PHOTOVOLTAIC DEVELOPMENT STRATEGY PROGRAM IN INDONESIA

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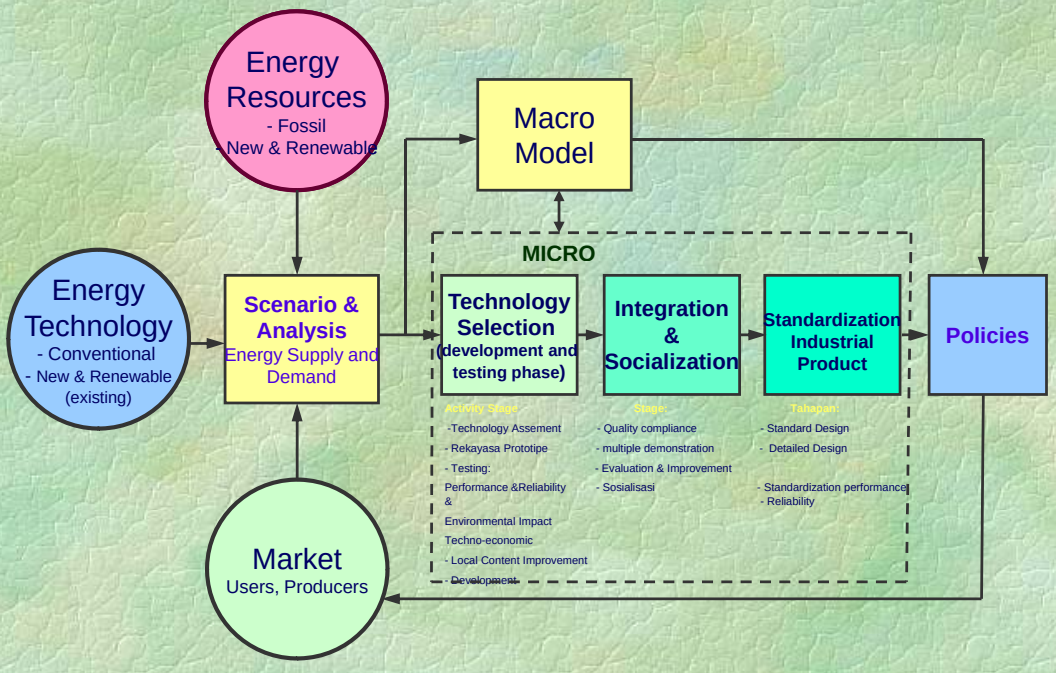
INTRODUCTION

- About 10,000 villages do not have an access to electricity supply
- The high cost and the non-continue supply of providing fuel in remote areas are the main obstacle
- In general the Indonesian population is sparse and scattered in wide areas
- The government encourages the use of alternative energy to solve rural electrification program through The Presidential Decree of National Energy Policy 2006

OBJECTIVES OF THE PROGRAM

- to increase the living standard and the quality of life of the rural and remote population through the provision of electricity,
- to provide sustainable electricity in remote areas by utilising solar energy, which is renewable and pollution free,
- to strengthen the role of Local Organization (OMS) in the management of rural and remote area electrification,
- to support the development of photovoltaic related industries in Indonesia, with targeted local contents of up to 80%,
- to establish the testing facilities for photovoltaic modules and balance of systems to insure standardised and quality products in Indonesia,

The Integration between Assessment, Development and Technology Application Activities



STRATEGY OF IMPLEMENTATION

1. DEMONSTRATION PROGRAM

The objectives of demonstration program is

- ✡ To implement a model
- ✡ To investigate the technical reliability of the system
- ✡ To explore the economic visibility
- ✡ To train the researchers

STRATEGY OF IMPLEMENTATION

✡ Experience in demonstration program:

- 5 kWp water pumping system in 1979 and
- 25.5 kWp desalination plant in 1980
- Water pumping systems, radio communication system and refrigerator for vaccine in 1985
- 6.3 kWp two step pumping system in 1984
- 19 kWp centralised PV village electrification, 1984
- 85 units Solar Home System in Sukatani
- 3 PV-Diesel hybrid systems
- 50 Solar Boat Systems

Continued

STRATEGY OF IMPLEMENTATION
(continued)

2. MULTIPLE DEMONSTRATION PROGRAM:

- **The objectives of multiple demonstration is**
  - to understand problems in real condition,
  - to manage distribution of the systems and
  - to investigate after sales mechanism.

