge production Units. It will also communicate with policy DGs/country team leaders (SG) as regards to the future needs. The B7 direct contribution will focus mainly (but not exclusively) on chapters and sections linked to research, innovation and competitiveness policies	JRC.B.7	11.1.b	SG	JRC	CNECT ECFIN EMPL GROW REGIO RTD		01/01/2019 31/12/2019	INS-RS	Deliverable 1	Lessons learnt on KM (internal report), 2019	A second report aimed to reflect on deepening the JRC involvement in the European Semester (ES) process. To include workflows within JRC and between JRC and policy DGs, the interest and challenge to integrate JRC contributions to the preparation of ES country reports by Commission country teams and identification of new cross-country research questions that could be addressed by JRC in the future. Produced in consultation with ES core DGs (SG, ECFIN, EMPL, GROW) and other JRC units. The analysis will include the methods and content that could be also used in the direct work of the JRC with the Member States through SRSS.	31/05/2019	Technical Reports

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6519 - KM-KS JRC.H.2	8182 - K-DIGICOMM Digital Knowledge Communication and Communities	This WPK aims at developing, optimising and deploying, in cooperation with Directorate A and the JRC thematic Directorates, and their Knowledge Management units and CoCom, guidance and practice for the use of all digital communications of scientific knowledge for policy. The WPK includes the management of JRC digital communications tools and strategies, including web presences and platforms, social media and communities. It also includes the deployment of strategies and guidance for internal communication and communities. It also aims at streamlining, rationalising and coordinating the JRC web presence in support to the different knowledge management activities (including Knowledge Centres, Competence Centres, other knowledge services and communities).	JRC.H.2	11.1.b	JRC	JRC			01/01/2019 31/12/2020	INS-RS	1	Annual report of the JRC on social media	Annual report on the JRC Social Media presence including Facebook, Twitter, LinkedIn, and Youtube to connect with policy-makers and stakeholders, and Research Gate to connect with scientific community. Establish guidelines and training for usage of social media. Develop and implement a strategy for the evolution of the JRC's social media presence which goes until 2019.	31/12/2019	Technical Reports
											2	JRC Web Presence for knowledge services 2019	(1) Coordination and harmonisation of JRC web presence through the management of the JRC Web Registry in order to ensure that web projects reflect a coherent view of JRC's vision and activities, and to ensure that websites are properly managed throughout their entire life cycle and are run at optimal standards and according to the European Commission's standards and rules. (2) Management of the JRC's EU Science Hub and revision of its taxonomy in light of the JRC Strategy 2030 and the JRC's reorganisation. (3) The development of an EC-branded Knowledge for Policy Web Platform, compliant and compatible with the EUROPA web presence. The focus will be on engaging science/policy communities of interest, interfacing science knowledge into policy processes.	30/11/2019	Technical systems
											3	Concept paper on enforcement of digital ambassadorship in the JRC	The new development of the digital ambassadorship enabled by social media as platform will allow scientists to act as active and responsible multipliers. Under an ambassadorship initiative developed within the knowledge communication conceptual framework, a pilot deployment will be tested and its impact measured using new features of pubsy, altmetrics and , and BrandWatch. This will be summarised in an concept paper with relevant statistics towards evaluating further phases.	31/12/2019	Technical Reports
											4	Guidance and coaching for the development of knowledge communities 2019	Communities of Practice (CoP) form an important instrument to reach better sharing and use of data, stimulating cross-organisation collaboration and knowledge sharing in the Commission which are essential to deliver integrated policy work and overcome silo mentalities. Following the publication of a Concept and Practical Guidance for their Management in 2017, a report will examine the development and implementation, hurdles and lessons learned from the created CoPs and will propose further methodology for running and evaluating CoPs. The concept will be further applied to transversal initiatives.	31/12/2019	Technical Reports
											5	Design and guidance of major internal communication campaigns	Design and guidance of major internal communication campaigns subsequently implemented on Connected (as main current internal communication platform) and/or other communication tool or mechanism	30/08/2019	Technical Reports
											6	JRC on social media 2020	Management of the JRC Social Media presence including Facebook, Twitter, LinkedIn, and Youtube to connect with policy-makers and stakeholders, and Research Gate to connect with the scientific community. Ad-hoc guidance and training for usage of social media. Implementation of the strategy for the evolution of the JRC's social media presence (follow up of strategy development in 2019).	31/10/2020	Technical Reports
