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Global Atlas Training on Planning the Renewable Energy Transition Solar and Wind Maps

Lima, Peru, Feb. 2-3th 2015

Current Status of Capacity building

- Why capacity building?
  - Countries Renewable targets are
    - 20% by 2020, 30% by 2030
    - Detailed feasibility studies are not conducted to derive these targets
    - Mismatch between Renewable Resource and Renewable potential
- Who is funding?
  - The module is financed by Flemish government, Germany, and the Brussels Region.
- Who is attending?
  - The training module is specialised for policy and decision makers. It therefore focuses on the strategic aspects of planning methods rather than on technical aspects:

Current Status of Capacity building (contd.)

- Where is the capacity module delivered
  - The module is being deployed in 3 countries
    - November 12th – 13th . First session – African Clean Energy Corridor. Arusha, Tanzania
    - December 17th -18th . Second session – MENA. Cairo, Egypt
    - February 2nd – 3rd. Third session – Latin American. Lima, Peru
- What are the outcomes?
  - It presents the different approaches to evaluation of technical potentials, and in particular emphasizes the sensitivity of the results to the selection of constraints, the approach, which is chosen, and the way the calculations are performed.
  - Using the results of previous geospatial analysis performed by IRENA, the training session builds capacity of the policy and decision makers to identify high-potential developable renewable energy.

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RENEWABLE RESOURCES
RENEWABLE POTENTIALS

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What share of my energy mix can be supplied by renewable energy?

What is the most cost-effective combination of technologies?

Where are the resources located?

What amount of investments does it represent? How many jobs ?

Is there a large enough market for sustaining a supply chain?

Global Atlas

Resource mapping

Technical and economic potentials

Technology data, ancillary datasets (grid, land, costs..)

Scenarios and strategies

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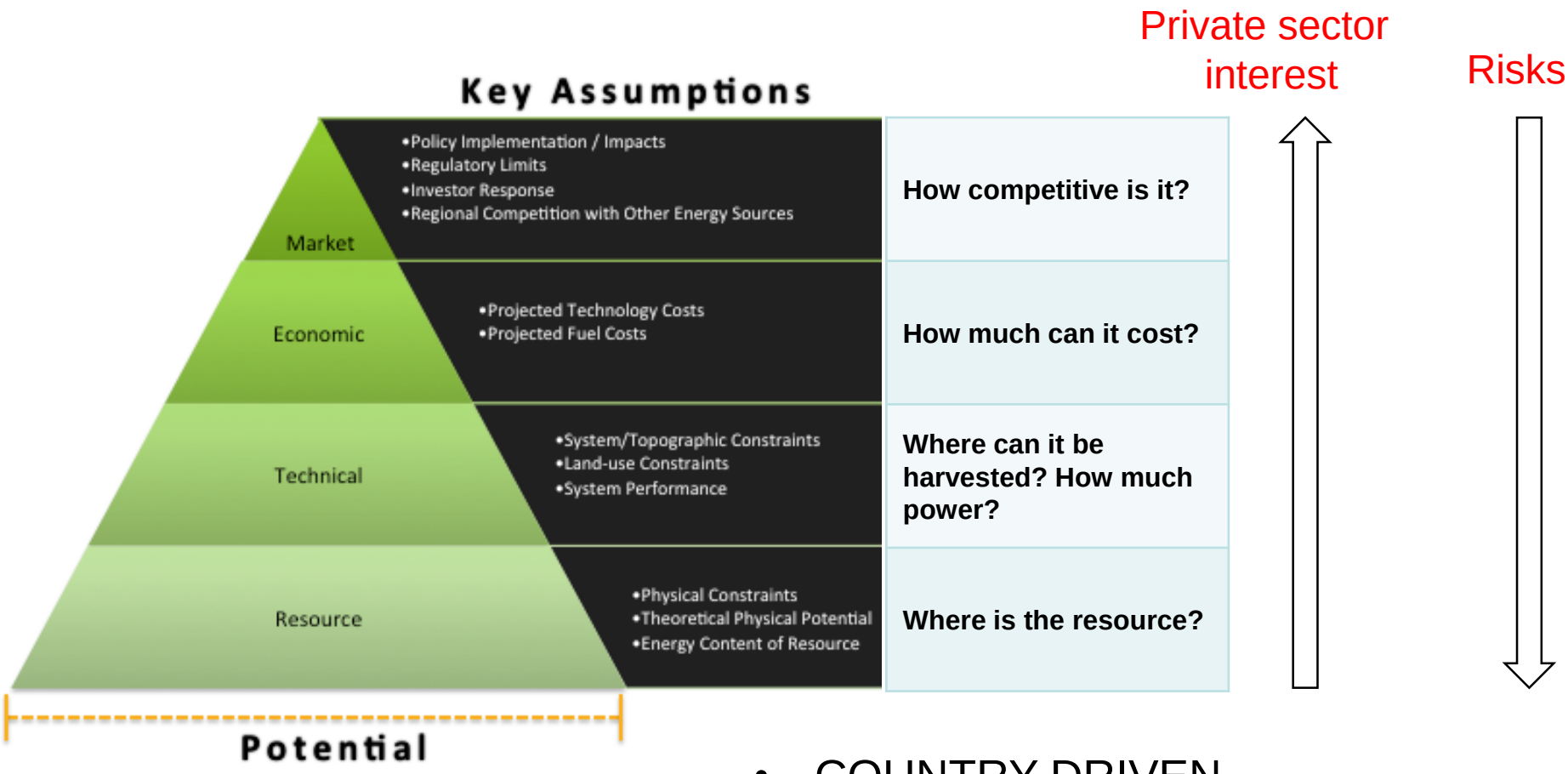
RE-market

