

Joint Research Centre (JRC)



IE - Institute for Energy

REU - Renewable Energy Unit

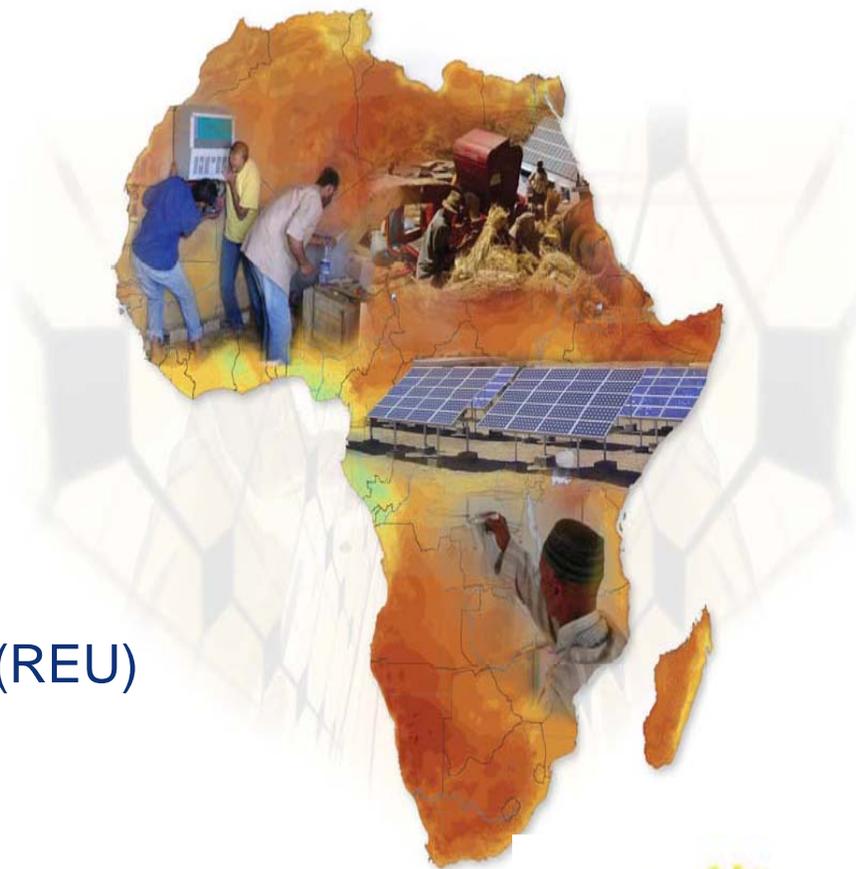
Ispra - Italy

<http://ie.jrc.ec.europa.eu/>

http://re.jrc.ec.europa.eu/esti/index_en.htm

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

- Project:** Scientific and Technical Support to Sustainable Energy Development in Africa: Rural Electrification, Renewable Energy and Communication
- Funded by:** European Commission, EuropeAid Co-operation Office
- Implementing body:** European Commission - Joint Research Centre, Institute for Energy, Renewable Energy Unit (REU)
- Starting date:** August 2009
- Duration:** 3 years



- Overall objective: to contribute to understand the potential for renewable energy options in Africa for increased access to electrification in rural areas.
- Project's purpose: to develop a common African scientific approach towards evaluating rural electrification methodologies.

Total Population	Population Without Access to the grid
North Africa 153·MM·(in·2005)·[1]	7·MM· (8%·rural,·1%·urban)
Sub-Saharan Africa 777·MM·(in·2008)·[1]	561·MM· (89%·rural,·46%·urban)

