

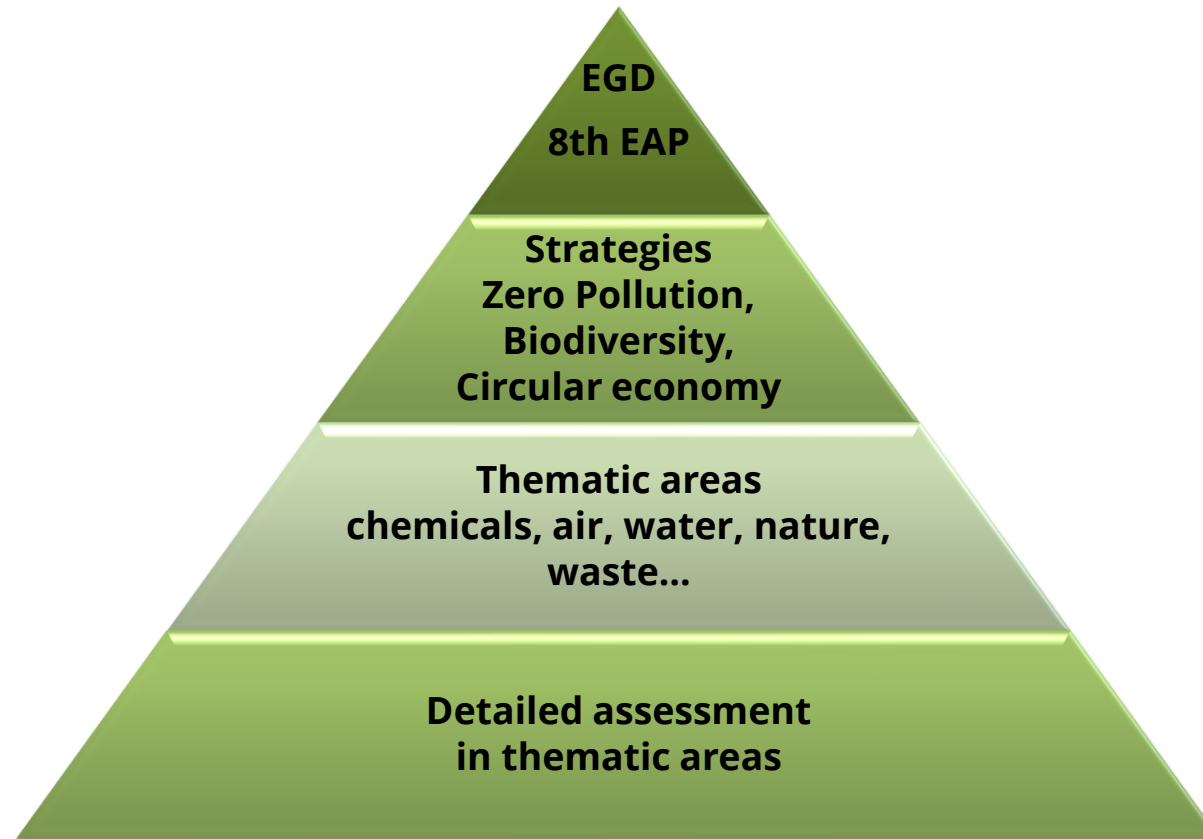
Ian Marnane



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Zero Pollution Monitoring

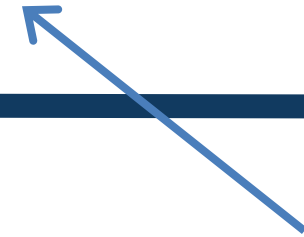
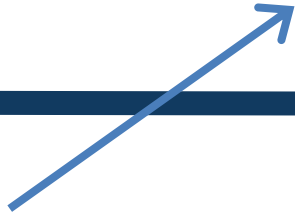
Policy hierarchy...