Enabling conditions: policy and financial instruments, human capacities, public awareness..



Conceptual diagram of Renewable Energy Potentials (from NREL, 2012)

- COUNTRY-DRIVEN
- LONG TERM PLANNING PROCESS
- COMMITMENT REQUIRED

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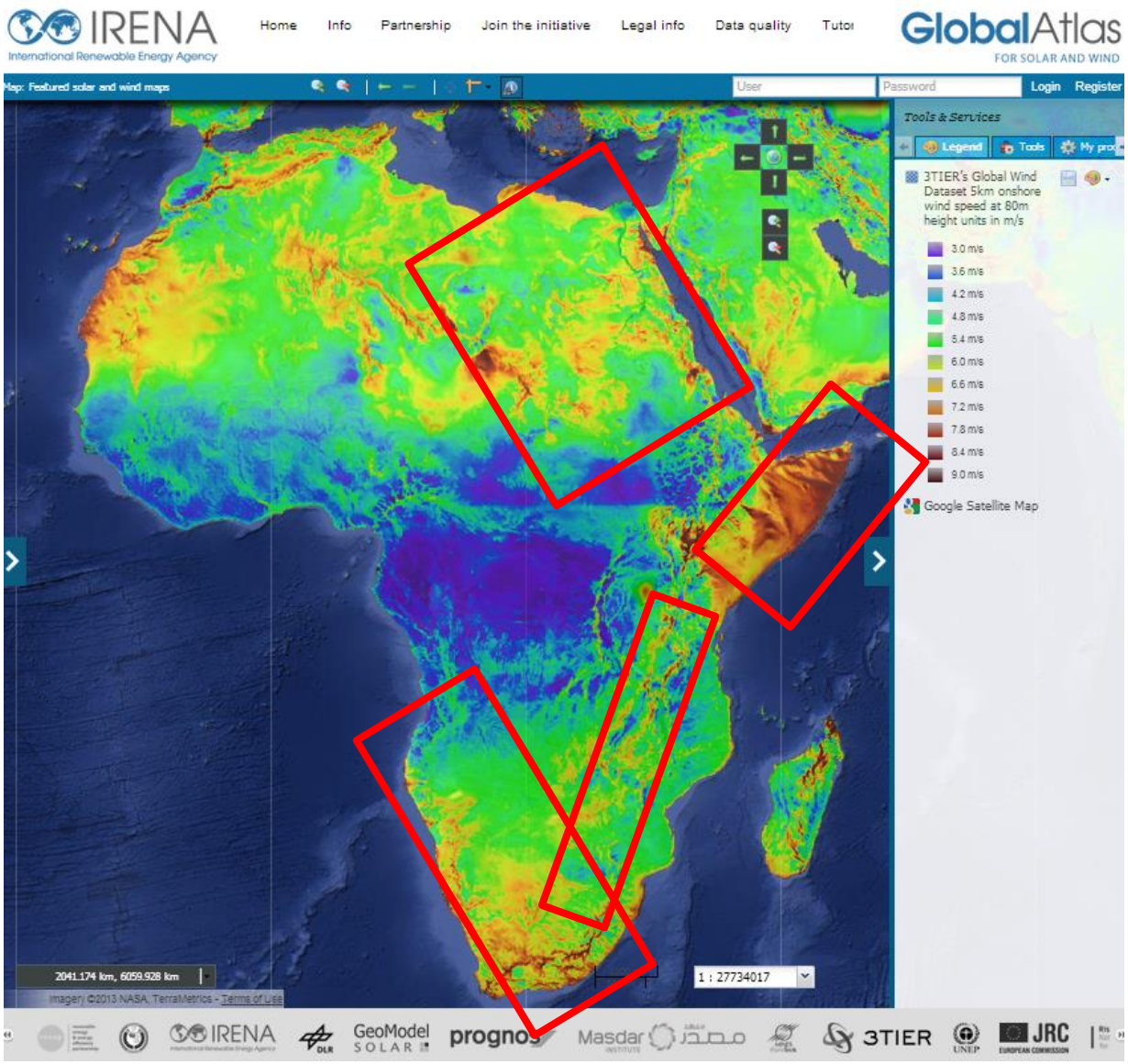