REN-21, <http://www.ren21.net/>·World·Energy·Outlook·2009-IEA·

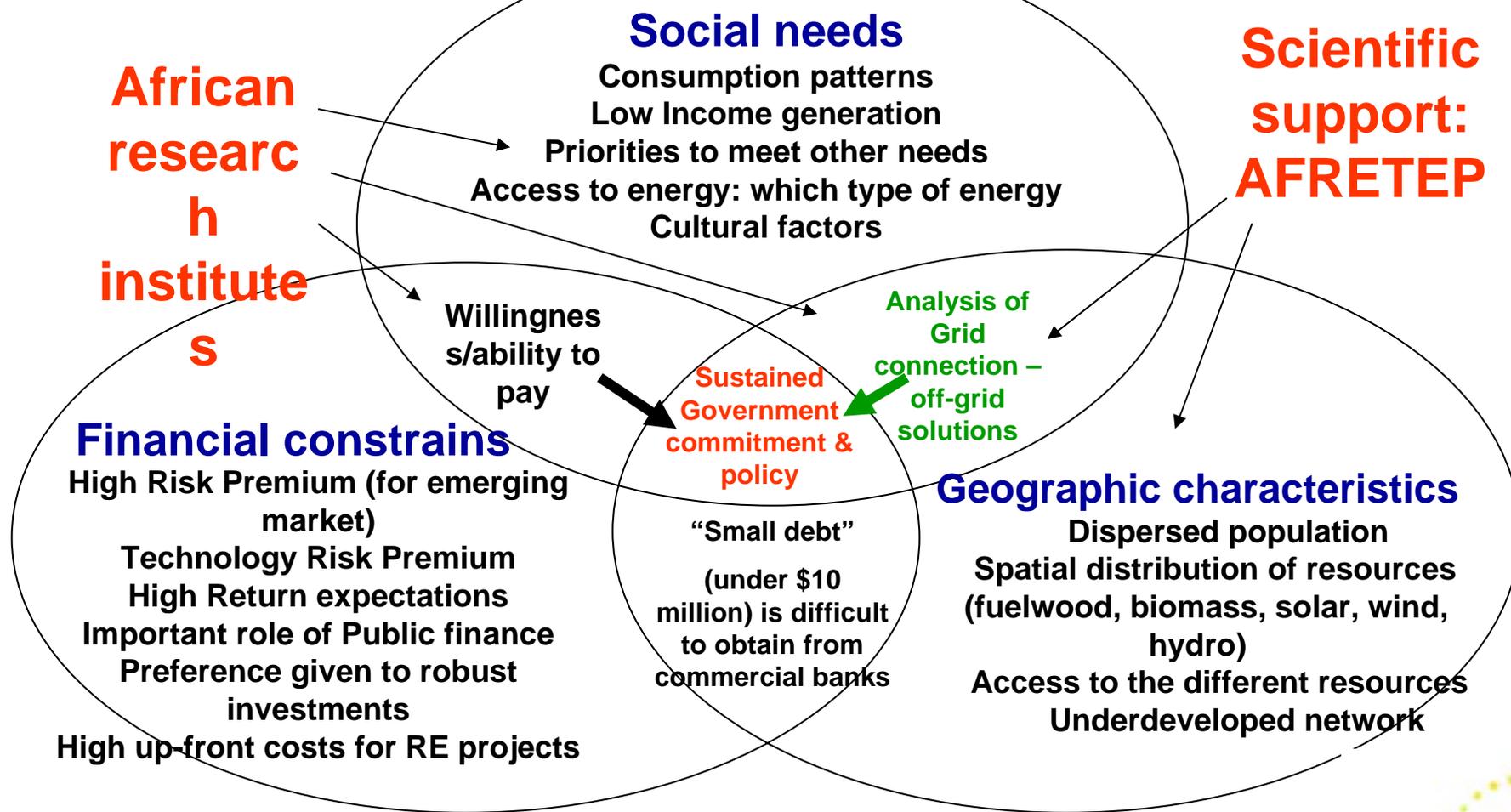
Stephen·Karekezi·and·Waeni·Kithyoma,·Improving·Access·of·Modern·Energy·Use·in·Rural·Africa·African·Renewable·Energy·Policy·Network·(AFREPREN),·2004·

¶

	Electrification·rate· (%)			Population·without· electricity· (millions)
	Total	Urban	Rural	
Africa	40.0	66.8	22.7	588.9
Sub-Saharan·Africa	28.5	57.5	11.9	587.2
North·Africa	98.9	99.6	98.2	

Source:·Electricity·access·in·2008—Africa·WEO,·2009·

Conditions, barriers and points of intervention for Rural Electrification in Africa



1) There is a need for an extended process for **generating and collecting reliable renewable energy data in Africa** - especially as it is assumed that this lack of data presents a major barrier to RE development in Africa.

2) **Electricity to widely scattered rural populations in Africa is achievable**

Conditions for higher penetration are:

- Sustained commitment of the government, national policy – crucial condition
- Clear demarcation of responsibilities: regional power companies develop medium voltage network; local communities build the low voltage network; and provinces provide decentralized oversight
- Creation of robust demand for electricity services through awareness creation leading to high willingness to pay
- Partnership between state and local utilities
- Active participation of local governments and communes
- Enforcement of strict technical standards

Identified **most important benefits** are as:

- Improved educational benefit (High enrollment rates +10% increase)
- Enhanced rural productivity
- Improved irrigation and aquaculture
- Equipment to run small-scale manufacturing

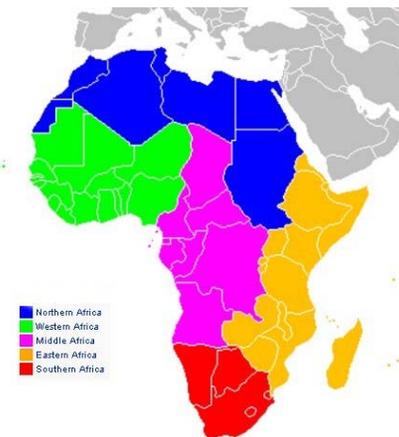
- The main activities are the following:

