



Ministry of Energy and Hydrocarbons

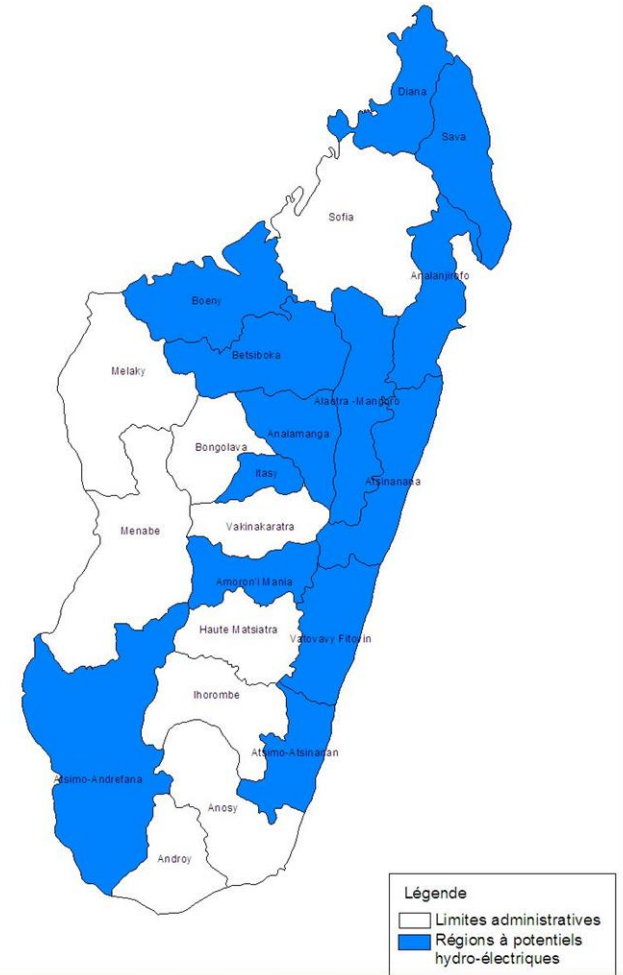
# Madagascar Energy Sector

By Mr. Horace Gatien



# Hydroelectric potential

- ▶ The country has a significant hydroelectric resources located mainly in the Central, North-West, North and East of the country, with the exception of the South where potential sites are rare and irregular flow of rivers.
- ▶ The hydraulic potential of the country is estimated at 7800 MW, only about 160 MW are operated.



# Hydroelectric Project

AREAS		POTENTIAL
Antananarivo Interconnected Grid	Mahitsy Farahantsana	18MW
	Andekaleka	33 MW
	Talaviana	15MW
	Tsinjoarivo	21MW
	Ranomafana	70MW
	Sahofika	300MW
	Antetezambato	210MW
North	Andranomamofona	15 MW
	Bevory	6.75 MW
	Anjialava	6 MW
	Lokoho Aval	6 MW
West – Middle West	Ambodiroka	42 MW
	Ampitabepoaky	1.3 MW
East	Volobe	90MW
South East	Namorona	18MW
	Sahalovana	Ph1 : 9 MW Ph2 : 10 à 12 MW

