



Programme of Activities (PoA) for Sustainable  
Renewable Energy Power Generation in Papua New  
Guinea (PNG)

# The project

- ADB was processing Project 41504: Town Electrification Investment Program
- It included [TA-7113 PNG: Preparing the Town Electrification Project](#)
- [Loan-2714/2713 PNG: Town Electrification Investment Program, Tranche 1](#)
- Early identification of CDM opportunity before loan was approved

# ADB Loan Project Elements

The investment program will improve power supply in provincial urban centres through **replacement of diesel power generation** with sustainable renewable energy power generation. The investment program will include:

- (i) construction of about **six run-of-river hydropower** plants to supply provincial centres,
- (ii) construction of transmission systems to connect provincial centres, and
- (iii) capacity building within the power utility and communities. Project preparatory technical assistance (TA) was used in project preparation.

# Electricity Scenario in PNG

- Grid-connected power is largely restricted to the main urban areas
- **Less than 10% of the population has access to electricity**
- Relatively **low percentage of urban residents are connected**
- Distributed power is rarely available outside the provincial urban centres
- The **supply of power to business and industry in the provincial urban centres is unreliable**
- **Many large businesses in the provinces self-generate using diesel generators, at high cost**
- Lack of access to affordable, reliable power is limiting economic growth

# The Thought Process

- Need for electrification
- Low carbon growth possible due to existence of natural resources like Solar, hydro, geothermal, wind, wave / tidal, biomass projects
- New projects may include
  - user generated,
  - grid connected and
  - mini grid projects
- Developers may be government, private companies or individuals
- Similar situations are likely to exist in many more countries in the pacific / world

# The Thought Process (contd.)

- PoA is ideal for a long term multiple projects scenario
- Number of individual methodologies need to be used to suite each plausible scenario (no electricity (AMS I A) / mini grid (AMS I F) / Grid connected (AMS I D))
- Type I methodologies are good for the hydro projects, and are applicable for other RE technologies as well
- AMS I F or AMS I D are not suitable for greenfield RE generation situation where baseline has no power
- There is a need to have approval from CDM EB on multiple methodology application in PoA