1. Capacity building of African researchers/students at the REU.



European Solar Test Installation Laboratory

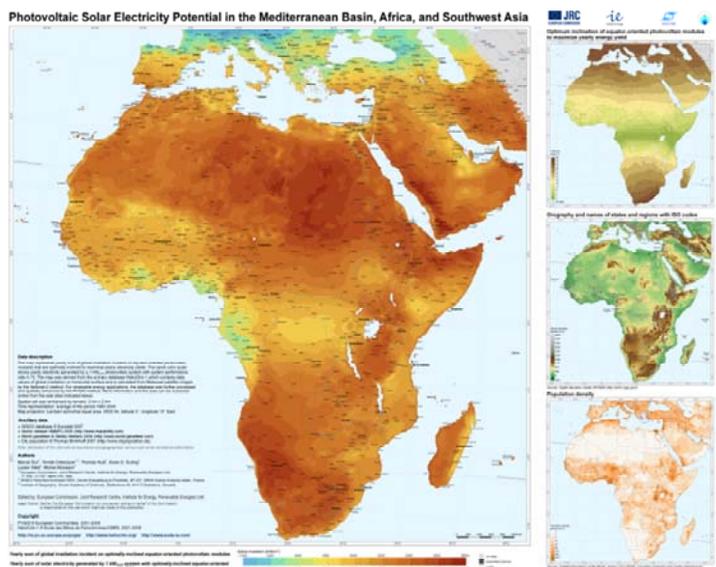
2. Launch of the web-based African Renewable Energy Technology Platform (AFRETEP). This platform will consist of a network of African renewable energy research centres.



Selected renewable energy research centres representing each region

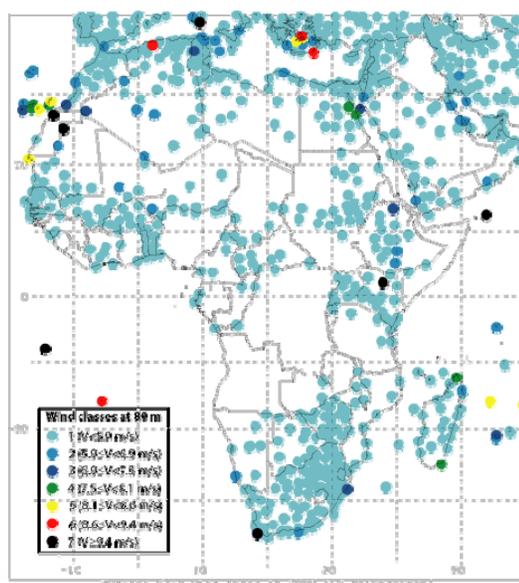
- The main activities are the following:
 3. High quality renewable energy resource information (solar, wind, hydro) in Africa and accessible via the AFRETEP website.

Solar resource



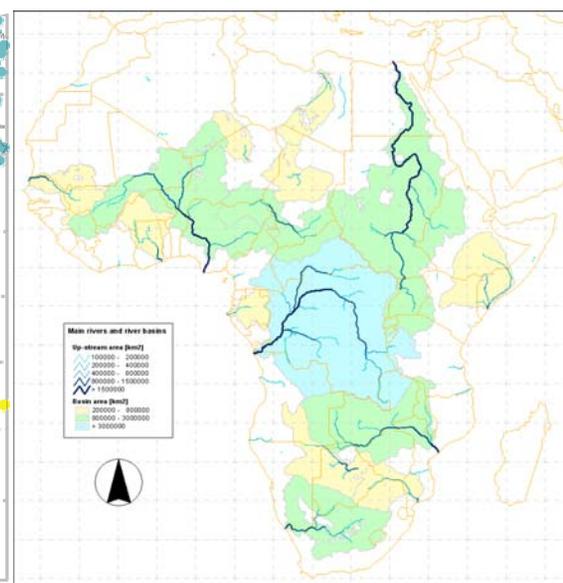
Source: PVGIS, JRC IE REU
<http://re.jrc.ec.europa.eu/pvgis>