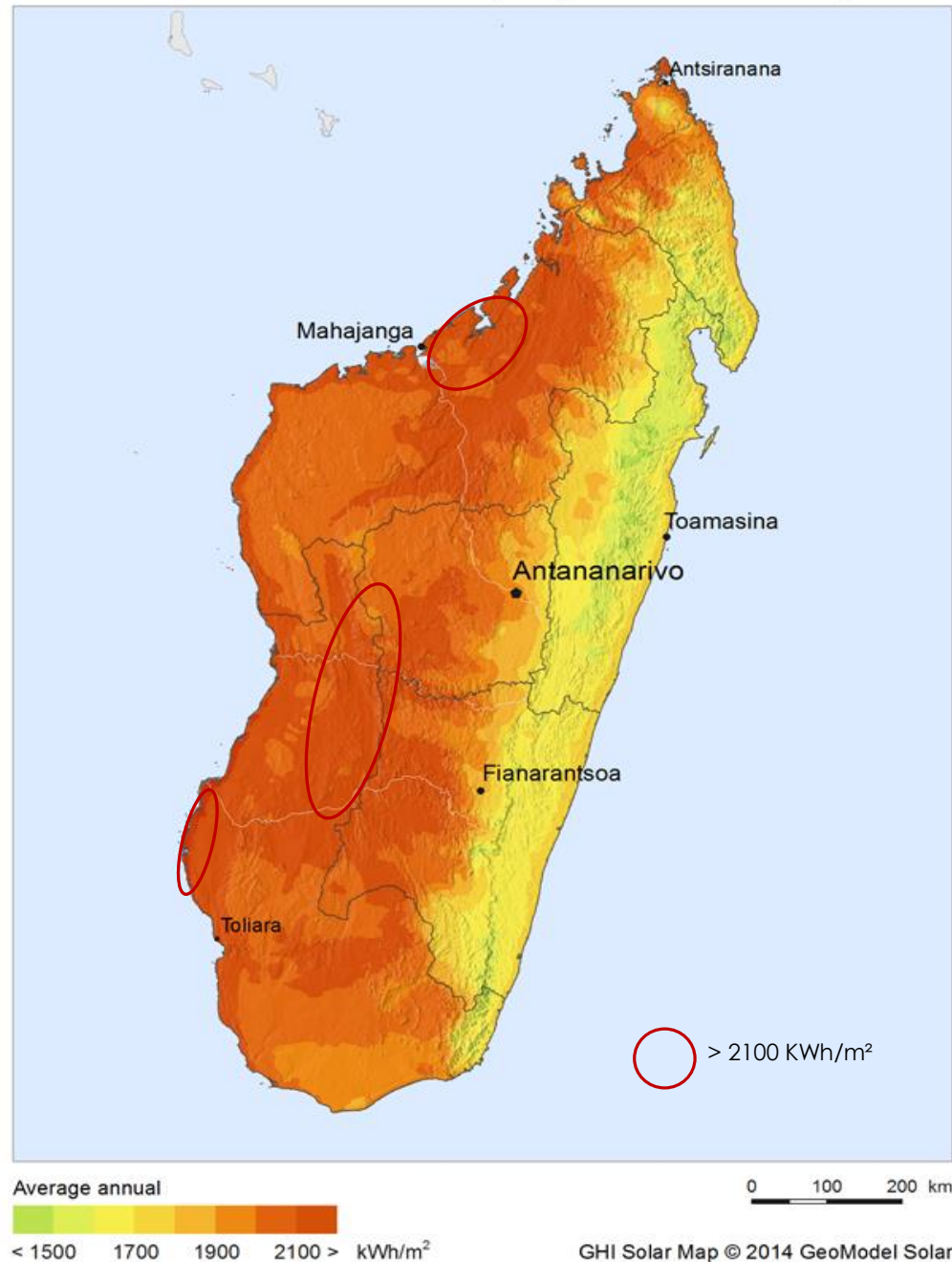
# Solar potential

Sunshine : 2,800 hours /year

Potential :  
1500-2100 kWh / m<sup>2</sup> / year

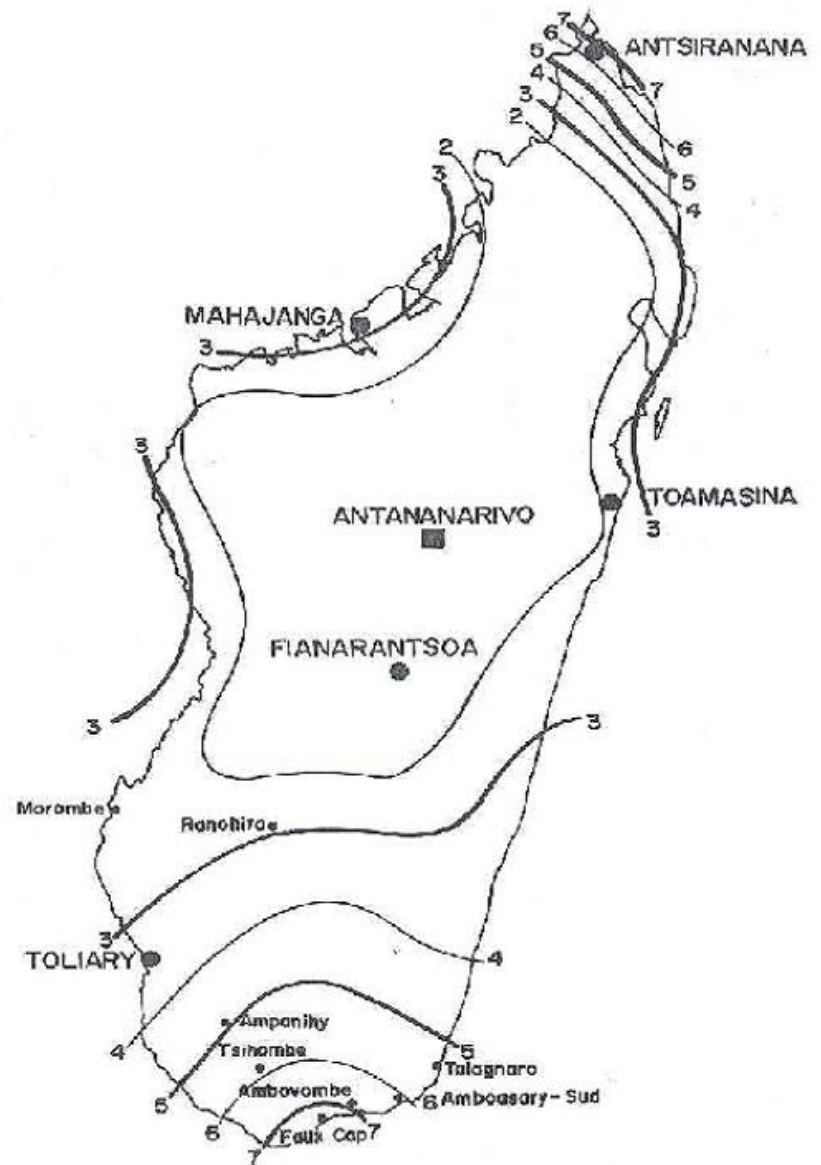
Global Horizontal Irradiation (GHI)

Madagascar



# Wind potential

The wind energy resources are considerable :  
wind speed higher than 7m/s at a height of 50m  
North (around Antsiranana) and South (around Taolagnaro) have a favorable wind potential for electricity generation



# Current energy capacity and future needs

- ▶ 345 MW from Thermal Power (GenSet)
  - ➔ 603.821.184 kWh/year (2014)
- ▶ 161 MW from Hydro Power
  - ➔ 883.625.940 kWh/year (2014)
- ▶ According to IMF & WB reports based on empirical data, developing countries need ~1.000.000.000 kWh/year (1 TWh/year) consumption to get 1% of economic growth.
- ▶ For an economic growth of 5%/year, Madagascar needs to produce ~12.000.000.000 kWh/year (12 TWh/year, assuming Jirama keeps its actual network.

# ENERGY OPPORTUNITIES ON MINE PROJECT

**Sakoa Coal Project:** more than 1 Billion Tons of reserve. Power needs: 20 MW

**Tsimiroro Heavy Oil:** 1.7 billion bbl recoverable oil

Symbion Heavy-Oil-powered Generator 110 MW

**Natural Gas of Mahaboboka:** 1.2 TCF proven reserve – full capacity 200 MW

**Soalala project:** Phase 1: 60MW (thermal) Phase 2: 60W (hydro) Phase 3: 60 MW (hydro)

Thank you !