# A small beginning.....



# To reach....



**and their combinations.....**



# Combination of RE technologies / Situations covered under PNG PoA

Methodology/Methodology Combination->							
Technology/Technology Combination ↓	AMS I.A	AMS I.D	AMS I.F	AMS I.A + AMS I.D	AMS I.A + AMS I.F	AMS I.D + AMS I.F	AMS I.A + AMS I.D + AMS I.F
Wind (Onshore/Offshore)	✓	✓	✓	✓	✓	✓	✓
Solar (PV/Thermal)	✓	✓	✓	✓	✓	✓	✓
Hydro	✓	✓	✓	✓	✓	✓	✓
Geothermal	✓	✓	✓	✓	✓	✓	✓
Tidal	✓	✓	✓	✓	✓	✓	✓
Wave	✓	✓	✓	✓	✓	✓	✓
Biomass	✓	✓	✓	✓	✓	✓	✓
Biomass Gasification	✓	✓	✓	✓	✓	✓	✓
Wind (Onshore/Offshore)+ Solar (PV/Thermal)	✓	✓	✓	✓	✓	✓	✓
Wind (Onshore/Offshore)+ Hydro	✓	✓	✓	✓	✓	✓	✓
Wind (Onshore/Offshore)+ Geothermal	✓	✓	✓	✓	✓	✓	✓
Wind (Onshore/Offshore)+ Tidal	✓	✓	✓	✓	✓	✓	✓
Wind (Onshore/Offshore) + Wave	✓	✓	✓	✓	✓	✓	✓
Wind (Onshore/Offshore)+ Biomass	✓	✓	✓	✓	✓	✓	✓
Wind (Onshore/Offshore) + Biomass Gasification	✓	✓	✓	✓	✓	✓	✓
Solar (PV/Thermal) + Hydro	✓	✓	✓	✓	✓	✓	✓
Solar (PV/Thermal) + Geothermal	✓	✓	✓	✓	✓	✓	✓
Solar (PV/Thermal) + Tidal	✓	✓	✓	✓	✓	✓	✓
Solar (PV/Thermal) + Wave	✓	✓	✓	✓	✓	✓	✓
Solar (PV/Thermal) + Biomass	✓	✓	✓	✓	✓	✓	✓
Solar (PV/Thermal) + Biomass Gasification	✓	✓	✓	✓	✓	✓	✓
Hydro + Geothermal	✓	✓	✓	✓	✓	✓	✓
Hydro + Tidal	✓	✓	✓	✓	✓	✓	✓
Hydro + Wave	✓	✓	✓	✓	✓	✓	✓
Hydro + Biomass	✓	✓	✓	✓	✓	✓	✓
Hydro + Biomass Gasification	✓	✓	✓	✓	✓	✓	✓
Geothermal + Wave	✓	✓	✓	✓	✓	✓	✓
Geothermal + Tidal	✓	✓	✓	✓	✓	✓	✓
Geothermal + Biomass	✓	✓	✓	✓	✓	✓	✓
Geothermal + Biomass Gasification	✓	✓	✓	✓	✓	✓	✓
Tidal + Wave	✓	✓	✓	✓	✓	✓	✓
Tidal + Biomass	✓	✓	✓	✓	✓	✓	✓
Tidal + Biomass Gasification	✓	✓	✓	✓	✓	✓	✓
Wave + Biomass	✓	✓	✓	✓	✓	✓	✓
Wave + Biomass Gasification	✓	✓	✓	✓	✓	✓	✓
Biomass + Biomass Gasification	✓	✓	✓	✓	✓	✓	✓
Wind (Onshore/Offshore) + Photovoltaic + Hydro	✓	✓	✓	✓	✓	✓	✓
Wind (Onshore/Offshore)+ Hydro + Geothermal	✓	✓	✓	✓	✓	✓	✓
Wind (Onshore/Offshore) + Geothermal + Tidal	✓	✓	✓	✓	✓	✓	✓
Wind (Onshore/Offshore)+ Photovoltaic + Geothermal	✓	✓	✓	✓	✓	✓	✓
Wind (Onshore/Offshore)+ Biomass Gasification + Hydro	✓	✓	✓	✓	✓	✓	✓
Biomass + Geothermal + Hydro	✓	✓	✓	✓	✓	✓	✓

