

# Remote Area Power Supply Systems (RAPSS)

*The Concept and a Framework for Project Development and Implementation*



## BACKGROUND AND OBJECTIVE

Bangladesh, with a population of over 130 million, has one of the lowest levels of per capita consumption of electricity. Electricity is available to less than 25% of the total population. In rural Bangladesh, the figure is about 10%,

### Salient Features of RAPSS

- Two types of RAPSS:
  - On-grid RAPSS – where a RAPSS will buy power from PDB at wholesale tariff and sell power to its own customers at or near REB tariff;
  - Off-grid RAPSS – integrated rural utilities with completely localised grid, and no or light-handed regulation of tariff for up to ten years;
- Fully open to private sector investments on the basis of specific concession agreements/licenses, for a period of 10 to 20 years;
- National technical, environmental and safety standards must be followed.

and in coastal and remote areas, it could be as low as 3%. Loss of economic opportunities due to lack of electricity in these remote areas could thus be enormous. Toward redressing this situation, the Infrastructure Investment Facilitation Center (IIFC)<sup>1</sup>, has been engaged in promoting Remote Area Power Supply Systems (RAPSS) with private sector initiatives. Since no power may truly be the most costly power in terms of opportunity

loss, the objective of the proposed RAPSS projects is to provide faster access to power in the remote and coastal areas of Bangladesh through private sector investments in rural power generation and/or distribution facilities.

## THE BASIC RATIONALE

The basic rationale for RAPSS is provided by the simple fact that the government or its agencies like BPDB<sup>2</sup> and REB<sup>3</sup> do not have access to adequate capital required for faster electrification of remote/rural areas. So, it is prudent to allow private investors to come in, where feasible, and hasten electrification. This will enhance the economic and social development of the remote rural areas, where BPDB and REB cannot provide electricity in the foreseeable future. The remote rural areas are also

### IIFC Services for Project Development

Under several Development Services Agreements (DSAs) with MPEMR, for various locations, IIFC will:

- Develop appropriate bidding process defining the basis for bidding.
- Facilitate licenses/ agreements for specific RAPSS.
- Develop a transparent set of selection criteria for pre-qualifying and ranking bidders.
- Assist in inviting expressions of interest (EOI) from potential bidders/ investors for specific RAPSS locations.
- Create awareness through Investment Promotions
- Assist in pre-qualifying and ranking bidders.
- Assist in evaluation of bids, negotiations with winning bidders, and signing of agreements

generally the poorest in the country. Thus, the poverty alleviation aspects of RAPSS cannot be overemphasized.

## GOB POLICY SUPPORT

In 1999, the Power Cell of Ministry of Power, Energy & Mineral Resources (MPEMR) issued a Policy Guideline for Small Power Plant (SPP) in Private Sector. This envisaged that private sector investors/ sponsors would come forward to establish

<sup>2</sup> Power Development Board

<sup>3</sup> Rural Electrification Board

SPPs of 1-10 MW in size, on a fast track basis. The investor/sponsor could directly enter into contracts with customers for sale of power on terms mutually agreed upon. The sponsor could also build local distribution systems for supply of electricity to contracted customers.

## TYPES OF RAPSS

RAPSS will be of two types: (i) on-grid RAPSS in rural locations where access to BPDB/REB grid is available but not fully utilised by any local distribution facilities, (ii) off-grid RAPSS in remote locations where no electricity infrastructure currently exist, and so these RAPSS will, by necessity, have to be integrated rural utilities responsible for electricity generation, transmission and distribution. The on-grid RAPSS will buy power from

### Pre-feasibility Study for RAPSS

- Estimating potential market size in the short run and the long-run, through conducting market surveys in specific locations, and analyses of data from secondary sources;
- Determining appropriate generation technology for specific locations (gas, diesel, and renewable sources like wind, solar, biomass, etc. or a hybrid system);
- Estimating unit cost of power in a given location, under different system configurations;
- Making a judgment, based on the above information and analyses, about potential economic viability of specific license areas.