8th EAP targets and headline indicators on zero pollution (*draft for stakeholder consultations*)

- Clean air/biodiversity impacts from air pollution: Reduction by 25% by 2030 [ZPAP] Indicator: Critical load exceedance for nitrogen
- Toxic-free environment: Protect citizens' health and the environment from hazardous chemicals Indicator: Hazardous chemicals
- Clean water: Reduce nutrient losses by at least 50% [BDS and F2F] Indicator: Nitrates in groundwater
- Marine pollution: Reduce by 50% plastic litter at sea and by 30% microplastics released into the environment [ZPAP] Indicator: Coastal macro litter
- **Healthy soils: Ensure healthy soils (*indicator not defined yet; possibly a combined soil quality indicator*)**

Towards Zero Pollution for Air, Water and Soil



synergy with other relevant European Green Deal initiatives

e.g. pesticides reduction target in the Farm to Fork Strategy, biodiversity strategy, etc..

EU Action Plan: “Towards a Zero Pollution Ambition for Air, Water and Soil” (ZPA)

Chemicals Strategy for Sustainability (CSS)

COM(2020) 667 final

Monitoring and outlook framework

2022: 1st Zero Pollution Monitoring and Outlook

- Zero Pollution Monitoring Report (all themes incl. soil) (lead: EEA)
- Zero Pollution Outlook Report (Lead: JRC)

Framework of indicators to monitor **drivers and impacts of chemicals pollution**

ZPA headline indicators - focus soil

B. Indicators on impact/harm Impacts of (soil) pollution on human health
Impacts of (soil) pollution on biodiversity and ecosystems

C. Pressures: hazardous chemicals, agricultural fertilizer, pesticides, industry

D. Headline indicators for regular assessments

- Impacts on biodiversity and ecosystems

Soil pollution (local) Number of contaminated sites and progress in the management of contaminated sites EEA (LSI003)

Soil pollution Soil indicators of metals, antibiotics and pesticides, nutrients

D. Indicators to be developed

Soil genomics indicator to assess impact of pollution on microorganisms

Soil pollution and health

Soil pesticide indicator

LIS003 Indicator

INDICATOR ASSESSMENT

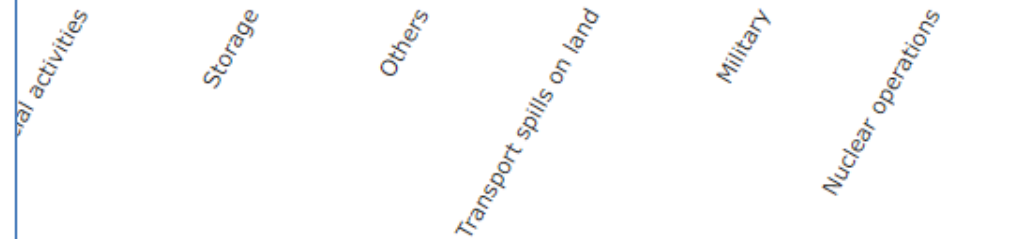
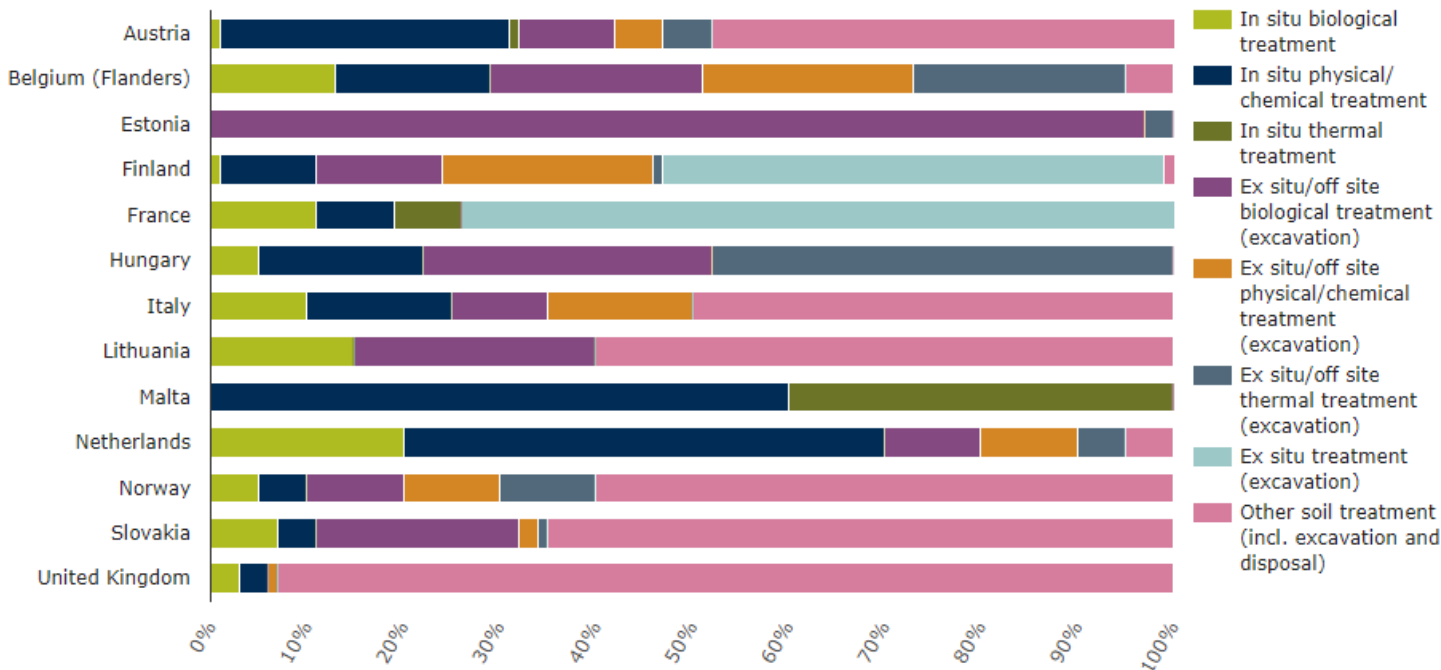
Progress in management of contaminated sites

