PCREEE
Pacific Centre for Renewable Energy and Energy Efficiency
SE4ALL Centre of Excellence to Promote Sustainable Energy Markets, Industries and Innovation

UNIDO
UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

GN SEC

Unlocking MG for sustainable development

4.2 Resource assessment

Suva, Fiji

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MG in Bolivia by TTA


MG in Ethiopia by TTA

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1. SESSION OBJECTIVES

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i) Present list of tools that can be used for the assessment of different RE resources

ii) Discuss the need for onsite resource measurement and assessment for different RE sources

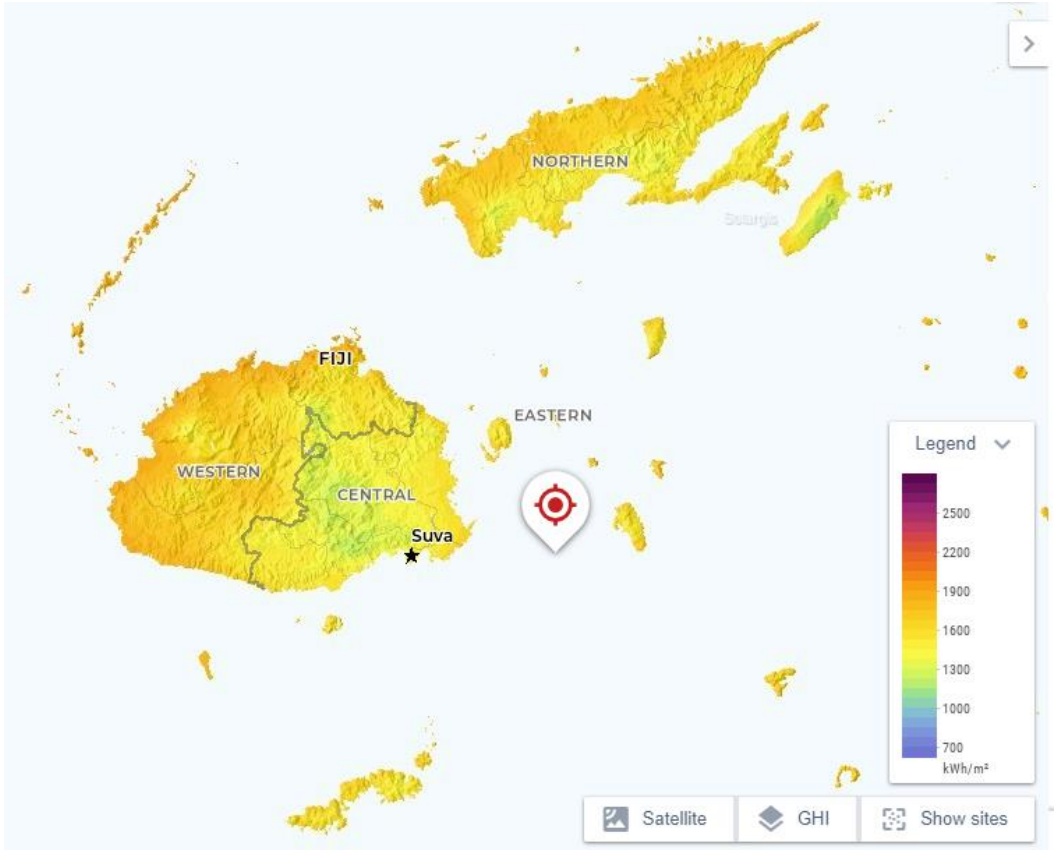
2. ENERGY RESOURCE ASSESSMENT

ENERGY RESOURCE ASSESSMENT

What are the most relevant aspects of energy resource assessment?

- Provides information on daily and annual renewable energy resources available per location.
- Information can focus more generally on a country/region or can look more closely into a specific location within a country/region. Some tools have very low resolution
- Some tools offer the option of making comparisons between different renewable resources.
- Most tools are online based and represent data in the form of interactive maps.

The list of tools presented here is not comprehensive. A wide variety of tools exist in the market, as well as individual GIS databases (ESRI, NASA, ESA) for specific data.

