

AFRETEP

The African Renewable Energy Technology Platform

AFRETEP

AFRETEP built a network with 43 African and 26 European countries, with over 800 members, and partnerships with ministries, universities and research centres.

Further reading and info:

«Renewable energies in Africa – Current knowledge»

«The availability of renewable energies in a changing Africa»

<http://iet.jrc.ec.europa.eu/remea/publications/scientific-reports>

African Renewable Energies activities

<http://iet.jrc.ec.europa.eu/remea/african-renewable-energies>

Photovoltaics Geographical Information System:

<http://re.jrc.ec.europa.eu/pvgis>

RE²nAF: The tool for off-grid electricity production options in Africa

<http://re.jrc.ec.europa.eu/re2naf.html>

Join the African and Renewable Energy Platform on:

www.afretep.net

Contact:

Sandor Szabó
E. Fermi 2749, 21027 Ispra (VA) Italy
European Commission • JRC
IET – Renewable Energy



The main goal of the African Renewable Energy Technology Platform (AFRETEP) is to contribute to understand the potential for renewable energy options in Africa for increased access to electrification in rural areas.

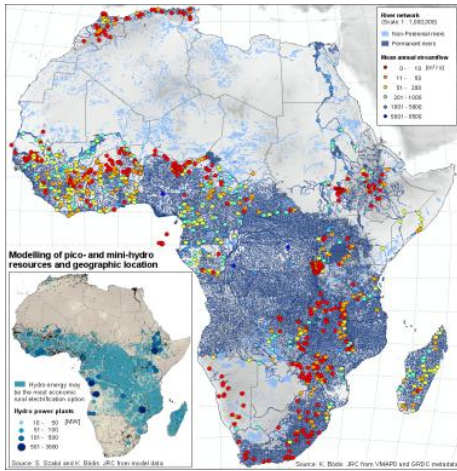
With its workshops, hands-on sessions, field visits and real case studies AFRETEP builds up capacity. The AFRETEP partners create and share knowledge on African renewable energy sources by evaluating needs, assessing renewable energy resources potential and comparing options.

Hydro and mini-hydro resources

AFRETEP first gathers information on the permanent (figure 1, next page in dark blue) and non-permanent (figure 1, in light blue) river network, and adds public data on the typical annual discharge [m^3/s].

Then it models the energy potential production from the available resource, taking into account the river regime, topography, distance to demand, etc. Finally it locates existing power plants (fig. 1, next page, dots proportional to capacity), compares electricity production costs with other rural electrification options, and highlights areas (figure 1, detail map, in blue) where mini-hydro is, in theory, the cheapest.

AFRETEP concluded that hydro resource based electricity constitutes the cheapest option in vast areas in Africa and that 30% of Africa's population lives in these areas. Figure 1.

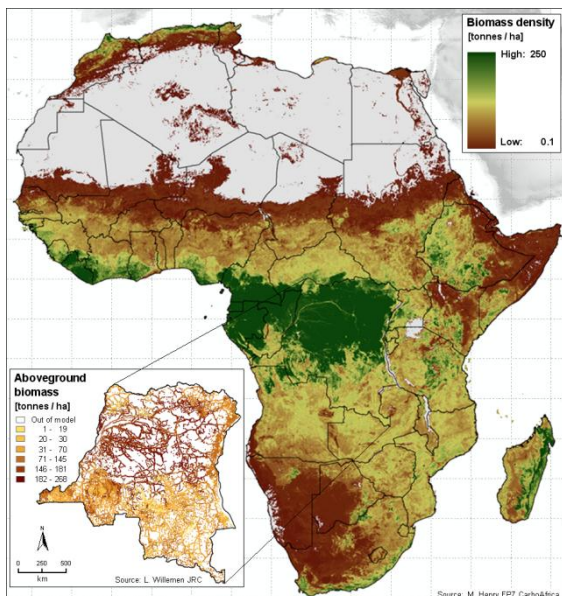


Energy from biomass

Bioenergy is an opportunity as it currently provides the greatest part of primary energy in Africa. Social and environmental sustainability, however, must be ensured. Current land/forest productivity and future biomass production and availability are the factors that influence Africa's biomass energy potential.

Efficient transformation of biomass into energy strongly relies on accessibility and efficient mobilisation of the raw material. Distance of biomass from a road network is therefore a critical factor. AFRETEP maps where the biomass energy potential lies in Africa.

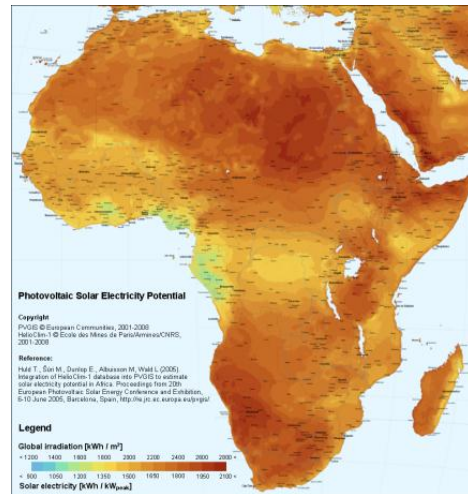
The map shows biomass density (both woody and agricultural), expressed in tones/ha and a detail on biomass density in the area not farther than 5 km from the road in the Democratic Republic of the Congo.



Solar resources

On average, the same photovoltaic panel can produce twice as much electricity in Africa as in Central Europe. Photovoltaic panels are now cheaper than conventional electricity sources in many parts of Africa and can provide electricity for rural areas without damaging the climate. AFRETEP maps and assesses the solar potential in Africa.

The map shows the yearly average of daily total of global radiation on an optimally inclined surface. The same scale also represents the potential production of solar electricity for each kW_{peak} installed for a photovoltaic system with a performance ratio of 0.75.



Mapping electrification costs

The following map shows a comparison between diesel and PV generated electricity in a rural context. The blue color identifies areas where diesel production is less expensive, considering 2009 prices and subsidies. PV electricity production is cheaper in red, orange and yellow areas.