Local soil contamination in 2011 was estimated at 2.5 million potentially contaminated sites in the EEA-39, of which about 45 % have been identified to date. About one third of an estimated total of 342 000 contaminated sites in the EEA-39 have already been identified and about 45 % of these 342 000 sites have been

45%
40%
35%
30%

Sources of Soil Contamination

Chart — Most frequently applied remediation techniques for contaminated soil



Updating indicator LSI003 on contaminated sites

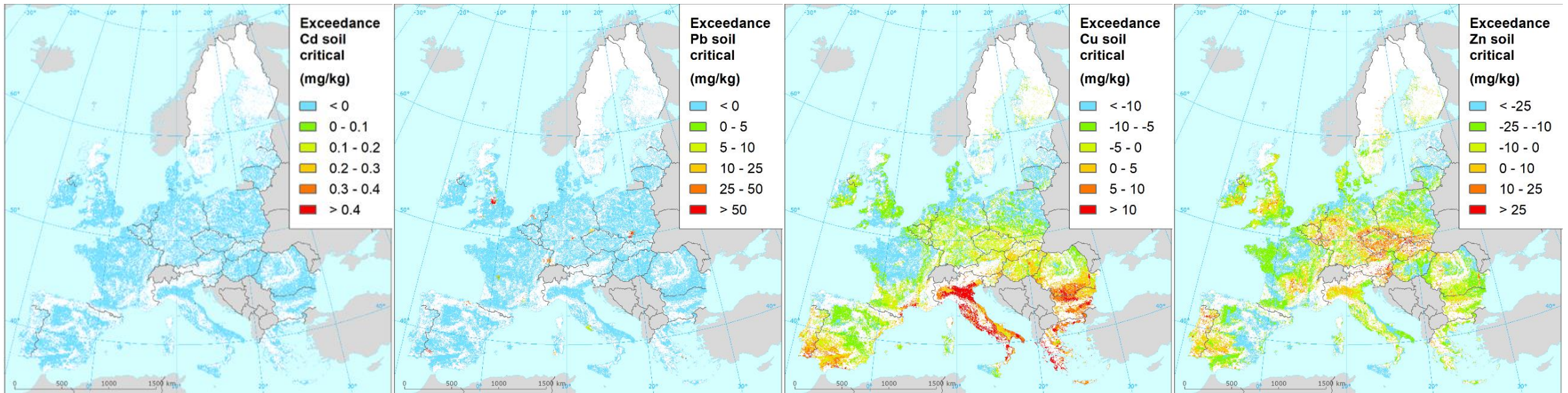
(→ see also presentation Frank Swartjes)