Wind resource

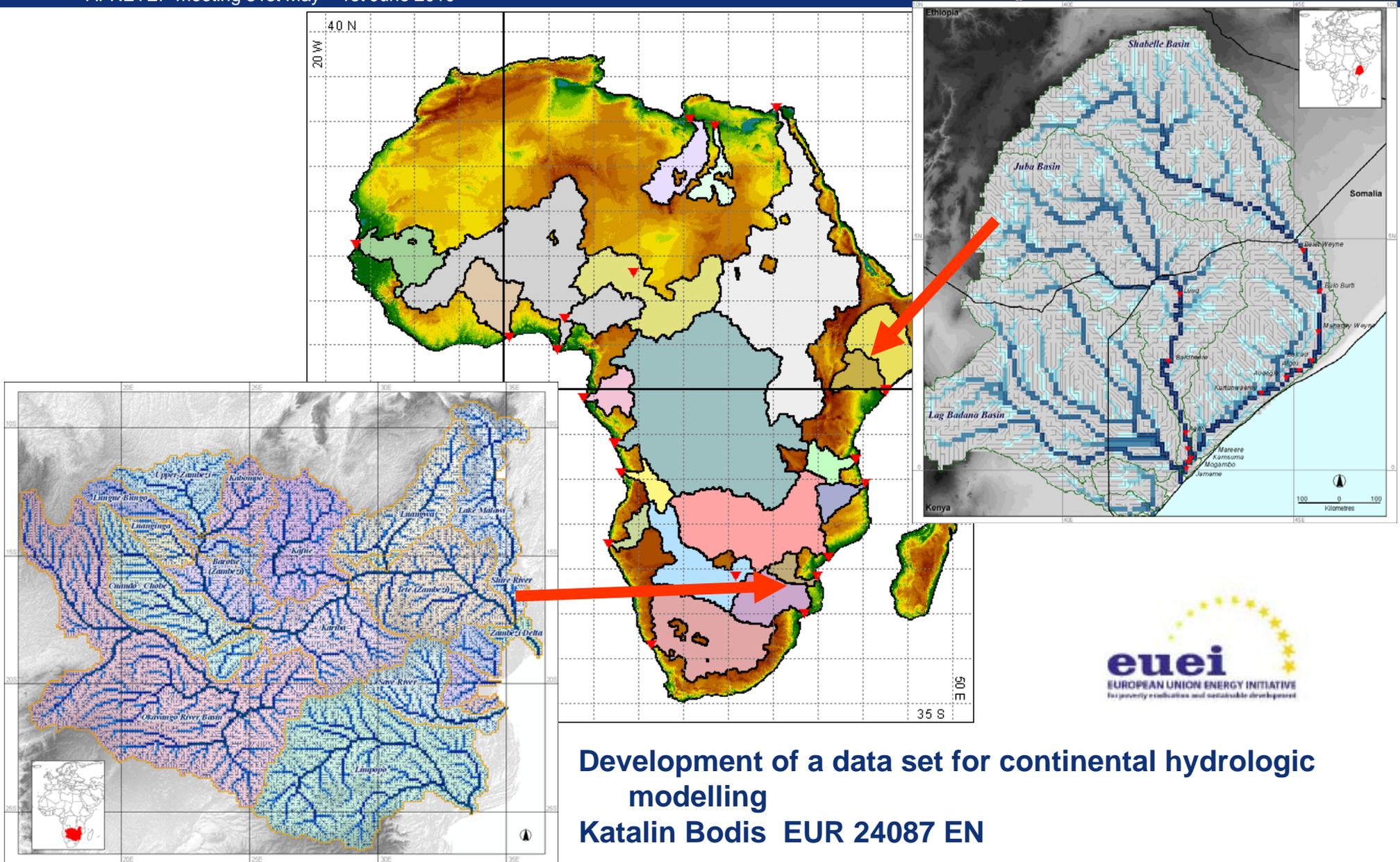


Source: Archer C. L.- Jacobson M. Z.
http://www.stanford.edu/group/efmh/winds/global_winds.html