											7	JRC web presence for knowledge services 2020	(1) Coordination and harmonisation of JRC web presence through the management of the JRC Web Registry (2) Management of the JRC's EU Science Hub (3) Further development/Implementation of the EC-branded Knowledge for Policy Web Platform, compliant and compatible with the EUROPA web presence. The focus will be kept on engaging science/policy communities of interest, interfacing science knowledge into policy processes.	30/11/2020	Technical systems
											8	Digital ambassadorship for scientists as multipliers 2020	A follow up to the pilot will be deployed and its further impact measured to a larger scale using new feature of pubsy and altmetrics. This will be summarised in a mid-term report report towards a full-blown deployment and upscaled trainings.	31/12/2020	Technical Reports
											9	Communities of Practice status report 2020	Communities of Practice (CoP) form an important instrument to reach better sharing and use of data, stimulating cross-organisation collaboration and knowledge sharing in the Commission which are essential to deliver integrated policy work and overcome silo mentalities. Following the publication of a Concept and Practical Guidance for their Management in 2017, a report will examine the development and implementation, hurdles and lessons learned from the creation and running of CoPs The report will include progress on how CoPs and the methodology to implement and evaluate them was applied also to transversal initiatives. The concept will be further applied to transversal initiatives.	31/12/2020	Technical Reports
6519 - KM-KS JRC.H.2	8183 - K-VIS Visual Knowledge Communication	This WPK aims at developing, in cooperation with Directorate A and the JRC thematic Directorates. It includes 1) guidance and practice for visualising scientific knowledge for policy 2) services of the visuals/graphics competence group for the development and management of data visualization requests 3) the provision of a full guidance and publication process for the production of flagship reports 4) development videos and multi-media tools.	JRC.H.2	11.1.b	JRC	JRC			01/01/2019 31/12/2020	INS-RS	1	Visual Communication publications 2019	This deliverable encompasses the visuals/graphics for promotion material, publications, social media, and events as services for both corporate and thematic requests as well as the development and promotion of an inventory of JRC science visualisation products. This deliverable also includes the photo and video materials produced for events, social media, publications etc towards a greater corporate visibility of the JRC.	31/12/2019	Technical Reports
											2	Productions of flagship reports 2019	This deliverable include 1) the consolidated guidelines for the production process and plan timeline templates for flagship reports and 2) the full support services to the production and publication of these reports. For 2019 it will include for 2019 a foreseen contribution to the flagship ten reports (CCAM, Demographic profiles, Resilience, Fairness II, Future education and work, Enlightenment 2.0, Blockchain, Artificial intelligence, China and Cybersecurity). 3) An evaluation ex-post of the production process including lessons learned	31/12/2019	Technical Reports
											3	Production of publications, brochures 2019 (other than flagship reports)	This deliverable reports on the services to scientific and knowledge management directorates of publishing nature.	31/12/2019	Technical Reports
											4	Visual Communication publications 2020	This deliverable encompasses the visuals/graphics for promotion material, publications, social media, and events as services for both corporate and thematic requests as well as the development and promotion of an inventory of JRC science visualisation products; This deliverable includes the photo and video materials produced for events, social media, publications etc towards a greater corporate visibility of the JRC.	31/12/2020	Technical Reports
											5	Production of flagship reports	This deliverable include 1) the guidelines for the production process and plan timeline templates for flagship reports and 2) the full support services to the production and publication of these reports for 2020	31/12/2020	Technical Reports
											6	Production of publications, brochures 2020 (other than flagship reports)	This deliverable reports on the services to scientific and knowledge management directorates of publishing nature for 2020	31/12/2020	Technical Reports

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11.1.c Support the European Commission's data management and exploitation - coordinate the development of an inventory of data assets owned or acquired by different Directorate Generals and the related data catalogue; further develop existing knowledge communities and contribute to their task forces; develop initiatives and an infrastructure to provide solutions for the analysis and visualisation of data as a service to the whole organisation; contribute to the development of corporate policies and guidelines on data management, including data architecture, data licensing and related legal aspects, data dissemination, data analytics, data quality and data security; provide advisory services and training on relevant topics of interest for all European Commission's services.																