- Indicator *LSI003* is the only EU-wide (+neighbors, EEA-38) repository of information about contaminated sites
- The current indicator (last update 2014 based on 2011 EIONET questionnaire) can be somewhat updated based on the 2016 questionnaire (reported JRC 2018). **This update requires a last check by the National Reference Centres Soil (NRC Soil), foreseen to be implemented by end of 2021.**
- Expanded policy needs under ZPA and CSS: LSI003 requires improvement of its concept and content, based on regular and systematic sharing of national statistics – to make the indicator a full monitoring instrument (polluting activities, substances)
- It is currently envisaged to develop a technical repository for LSI 003 statistics and metadata in the context of the new EIONET communication platform.

Examples of work on diffuse pollution by the European Topic Centre on Urban, Land and Soil Systems (ETC/ULS)

Critical reactive metal concentrations as a function of soil organic matter content (SOM) and pH (De Vries et al. 2021, draft, final revision ongoing)

Ecosystem is at risk if [actual soil content > critical soil content]



Towards an integrated pollution assessment

Integrated Zero Pollution Monitoring and Outlook Framework

- integrate the monitoring of different types of pollution and assess their health, environmental, economic and social **impacts**
- as part of the wider 8th Environment Action Programme (EAP) monitoring
- EEA will develop a 'European Environment and Health Atlas' which can also subsequently feed into the 'European Climate and Health Observatory
- Zero Pollution Outlook will analyse synergies and trade-offs between different EU policies, help translate 'early warnings' into recommendations on pollutants of increasing concern based on the latest research finding
- 1st integrated ZPA assessment: 2022

Status and Outlook of the European Environment SOER 2020 – themes related to pollution

Air Pollution	Past trends (10-15 years)	Outlooks 2030
Emissions of air pollutants	Trends show a mixed picture	Developments show a mixed picture
Concentrations of air pollutants	Improving trends dominate	
Air pollution impacts on human health and wellbeing	Improving trends dominate	
Air pollution and impacts on ecosystems	Trends show a mixed picture	
Chemical Pollution		
Emissions of chemicals	Trends show a mixed picture	Deteriorating developments dominate
Impacts of chemical pollution on ecosystems		
Chemical pollution and risk to human health and well-being		
Industrial Pollution		
Pollutant emissions from industry	Improving trends dominate	Developments show a mixed picture
Clean industrial technologies and processes		
Freshwater		
Pollution pressures on water and links to human health	Developments show a mixed picture	Developments show a mixed picture
Land and Soil		
Soil condition	Deteriorating trends dominate	Deteriorating developments dominate