Hydro resource



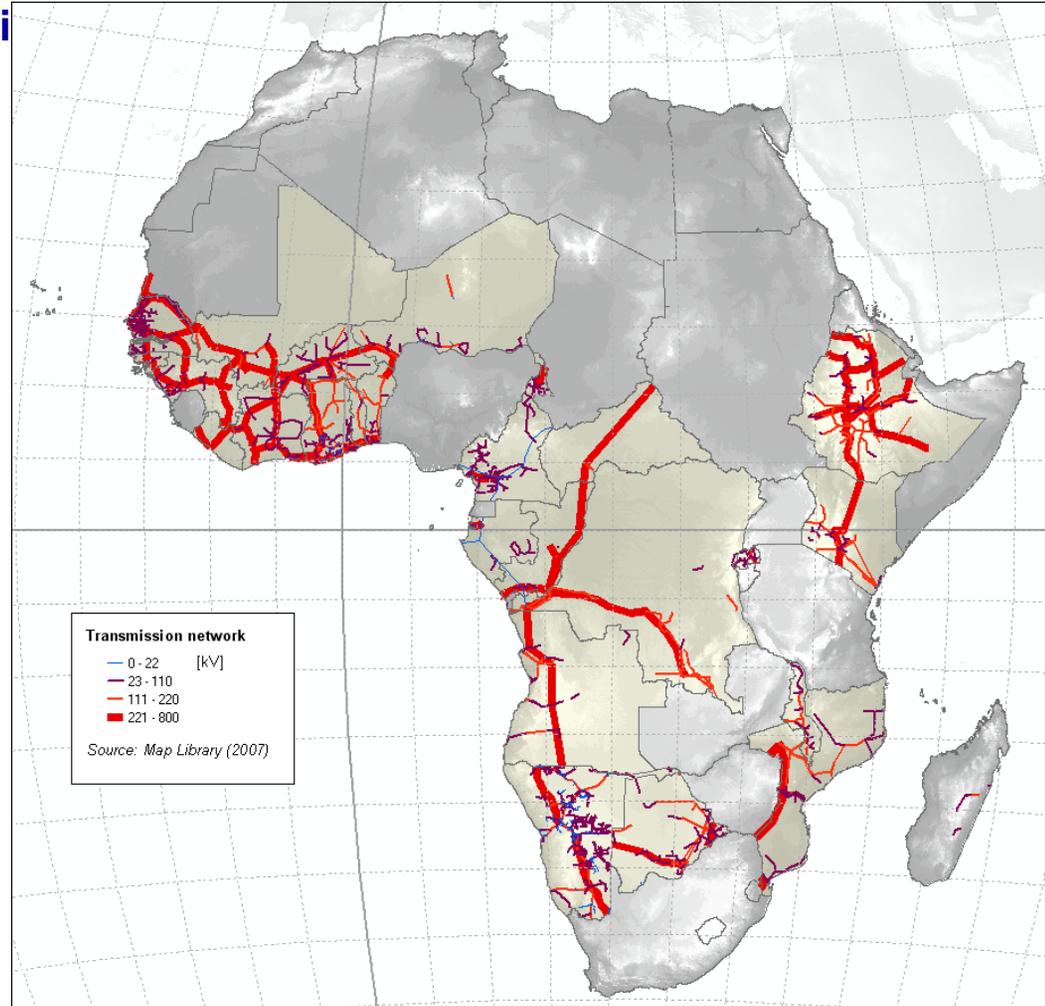
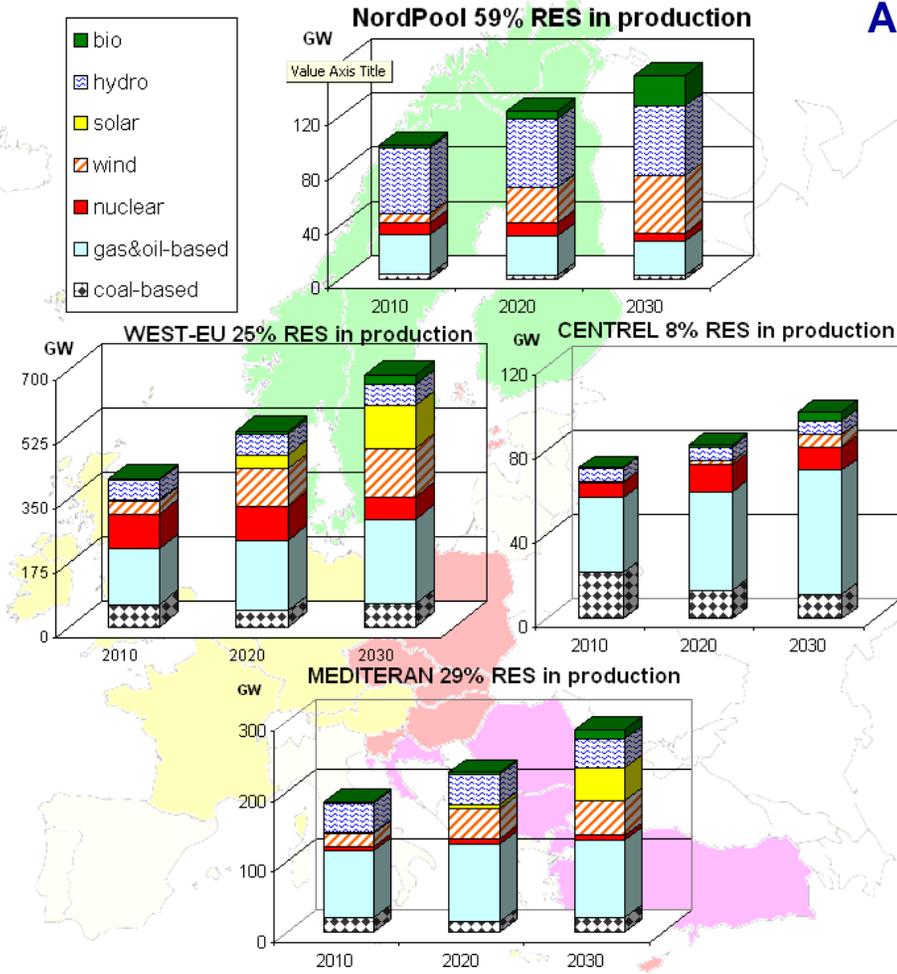
Source: Derived data based on SRTM V4
<http://srtm.csi.cgiar.org/>



Development of a data set for continental hydrologic modelling
Katalin Bodis EUR 24087 EN