7599 - JRC-Data4Policy JRC.I.3	6521 - JRC-D4P JRC-Data4Policy	This work package will carry out activities in support of the new JRC data governance structure and act as a secretariat for the Data Steering Board. The work package will prepare actions plans to endorsed by the Data Committee and the Data Steering Board and ensure coordination among the various activities. In particular it will ensure continuation and maintenance of the JRC Data Catalogue infrastructure and the establishment of a JRC data inventory containing also data that are acquired by the JRC. It will furthermore contribute to the establishment of a commission-wide data inventory. Finally, it will investigate specific aspects of data such as tools for detecting customs fraud and the provision of centralized databases containing information on container movements and on goods entering, leaving and transiting the EU.	JRC.I.3	11.1.c	JRC	JRC	CNECT DIGIT ESTAT OP		01/01/2018 31/12/2020	INS-RS		201801	Support to Regulation 515/97	Regulation (EU) 2015/1525 of 9/11/2015 improved the framework governing the mutual assistance in the area of customs, under Regulation 515/97. It advances the tools for detecting customs fraud and provides for the creation of centralized databases containing information on container movements and on goods entering, leaving and transiting the EU. By 2020 infrastructures for data acquisition and analysis should be in place. The preparation in OLAF and TAXUD is ongoing, but the existing analytical tools need to be scaled to the much larger volumes of data and adapted for addressing new complex pattern observed in import/export declarations. Data4policy project will work in synergy and complement SITAF-ST WKP 3365-AMT5 Phase 2 by studying the new patterns and methods for their detection. AMT5 Phase 2 will assess applicability of the new methods in operational contexts and produce statistics based on the new data for dissemination to MS Customs and relevant EC services.	15/12/2019	Scientific information systems and databases
												20191	JRC Data Catalogue infrastructure	Maintenance and update of the JRC Data Catalogue infrastructure. The catalogue infrastructure supports the description and publication of metadata of the data resources of JRC directorates. It further provides metadata for the EU Open Data Portal and potentially for other initiatives of the Commission. The catalogue infrastructure supports the JRC Data Policy implementation.	10/12/2019	Sci information systems and databases
												20192	JRC data inventory	While the JRC Data Catalogue infrastructure has been designed for JRC produced data it has become evident that an inventory of data acquired by the JRC is necessary. This inventory will be developed in particular taking into considerations coming from the design of a data acquisition workflow. The JRC Data Inventory will support the data acquisition workflow and the JRC Data Policy implementation. In addition the experiences with the JRC data inventory will provide input to the design and implementation of a commission-wide data inventory.	10/12/2019	Sci information systems and databases
												20193	Commission-wide data inventory	Establish an inventory of the data assets owned or acquired by different DGs, which will be part of a new Commission Data Catalogue. The experiences with the JRC data inventory will provide input to the design and implementation the commission-wide data inventory.	16/12/2019	Technical systems
												20201	JRC Data Catalogue infrastructure	Maintenance and update of the JRC Data Catalogue infrastructure which also includes the JRC Data Inventory. The catalogue infrastructure supports the description and publication of metadata of the data resources of JRC directorates including data from 3rd parties. It further provides metadata for the EU Open Data Portal and potentially for other initiatives of the Commission. The catalogue infrastructure supports the JRC Data Policy implementation.	15/12/2020	Sci information systems and databases
11.2. Intellectual property rights																
11.2.a Intellectual property rights - manage the JRC's and the Commission's portfolio of property rights; advise and assist the Commission on intellectual property matters; increase awareness of intellectual property rights within the Commission and in the European Parliament.																
430 - CIPS JRC.I.4	5860 - DG AGR12 New trade mark filings quality symbols DG AGR1	New trade mark filings quality symbols DG AGR1	JRC.I.4	11.2.a	AGRI	n/a			01/01/2017 30/06/2020	n/a	n/a	n/a	n/a	n/a	n/a	
430 - CIPS JRC.I.4	7502 - CIPS - IP Management Central IP Service - IP Management	The aim of this project is to implement and maintain proper IP management in the European Commission, which should aim to facilitate further use of EU owned IP assets and to ensure IP compliant use of third party owned IP by Commission staff. Five main IPR management activities can be distinguished. These are: (1) provision of IP legal advice to JRC and other Commission staff, (2) raising awareness on legal IP issues with JRC and other Commission staff, (3) registration of trademarks, designs and patents and management of the EU portfolio of (registered) IP rights, (4) transfer of knowledge (exploitation or dissemination) resulting from (research) results involving IP rights, and (5) Provision of legal advice in relation to any Commission policy having an IP or IP related dimension.	JRC.I.4	11.2.a	SG	AGRI,AGRI,EP,JC,C,JRC	AGRI, BUDG, CDP-OSP, CLIMA, CNECT, COLLÈGE, COMM, COMP, DEVCO, DGT, DIGIT, EAC, ECFIN, ECHO, EMPL, ENER, ENV		01/01/2019 31/12/2021	CON-AA,CON-AA,CON-AA,CON-AA,INS-RS	1	Yearly activity report	The yearly activity report contains an overview of all activities of unit I.4.	15/01/2020	JRC technical	
											2	Galileo IP, activity report on AA with DG GROW	This report will contain an overview of the activities carried out under this AA.	16/05/2019	Technical Reports	
											2018001	Trade Mark registrations	Registration of the quality symbols as trade marks in in Norway, Ukraine, Turkey, Morocco, Colombia, Brazil, India, Vietnam and Taiwan	30/06/2020	JRC technical reports	
											3	Application & registration of PGI, PDO and TSG, activity report on AA with DG AGR1	This report will contain an overview of the activities carried out under this AA.	31/12/2019	Technical Reports	
											4	EP IP, activity report under the AA with EP	This report will contain an overview of the activities carried out under this AA.	31/12/2021	Technical Reports	
5	IP Asset tool	In order to properly manage the IP assets an IT tool must be developed.	30/04/2019	Sci information systems and databases												