- **Result from multiple demonstration:**
  - Payment scheme has to be modified
  - Needs information of faulty hard-ware and monthly payment
  - Requires scheme for battery replacement mechanism

STRATEGY OF IMPLEMENTATION
(continued)

2. MULTIPLE DEMONSTRATION PROGRAM:

- **Experience on multiple demonstration:**
  - 10 PV water pumping systems with the capacity between 1.9 - 3.4 kwp
  - 3445 unit Solar Home System in 14 provinces which is financed by the Presidential aid program
  - 270 PV System for rural clinics
  - TV Repeater Stasion and Telecomunication Symtem

STRATEGY OF IMPLEMENTATION
(continued)

3. DISSEMINATION PROGRAM:

- **The objectives of dissemination is**
  - **to understand "the implement of technology which is technically reliable, economically feasible and socially acceptable"**
- **Experience in PV dissemination program:**
  - **Installation of 36,400 Solar Home Systems which are financed by soft loan from AusAID.**
  - **Big-SOL and the World Bank Program**

BERBAGAI SISTEM PLTS YANG TELAH DITERAPKAN PADA TAHAPAN PENGKAJIAN KELAYAKAN TEKNO-EKONOMI

SOURCE OF FINANCE

One of the main obstacle in dissemination of Solar Home System is a high initial investment cost, therefore source of finance could be from:

- Soft loan from other country
- Grant or matching grant
- GOI budget
- Revolving fund

COMMITTED SOURCE OF FINANCE

1. AUSTRALIAN AID (AusAID):

- Total Soft Loan of US$ 30 million which includes:
  - Installation of 36,400 SHS
  - SHS spare parts
  - Testing facility for LSDE-BPPT
  - Training
- to be implemented in 254 villages, 28 districts, 9 provinces in the East Part of Indonesia

COMMITTED SOURCE OF FINANCE

(CONTINUED)

2.. THE WORLD BANK LOAN:

- ✡ Grant of US$ 11 million for
  - Installation of 70,000 SHS
  - Testing facility for LSDE-BPPT
  - Training
  - Study decentralised rural electrification
- ✡ to be implemented in three provinces (first step)
- ✡ Loan agreement has been signed in March 97

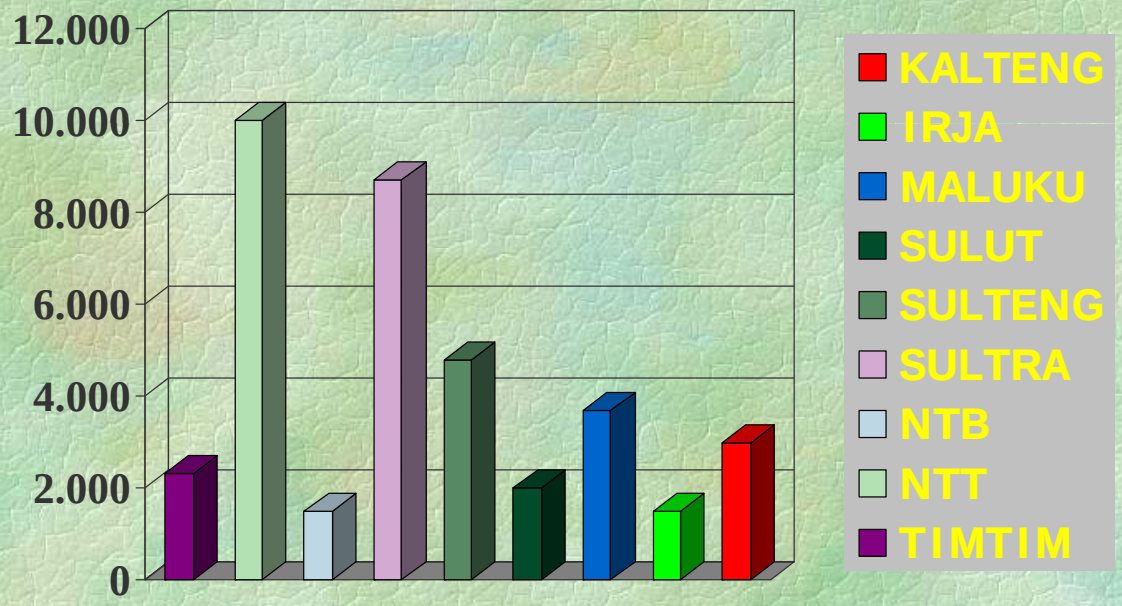
COMMITTED SOURCE OF FINANCE

(CONTINUED)

3. THE BAVARIAN MATCHING GRANT:

- ✡ Total matching grant DM 40 million which include installation of 35,000 SHS and 300 Centralised System.
- ✡ Installation of a pilot project in Lamongan
- ✡ MoU has been signed in July 1997
- ✡ The first phase will be started in this fiscal year for installation of 300 Solar Boat Systems, PV-Diesel Hybrid Systems in Riau and PV Pumping Systems