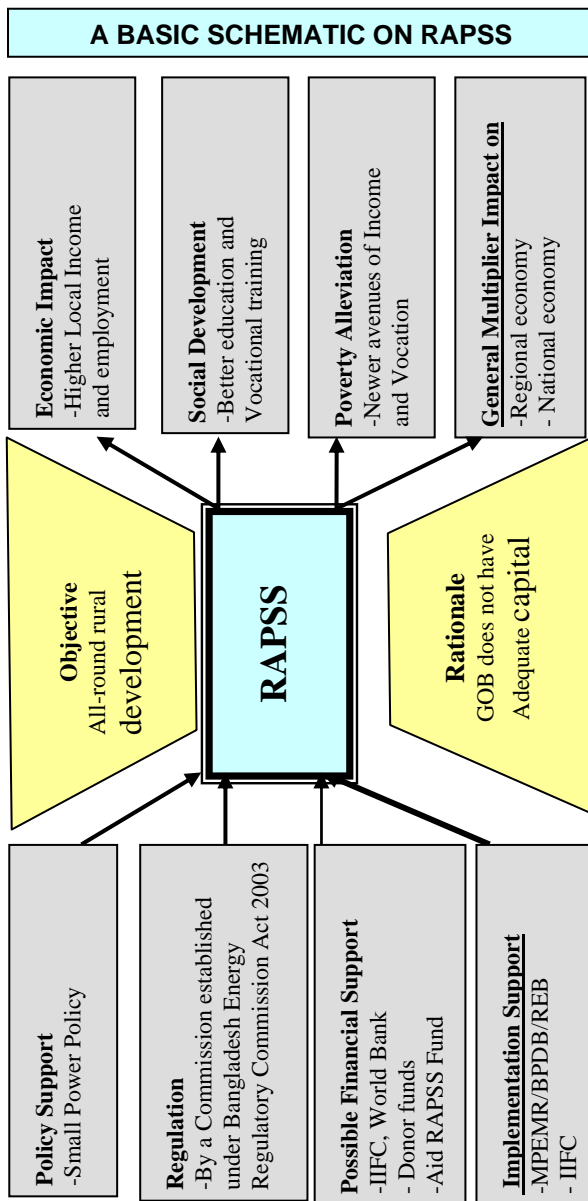
BPDB/REB at wholesale tariff and sell power to its own customers at or near REB tariff. The off-grid RAPSS will be subject to light-handed regulation specified in the concession agreements or licenses.

## TRIPARTITE MOU ON RAPSS

On March 5, 2001, a tripartite MOU was signed by the ERD, the International Finance Corporation (IFC) of Washington DC, and IIFC, whereby GOB had expressed its interest in promoting private sector investment in distribution of electricity, in collaboration with IFC and IIFC. Under this MOU, there are 14 districts where several RAPSS may be established.

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<sup>1</sup> A GOB-owned entity under the ERD



Under the provisions of the MOU, MPEMR has signed

**THE FIRST ROUND: FOUR RAPSS PROJECTS**

four DSAs with IIFC. These are two on-grid locations at Hatibandha-Patgram & Assasuni-Debhata and two off-grid locations at Sandwip & Kutubdia islands. IIFC is subsequently expected to undertake appropriate efforts to build up awareness about potentially successful RAPSS locations among investors and also to facilitate awarding of concessions/licenses to successful applicants.

**PRE-FEASIBILITY STUDIES**

After the potential viability of a RAPSS is established, and potential entrepreneurs and investors are made aware of the opportunities, IIFC is expected to undertake several facilitation tasks on behalf of the MPEMR.

Based on readily available geographic, demographic, and socio-economic data of these locations, plus information on PDB and REB's network expansion plans, the above four locations were found promising for successful RAPSS. Results of the pre-feasibility studies conducted by British and Canadian consultants of IIFC indicate that the two on-grid RAPSS are likely to be commercially viable. The off-grid RAPSS in either location will, however,

**Concession Agreement/License for RAPSS**

Each RAPSS concession or license will define the following:

- a geographic area for which the concession/ license will be issued;
- the duration of the concession/ license;
- performance standards (proven utility standards) for supply of power in the area;
- the regulatory regime for the concession/license;
- all other matters considered to be relevant to the operation of an electricity supply system.

take longer time to be commercially available. This has been a global trend for remote rural areas. Such off-grid projects may be developed through targeted output based aid (OBA).

Following the examples of many countries<sup>4</sup>, GOB may consider setting up an Aid-RAPSS Fund for providing OBAs. Donor funds should be available for establishing such a fund, if the experience of many other developing countries is any guide. This will become an important element in the country's poverty reduction strategy.

**A NEW BREED OF ENTREPRENEURS**

R A P S S project will encourage emergence of a new breed of electricity industry entrepreneurs in Bangladesh. These will be independent operators of off-grid networks and independent operators

**APPROPRIATE BIDDING PROCESS**

of grid extensions in the rural areas.

The concession model for the development of off-grid electrification was developed in several other countries as a way to minimize budgetary subsidies and encourage private sector participation. The model depends on regulation by contract more than market forces, but it helps ensure that scale economies are achieved. In Argentina, for example, franchise rights for rural service territories are being granted to concessionaires that offer the lowest subsidy to service rural households and community centres. Users pay a connection tariff and monthly service fee (set by the government), and a declining subsidy is provided to the concessionaires based on the provisions of their contract.

**AN EVOLVING ELECTRIC SECTOR**

The electricity sector is presently undergoing changes in Bangladesh. A Regulatory Commission will shortly be established to regulate the sector. Therefore, some concepts proposed for RAPSS are subject to changes by the Commission.

**AN AID-RAPSS FUND?**

<sup>4</sup> **Extending rural electrification:** A survey of innovative schemes by Ray Tomkins, The World Bank Group