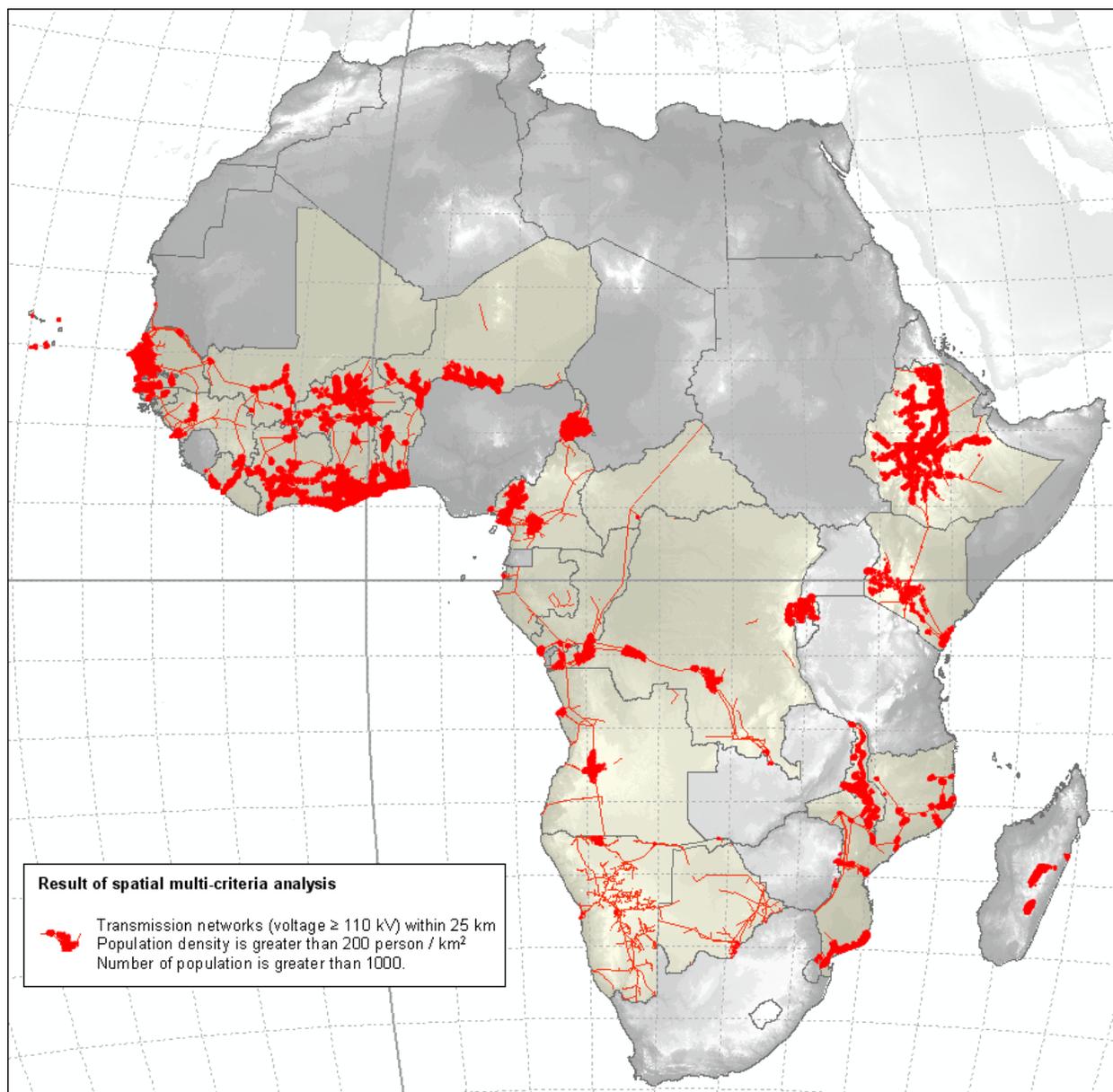
The existing grid infrastructure makes a huge difference between the Planning of Renewable Energy Sources (RES) in Europe and in Africa. In Europe all RES can be feed into the grid without excessive integration costs. The situation is quite different in

Afri



By applying a techno-economic analysis we can identify areas where the grid cannot be economically extended. The benefits to include RE options in these places can be