PROGRESS OF THE PROGRAM



SHS Financing Scheme I

- The down payment is Rp. 215,000.- that is used to purchase light bulbs and installation material
- The management and maintenance fee is Rp 2000.-
- The monthly payment is Rp. 15.000.-
- The battery replacement fee is Rp.3000.-
- Leasing period is 10 years

SHS Financing Scheme II

- Designed for the second segment of consumers
- A semi commercial project
- Solar Home Systems are marketed by dealers
- The marketing strategy varies according to the dealers policy
- Lease and purchase contract

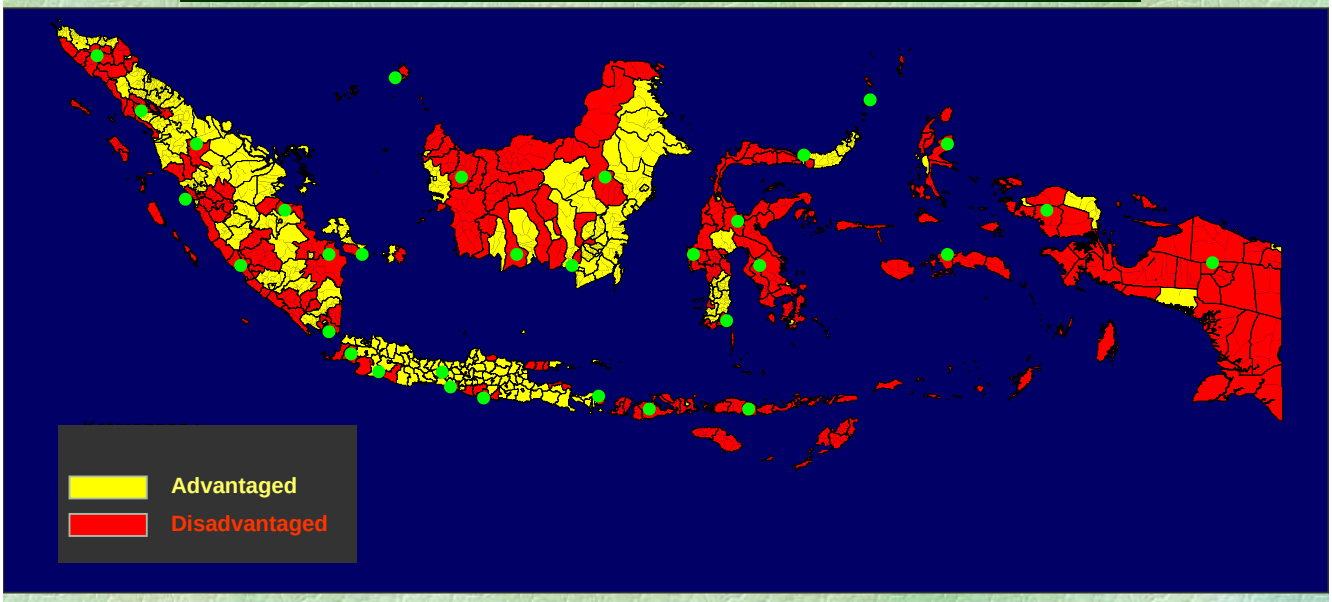
PROGRAM PEMBANGUNAN INFRASTRUKTUR PERDESAAN (P2IPDT)
(UNTUK INFRASTRUKTUR ENERGI)

NO.	TAHUN ANGGARAN	MENU KEGIATAN	JUMLAH UNIT	JUMLAH DESA	JUMLAH KK
1	2006	PLTS Tersebar 50 Wp	5.599	107	5.599
		PLTS TERPUSAT	0	0	0
		PLTMH	2	2	450
Sub Total			5.601	109	6.049
2	2007	PLTS Tersebar 50 Wp	6.202	144	6.202
		PLTS TERPUSAT	19	19	570
		PLTMH	7	7	1.750
Sub Total			6.228	170	8.522
3	2008	PLTS Tersebar 50 Wp	17.409	355	17.409
		PLTS TERPUSAT	53	53	1.590
		PLTMH	26	26	6.500
Sub Total			17.488	434	25.499
TOTAL			29.317	713	40.070

DIVISION OF THE DISADVANTAGED REGIONS (199)

- EASTERN INDONESIA : 123 REGIONS (62%)
- **SUMATERA : 58 REGIONS (29%)**
- **JAVA AND BALI : 18 REGIONS (9 %)**

MAPPING OF DISADVANTAGED REGIONS



CONCLUDING REMARKS

- **The use of photovoltaic technology is one of many solutions to provide electricity to rural and remote areas in Indonesia**
- **To optimise the implementation of photovoltaic program, the consumers need to be segmented and special financing schemes need to be created and industrial capability should be integrated**
- **GOI has actively promoted the utilisation of renewable energy resources, particularly PV electricity generation.**