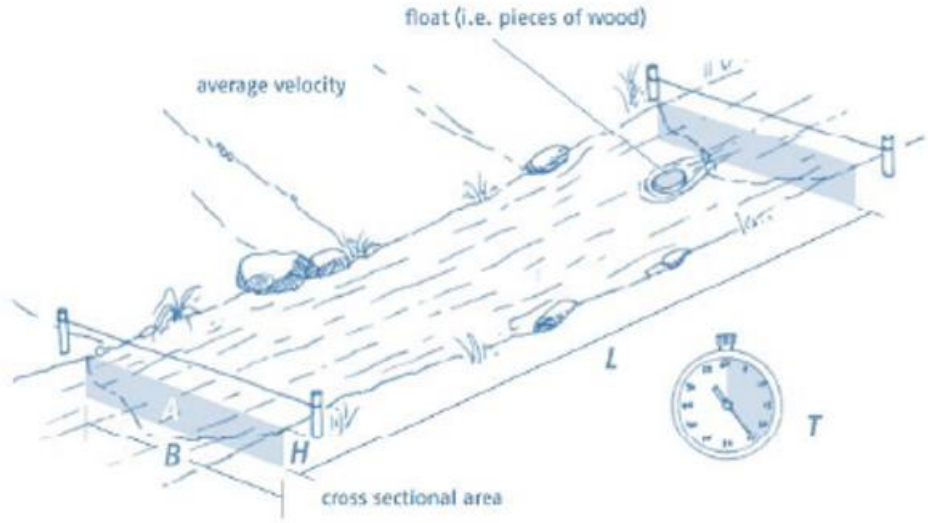


Example map from Global Solar Atlas

ENERGY RESOURCE ASSESSMENT

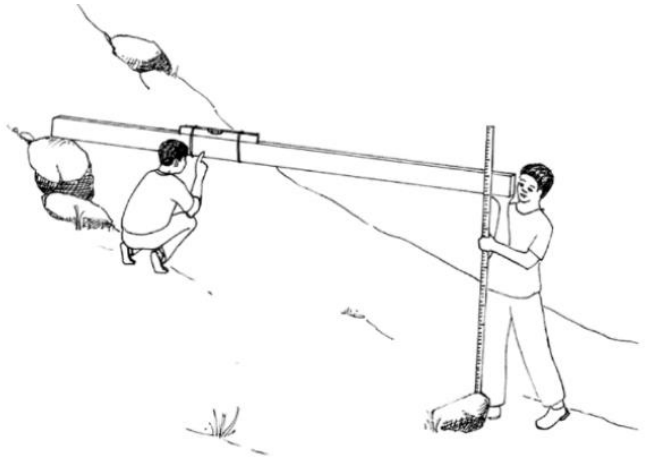
Tool	Resource	Description
PVGIS, JRC EU	Solar	Provides information about solar radiation and photovoltaic system performance for any location in Europe and Africa.
Meteonorm, Meteotest AG	Solar	Historical time series and sophisticated calculation tools for irradiation and main meteorological parameters.
SWERA, NREL	Solar, wind	Resource data sets and analysis tools from various organisations (data not updated since 2011).
Global Solar Atlas, WB	Solar	Online maps showing various global aspects of solar energy, e.g. irradiation, power output, etc.
Global Wind Atlas, WB	Wind	Online map of global wind resources. Wind resource data accounting for local effects.
POWER, NASA	Solar, wind	Over 200 satellite-derived meteorology and solar energy Analysis Ready Data (updated nightly).
RE Explorer, USAID/NREL	Biomass, geothermal, hydro, solar, wave, wind	Global renewable energy data and analytical tools to developers, policymakers, and decision makers.
Global Atlas for RE, IRENA	Biomass, geothermal, hydro, solar, wave, wind	Web platform that allows to find maps of renewable energy resources for locations across the world.

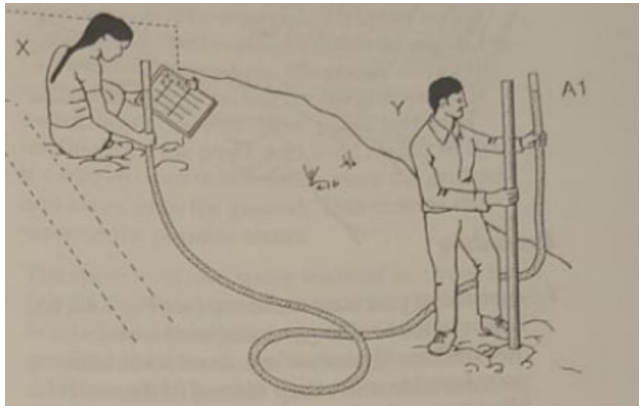
ENERGY RESOURCE ASSESSMENT



On-site resource assessment/measurement

- Solar: Done for utility scale, commercial project – Online resources are normally very reliable. Focus on shading impact for mini-grids.
- Wind: Very site specific and requires long-term (multi year) measurements . Wind normally not viable for mini-grids.
- Hydro: Required for any potential development (either big or small):
  - Head: Difference between potential intake and generation site – Measured with GPS for site with long distances or with a water level for sites where distances and head is small.
  - Water Flow: Needs to be measured for more than one year. Springs (bucket method), River (float method, current meter)





3. ADDITIONAL RESOURCES

ADDITIONAL RESOURCES

- Global solar atlas: https://globalsolaratlas.info/map
- Meteonorm: https://meteonorm.com/en/
- Global wind atlas: https://globalwindatlas.info/
- SWERA: https://openei.org/wiki/Solar_and_Wind_Energy_Resource_Assessment_(SWERA)
- The POWER Project: https://power.larc.nasa.gov/
- RE Explorer: https://www.re-explorer.org/
- IRENA Global Atlas: https://www.irena.org/Energy-Transition/Project-Facilitation/Renewable-potential-assessment/Global-Atlas
- Solargis: https://solargis.com/

Trama TecnoAmbiental

Renewable Energies • Energy Efficiency • Sustainable Buildings • Distributed Generation

Vinaka!

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