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Geospatial information. Resource, infrastructures, population density.. What next?

Energy modelers, general public, lobbyists	Project developers, grid simulation, rural electrification agencies, energy agencies
Need: number of MW that can be installed for a given technology. Outcome is in MW. Often presented as tables with MW per region / country. Follow-up: high level discussions with policy makers, broad grid simulations (power).	Need: locations of suitable areas for future developments. Outcome is a suitability map. Follow-up: consultation process with policy makers**, zoom on a few select areas**, **dynamic grid simulation** using time series (power). On such areas, limited analysis on technical potential into more detail.
Numbers are best guest, depend on model. High disparity despite apparent precision.	Outcome is a map and a consultation process leading to spatial planning. **MW are closer to project reality**.
IRENA: Estimating the renewable energy potential in Africa.	IRENA: Global Atlas, ECOWAS zoning, Africa Clean Energy Corridor

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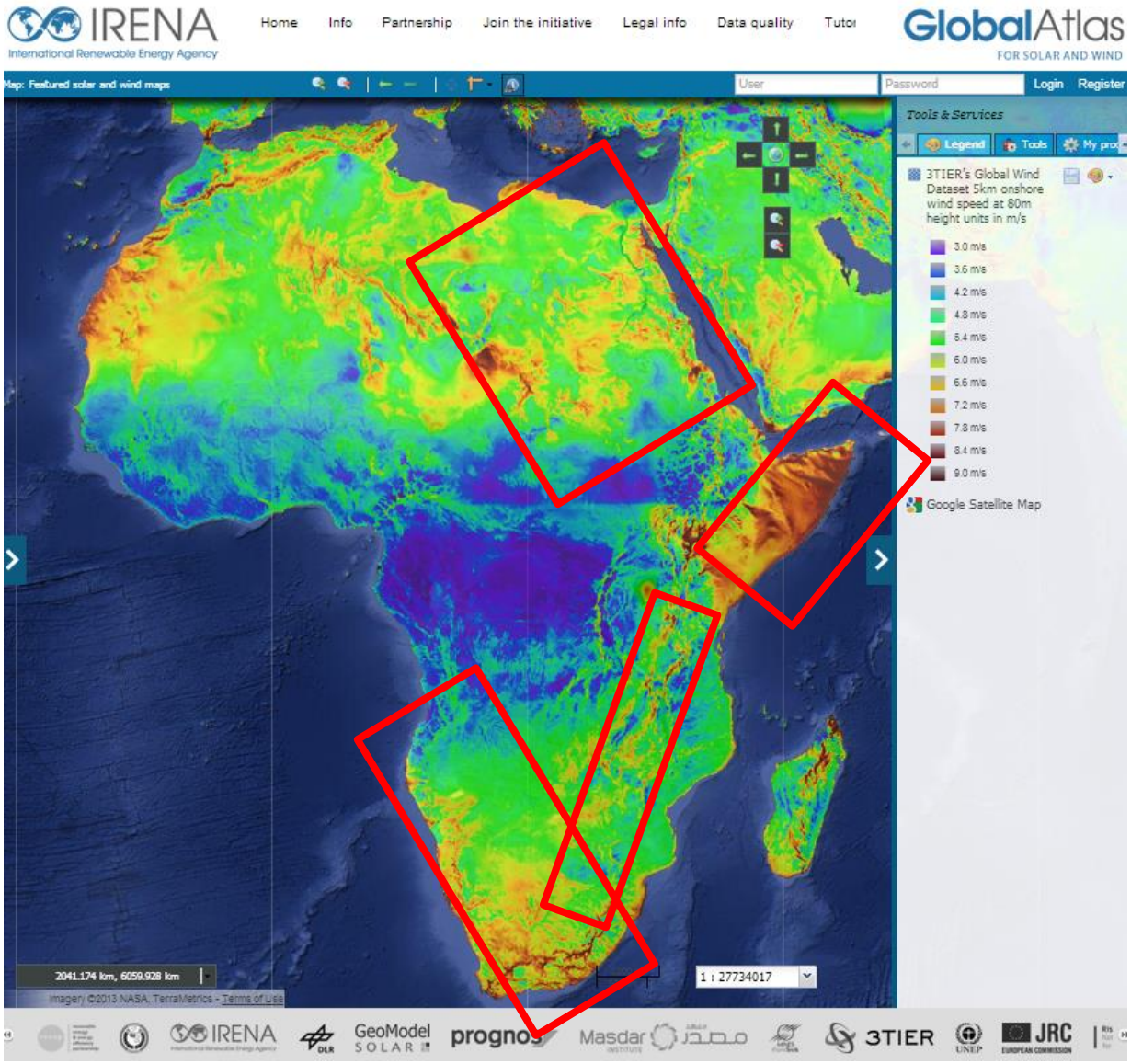