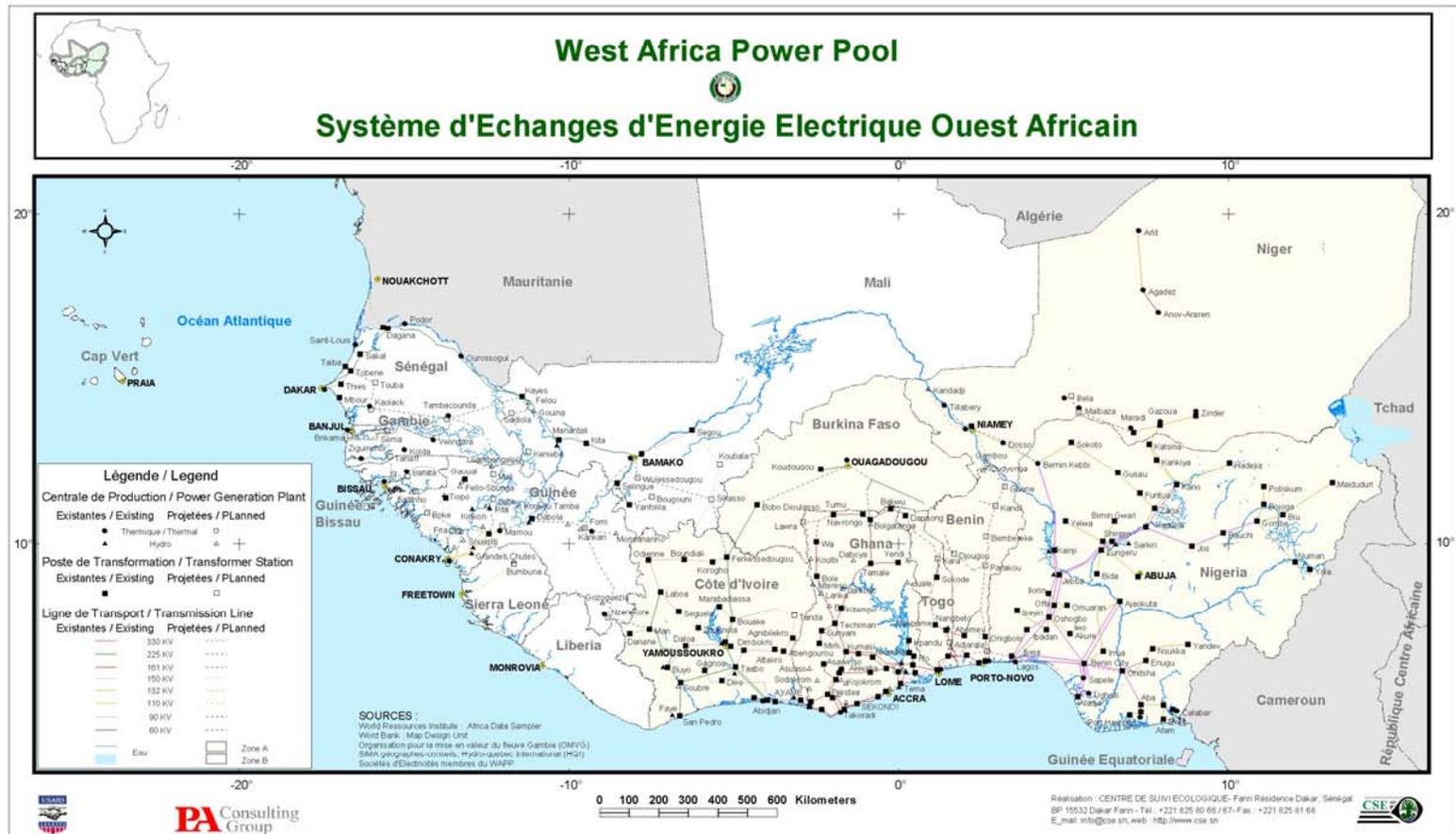
1.



The project focuses on collecting the data on network infrastructure highlighted by the gap analysis



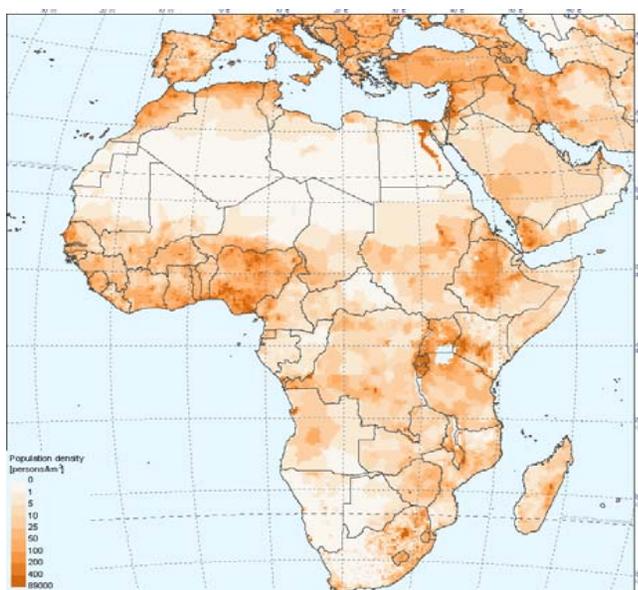
Data sources from Africa can improve the quality of these datasets



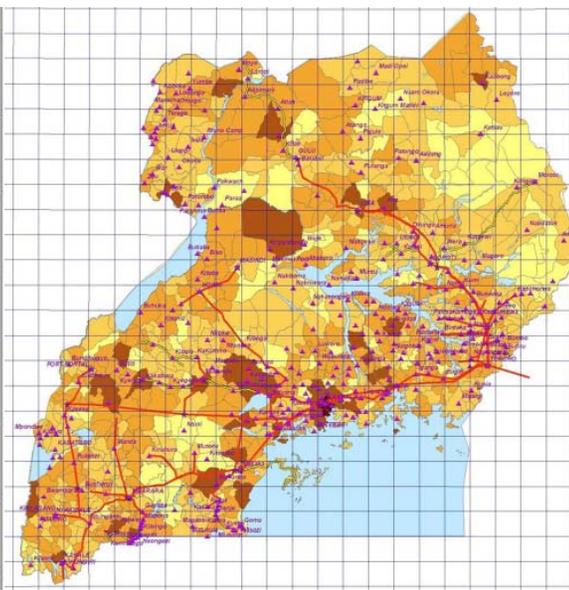
• The main activities are the following:

4. Develop a consolidated technical and socio-economic base for assessing rural electrification projects.

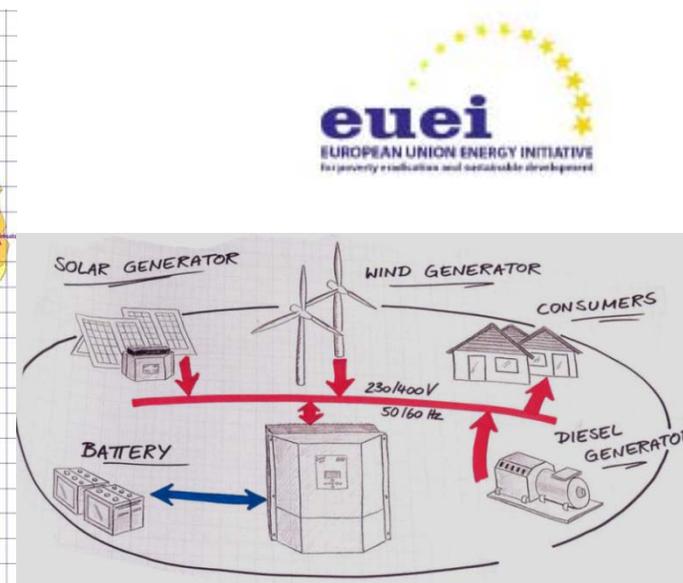
- Define proper criteria for selection of grid extension vs. off-grid solutions.
- Harmonization of existing tools and/or development of missing methodologies



Population density (persons/km²)



Population density along the electricity grid



Example of hybrid system in isolated areas

- The main activities are the following:
 5. Provide a communication channel for decision and policy-makers and stakeholders. The AFRETEP web page will be accessible from the European Union Energy Initiative (EUEI) web site, www.euei.net.



The screenshot shows the homepage of the European Union Energy Initiative (EUEI) website. The header includes the EUEI logo and the URL www.euei.net. Navigation tabs include ABOUT EUEI, EUEI ACTIVITIES, NEWS & EVENTS, COMMUNITIES, and DOCUMENTS. A search bar is located in the top right.

EUEI related activities

- EUEI Partnership Dialogue Facility - EUEI-PDF
- ACP - European Union Energy Facility - ACP-EU EF
- Africa-EU Partnership
- Africa-EU Infrastructure Trust Fund
- Global Energy Efficiency and Renewable Energy Fund - GEEREF

European Union Energy Initiative

contributes to provide the access to energy necessary for the achievement of the Millennium Development Goals.

News

Global Sustainable Biomass Fund allocates funding to 10 biomass projects, 5 of which are in Africa

The first tender of the Global Sustainable Biomass Fund has selected ten approved projects, which will receive a total of €4.7 million. The ten...

In the focus

News on the 2nd Call of ACP-EU Energy Facility
Submitted on 14-January-2010

Latest developments in the Africa-EU Energy Partnership
Submitted on 14-January-2010

Useful links

- Johannesburg Renewable Energy Coalition (JREC)
- New Partnership for Africa's Development (NEPAD)
- Global Village Energy Partnership
- The Global Network on Energy for Sustainable Development (GNESD)
- The Renewable Energy & Energy Efficiency Partnership (REEEP)
- Global Forum on Sustainable Energy (GFSE)
- European Commission / Directorate General for Development
- European Commission / Directorate General for External Relations / EU External Energy Policies
- European Union Water Initiative
- NEPAD - New Partnership for Africa's Development
- Climate Change / Copenhagen
- World Bank - Energy Section
- World Bank Energy Assistance Management Assistance Program - ESMAP
- UN - Energy
- Africa Infrastructure Country Diagnostic
- Infrastructure Consortium for Africa (ICA)
- EUEI-UNEP Capacity Enhancement and Mobilisation Action for Energy in Africa (CEMA)
- Photovoltaic Geographical information system - interactive Maps
- JRC Vlnabta - RE unit

Events

AEEP High Level Meeting
Now

AEEP - High Level Meeting EU Energy Partnership (AEEP) in Addis Ababa has decided to organise a Ministerial Energy Meeting every two years. The first meeting will take...

ENERGY INDABA 2010 - Time for Innovation, Solutions and Alternatives
22-23

The flagship African energy event ENERGY INDABA 2010, is an annual event on the African business calendar with a specific focus on exploring solutions for a...

Managed and developed by:   



The screenshot shows the African Renewable Energy Technology Platform (AFRETEP) page on the EUEI website. The URL is <http://www.euei.net/wg/african-renewable-energy-technology-platform-afretep>. The page features a user login form, a navigation menu, and a main content area.

User login

Username:

Password:

Remember me

Log In
Create new account
Request new password

Actions

- VIEW
- CONTACT

WG Navigation

- WG Documents
- WG Draft Documents
- WG News
- WG Events
- WG Update Log
- WG Links

Group events

Africa Energy Forum, AEF
148
2008

The countries that have succeeded in attracting the most investment are those that make the most use of the Africa Energy Forum to meet the market by standing...

World Renewable Energy Congress XI and Exhibition 2010
235
2009

At the 9th WREC Congress in Florence, Italy held in September 2008 the Council of WREC/WREN voted to hold the World Renewable Energy Congress XI in Abu Dhabi...

Working group contacts

Sanjo Bazzo
s.bazzo@ec.europa.eu
Zila Gireu-Oberca
z.gireu@ec.europa.eu
Contact Us

Managed and developed by:   