EEA indicators

Indicators

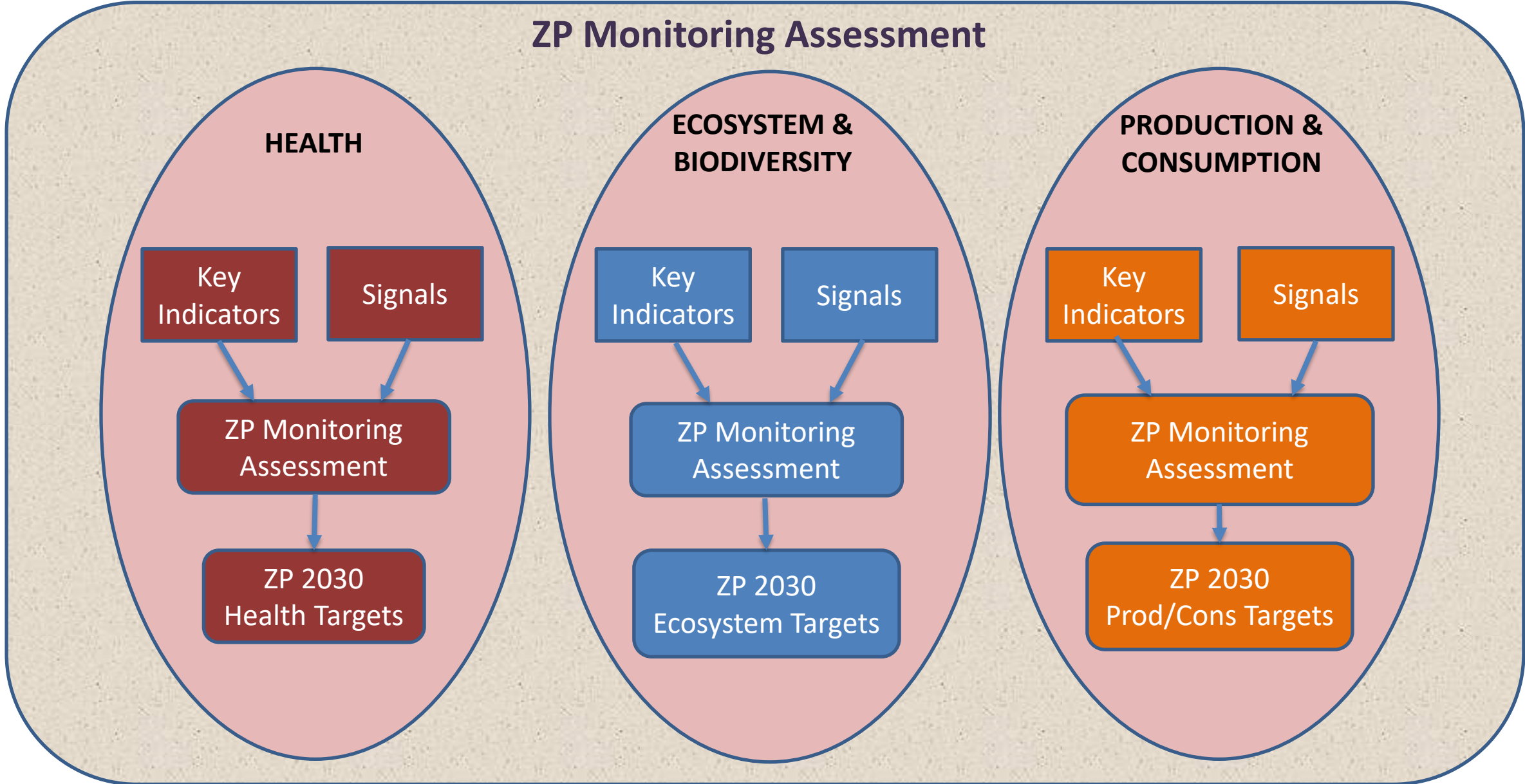
Air quality: emissions of pollutants
Industry: pollutant release (acidifying substances, NO_x/NH₃, SO₂, HM emissions, POP emissions)
Water: nutrients, urban wastewater, hazardous substances, emission intensities, pesticides in water
Soil: contaminated sites (**LSI003**)

Policies

Directive 2016/2284 (NEC Directive, Art. 9, Annex V, national networks of monitoring sites for sensitive ecosystems (**incl. soils**)
Dangerous substances (96/98 EC, "Seveso") Activities (IPPC/IED): ePRTR (**incl. emissions on land**)
Water Framework Directive (2000/60/EC)
National soil protection policies, EU Soil Strategy, Mercury Regulation; Road Map for a Resource Efficient Europe (remediation, no net land take)

Discussion: links between indicators into a system of state and impact of pollution; gaps - various polluting activities not covered by policies; response to the **Green Deal**

Potential Structure of ZP Monitoring assessment, centred around 3 key elements



Overview of Timeline

December 2021

- Agree on indicators, 'signals' and product

January 2022

- Gather relevant data and draft supporting text

July 2022

- Draft ZP monitoring assessment ready for submission to DG ENV

Summer 2022

- Update to any indicators finalised since July 2022 and inclusion in updated draft

Autumn 2022

- Finalise and publish EEA Zero Pollution Monitoring Assessment



Key messages

- A zero pollution indicator system has been drafted, mapping into the 8th EAP headline indicators
- Various indicators on soil (and others) are not yet defined, nor mapped with national or EU wide data sets
- EEA will develop an integrated ZPA monitoring assessment 2021/2022, relying on input from JRC, EIONET and other experts (case studies) to properly reflect soil; *JRC will conduct a Clean Soil Outlook*. Both assessments (together with other theme-specific outlooks and a DG ENV Foresight assessment) will become key elements of a ZPA monitoring and outlook assessment (lead: DG ENV).