Winds in Africa. Mesoscale 5km basemap from 3TIER. Average annual wind speeds at 80 m high.

The values can not be used without validation, but the wind patterns appear clearly, and are consistent with other mesoscale sources. The boxes attempt to highlight areas with possibly strong annual average wind speeds.

This rough approximation does not exclude the possibility of good wind sites outside the red squares, due to local effects not captured by the mesoscale model.

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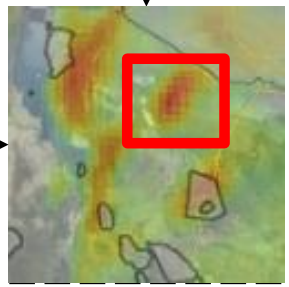
PRIVATE SECTOR EFFORT

Local measurements



Data bankability

Investor's interest

'BANKABLE'

NOT 'BANKABLE'

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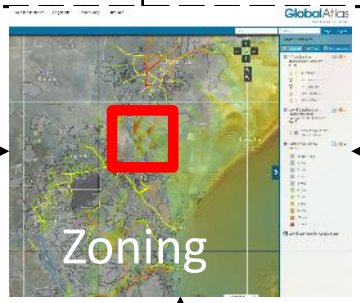
Existing local measurements

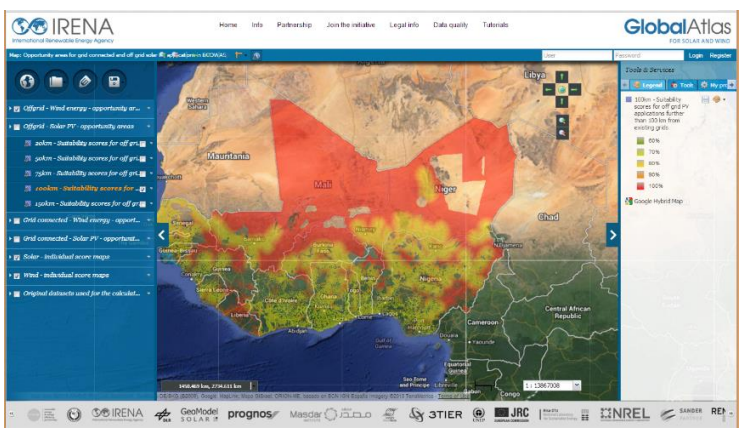


Data quality

PUBLIC SECTOR EFFORT

Demonstration on ECOWAS within GEOSS AIP-6
Presented at the GEO-X Ministerial Summit
Geneva, Jan. 14-17th, 2014

ECOWAS CENTRE FOR RENEWABLE ENERGY AND ENERGY EFFICIENCY



http://irena.masdar.ac.ae/?map=507

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GLOBAL ATLAS – A UNIQUE DATA INFRASTRUCTURE

Bridge the gap between nations having access to the necessary funding, technologies, and expertise to evaluate their national potentials, and those deprived of those elements.