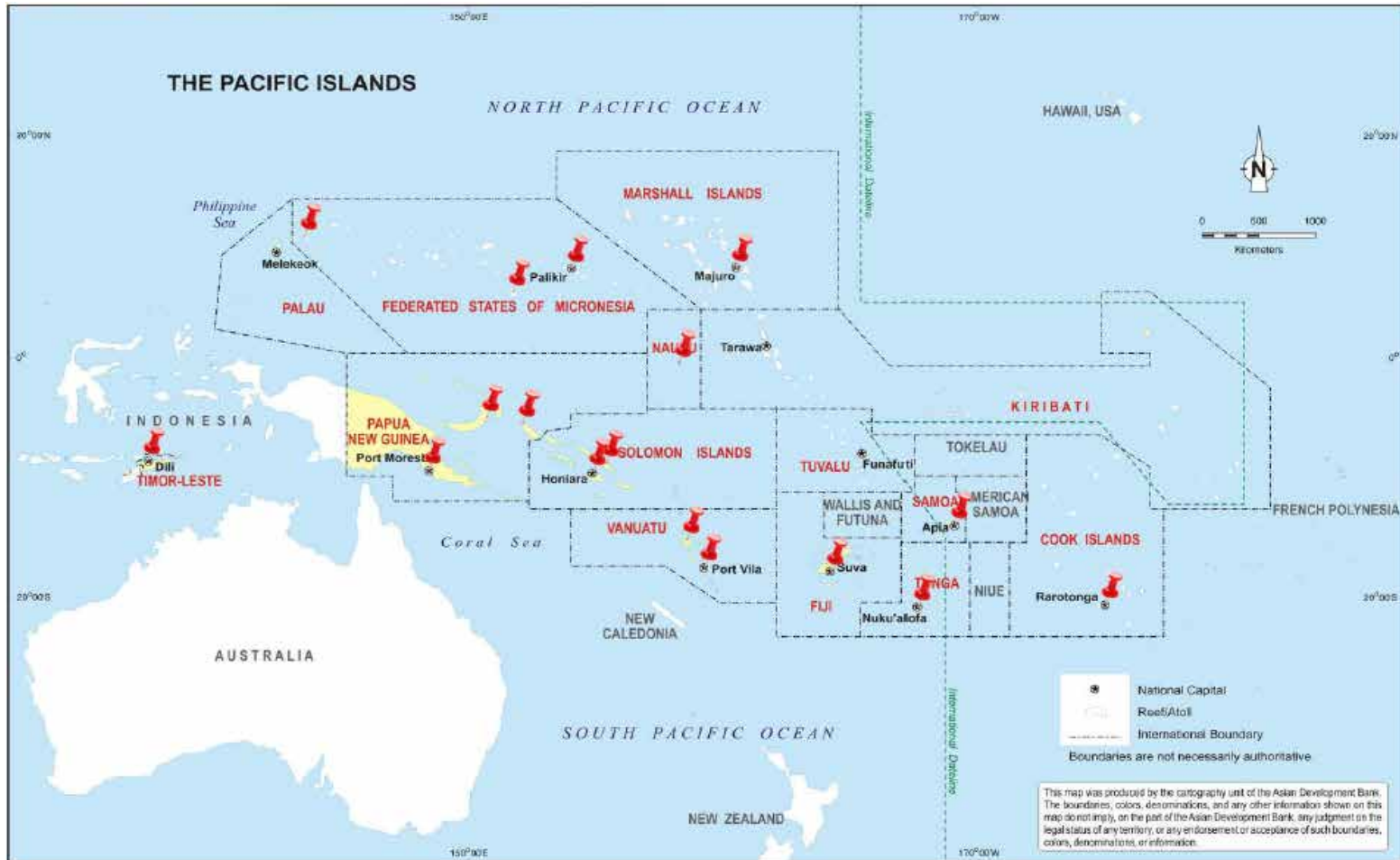
# EB 65..Annex 3\*

23. If the boundary of the PoA is amended post-registration to expand the geographic coverage or to include one or more additional host Parties, the CME shall update the eligibility criteria to reflect the consequent changes.....

\* STANDARD FOR DEMONSTRATION OF ADDITIONALITY, DEVELOPMENT OF ELIGIBILITY CRITERIA AND APPLICATION OF MULTIPLE METHODOLOGIES FOR PROGRAMME OF ACTIVITIES

[http://cdm.unfccc.int/Reference/Standards/meth/meth\\_stan04.pdf](http://cdm.unfccc.int/Reference/Standards/meth/meth_stan04.pdf)