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Bridge the gap between nations having access to the necessary funding, technologies, and expertise to evaluate their national potentials, and those deprived of those elements.

- *Access to data and methods*
- *Building capacities on strategic planning*
- *Mobilizing technical assistance*

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Albania, Australia, Austria, Belgium, Colombia, Denmark, Egypt, Ethiopia, Fiji island, France, Gambia, Germany, Greece, Grenada, Honduras, India, Iraq, Iran, Israel, Italy, Kazakhstan, Kenya, Kiribati, Kuwait, Lithuania, Luxembourg, Maldives, Mali, Mauritania, Mauritius, Mexico, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Peru, Philippines, Poland, Portugal, Qatar, Saudi Arabia, Senegal, Seychelles, South Africa, Spain, Sudan, Swaziland, Switzerland, Tonga, Tunisia, Turkey, UAE, Uganda, UK, United Republic of Tanzania, Uruguay, USA, Vanuatu, Yemen, Zimbabwe.

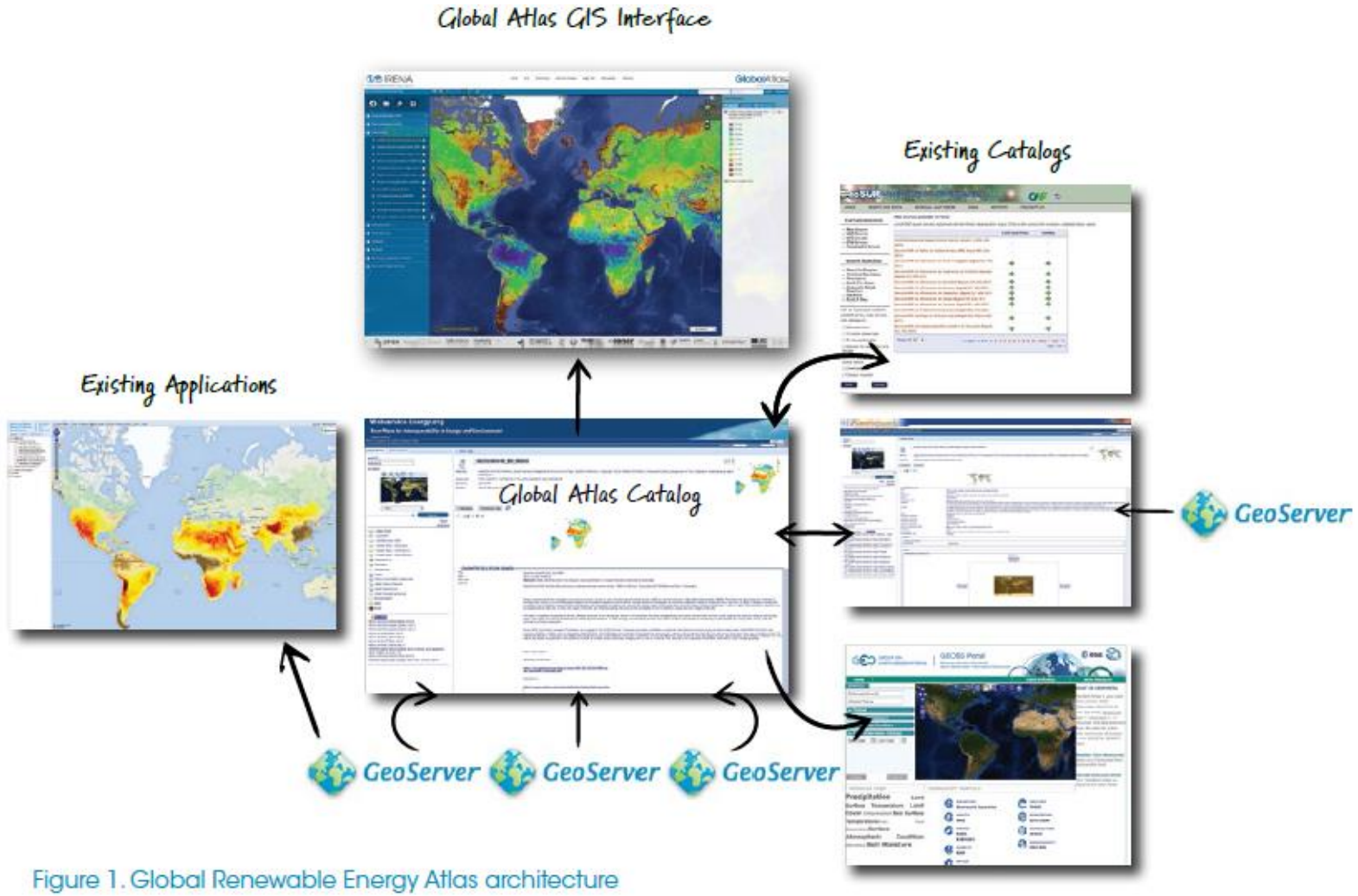

Figure 1. Global Renewable Energy Atlas architecture

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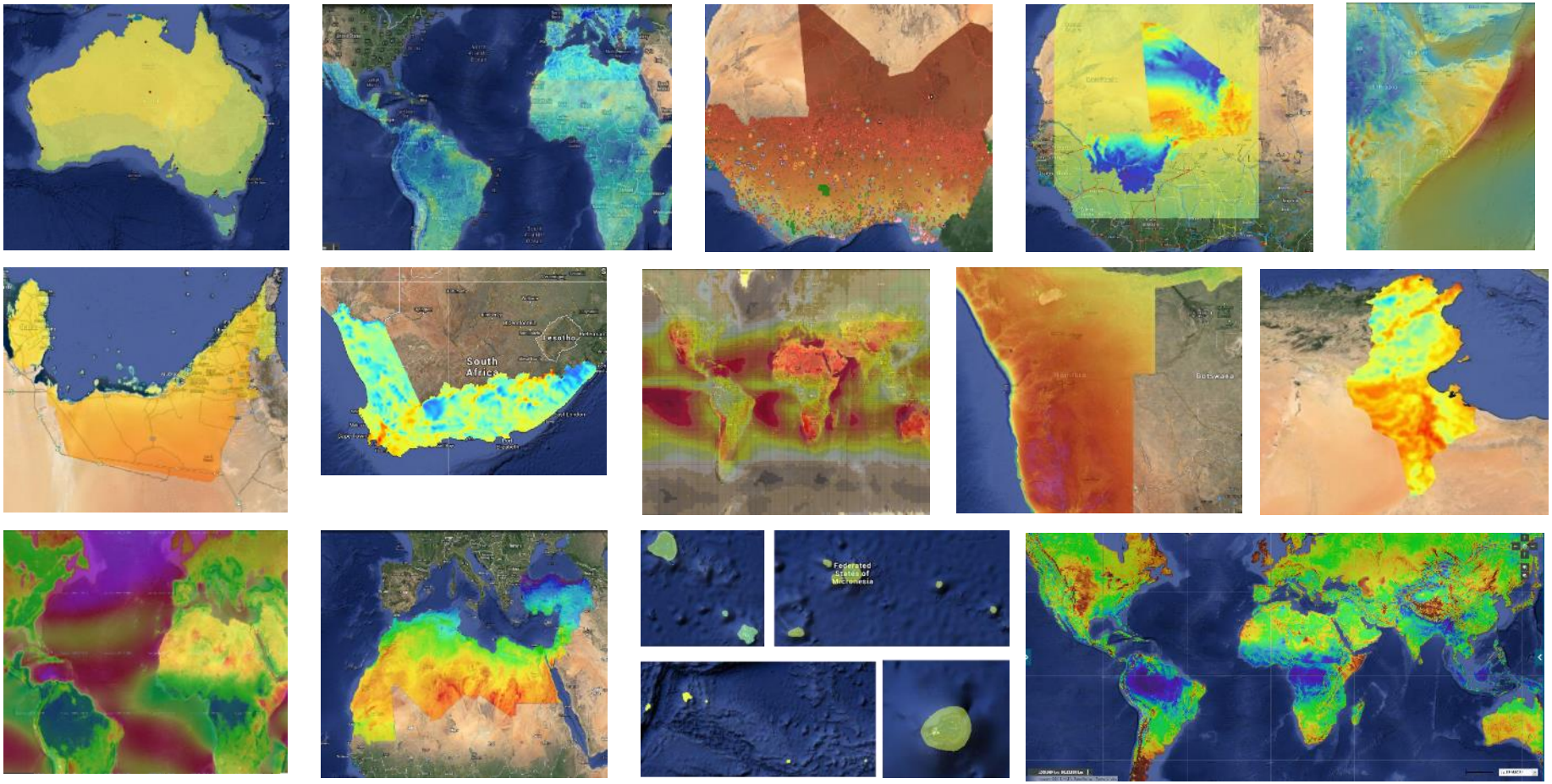
1,000 datasets. 45+ national atlases.



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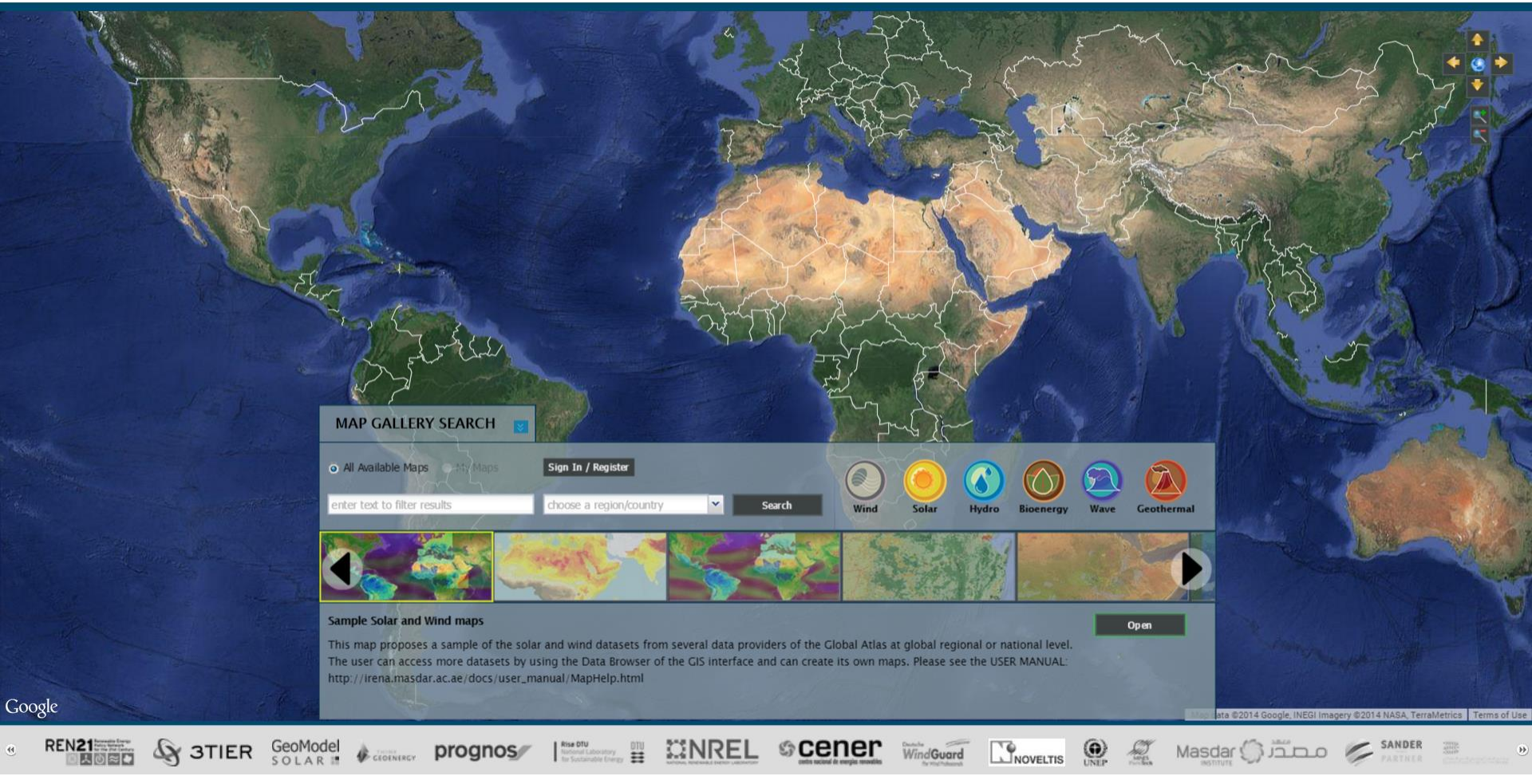
Map gallery – information accessed easily