# Extension.....to Pacific

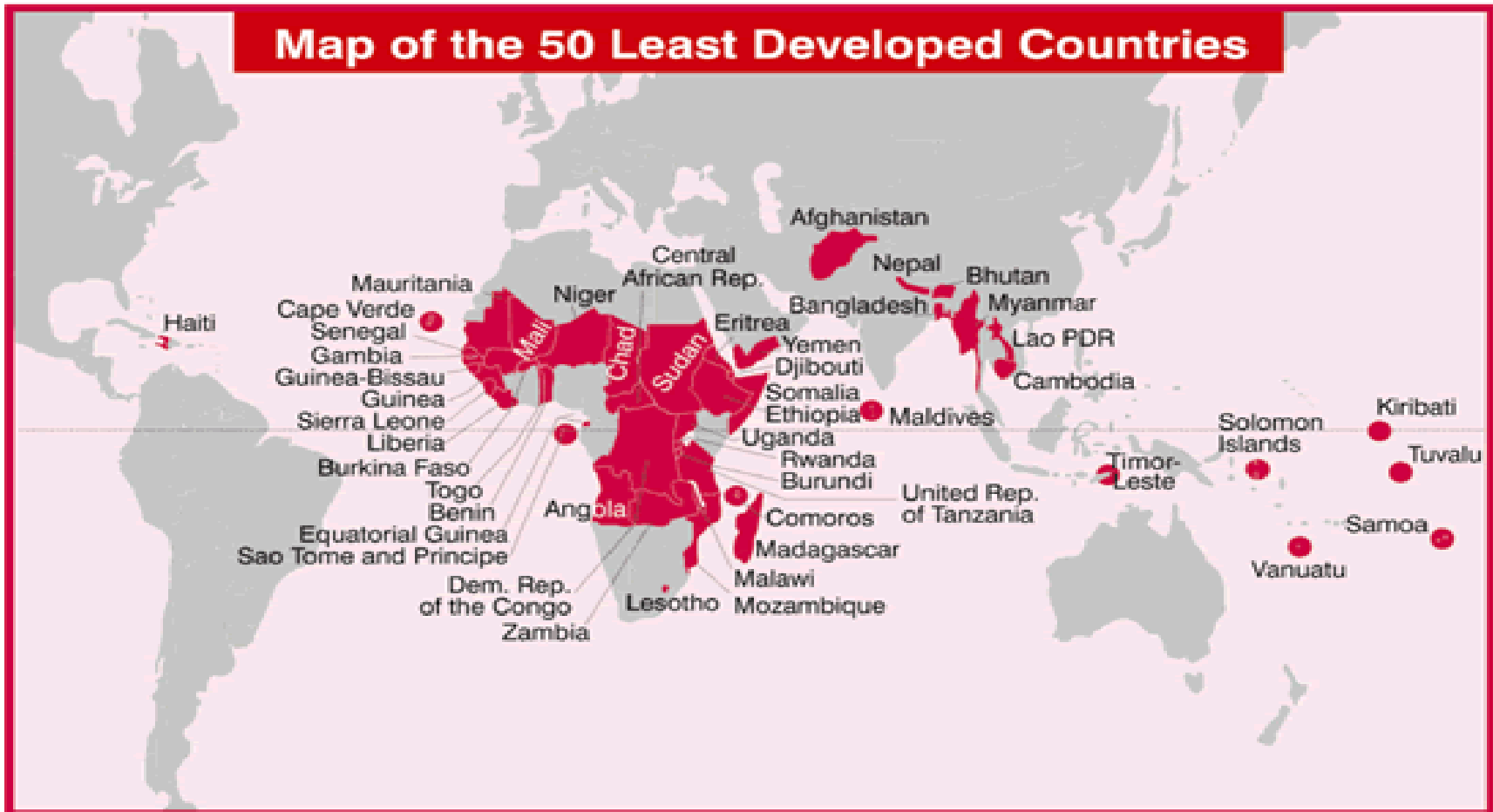


Shows the location of ADB Energy Projects in the Pacific

# Extension to..... Asia



# Extension to.....LDC of the World





# Way Forward and Lesson Learnt

- Asia alone has 675 million people without electricity. Highest electrification requirement is in Myanmar, East Timor, Bangladesh, India, Cambodia, Lao PDR, Solomon Islands...
- Expansion project boundaries in case of advanced PoAs – LED, water purification, biogas and other RE technologies
- Newer methodologies may give better emission reduction
- Blending of existing rules can help in simplification of the CDM process
- Appropriate logical explanations of difficulties in CDM projects may be resolved by CDM EB by presentations

# And the journey begins.....





# From Divune.....