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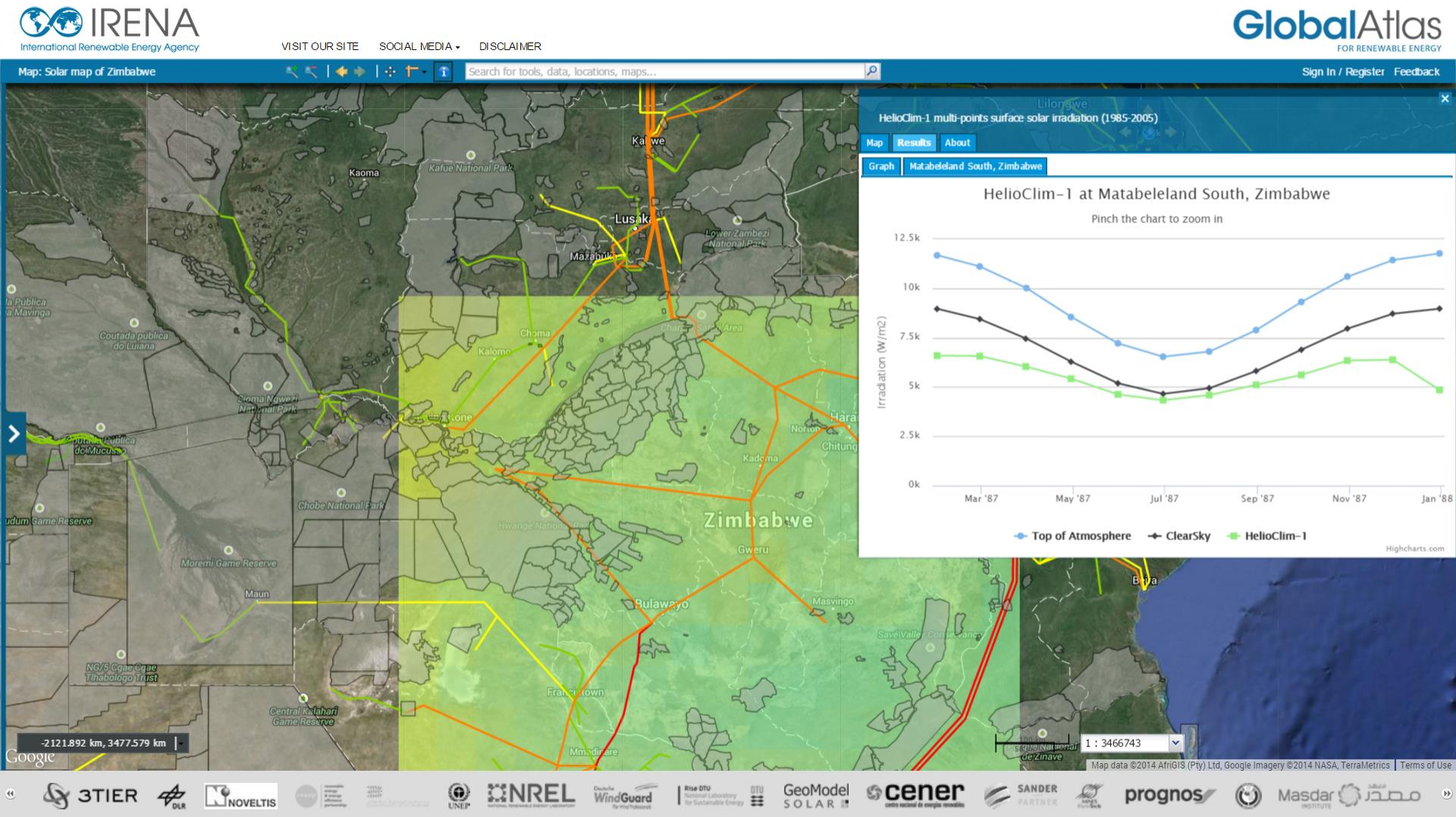

Hot spot-LCOE-FIT/ Auction approach

Potential Collaboration opportunities?

- Integrate capacity module in existing programs
  - Freely available open source tool with webinars, online videos, presentations and experts
  - E.g. UN-ESCAP and IRENA planning for resource mapping trainings
  - IRENA can works with other development partners to deliver this module
- Potential funding for two capacity sessions in Asia-Pacific

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