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Rural Electrification Development Program (REDP)

Final Report

April 2006 – February 2011

USAID FROM THE AMERICAN PEOPLE

DFID Department for International Development

NRECA

Contents

Abbreviations

BERC	Bangladesh Energy Regulatory Commission
BPDB	Bangladesh Power Development Board
BSTI	Bangladesh Standards and Testing Institute
CAP	Country Assistance Plan (DFID)
CFR	Cost and Freight (Incoterm)
CIF	Cost, Insurance and Freight (Incoterm)
CPT	Carriage Paid To (Incoterm)
DFID	United Kingom Department for International Development
ESoW	Enhanced Scope of Work
GBP	Pound (Sterling)
GoB	Government of Bangladesh
GoB PPR	Government of Bangladesh Public Procurment Regulations
HDRC	Human Development Research Centre
IPP	Independent Power Producer
MAEBD	Member Awareness Education and Board Development
MDG	Millennium Development Goals
MIS	Management Information System
MOF	Ministry of Finance
MPENR	Ministry of Power, Energy and Mineral Resources
MW	Megawatt (1000 kW)
NGO	Non-governmental organisation
NRECA	National Rural Electric Cooperative Association International Limited
PBS	Palli Bidyut Samity (Rural Electricity Cooperative)
PDB	Power Development Board
PKSF	Palli Karma Sahayak Foundation
PPR	Public Procurement Regulations
REB	Rural Electrification Board
REDP	Rural Electrification Development Program
SPG	Small Power Generation
TEC	Rural Electrification Board Technical Evaluation Committee
TOR	Terms of Reference
USD	United States Dollar
USAID	United States Agency for International Development

Executive Summary

The five-year Rural Electrification Development Program (REDP) began in the fall of 2005 with the signing of a Memorandum of Understanding (MoU) between the United Kingdom's Department for International Development (DFID) and the Government of Bangladesh (GoB). The National Rural Electric Cooperative Association International Limited (NRECA) was contracted by DFID through the United States Agency for International Development (USAID) to design and manage the REDP oversight and technical assistance program. The USAID–NRECA contract amounted to $5.8 million and provided for oversight of the procurement of material and construction projects, institutional development and an impact assessment. DFID's overall REDP budget was originally set at £50 million ($86.2 million) then reduced to £40 million ($69.9 million) in October 2007 during a DFID Bangladesh office portfolio review. Although the project budget was reduced, the REDP's scope of work was not changed.

The project provided approximately £36.5 million in financial aid to support GoB investments in the electric network managed by the Rural Electrification Board (REB). With co-financing of approximately £122 million by the GoB, the capital investment established goals to provide at least 1.35 million new household electricity service connections and at least 10,000 new connections to rural enterprises.

A micro-finance component was also included in the REDP. This component was managed separately by the Palli Karma Sahayak Foundation (PKSF) and was established to provide seed capital to establish a loan fund for the disadvantaged households in rural Bangladesh to finance the internal wiring and utility connection fees thereby enabling households and small business to obtain electric service.

The focus areas under the components in the USAID – NRECA contract were:

Component #1 – Supervision and Monitoring

- Verify that REB's material selection process was consistent with REDP requirements
- Assist REB with the materials procurement process and to verify compliance with GoB Public Procurement Policy 2003 and REB standards
- Report on REB compliance with REDP and GoB requirements
- Monitor and substantiate that the use of REDP materials was in accordance with REB Master Plan, REDP investment requirements and REB Construction Standards

Component #2 – Member Awareness / Education and Board Development

- Assist REB and Palli Bidyut Samitys (PBSs) in the development and implementation of education and training program(s) to improve the awareness of PBS members to their rights and responsibilities as effective members and encouraging increased participation in annual meetings and board elections
- Support the ongoing development of PBS Boards (with special emphasis on female members) to improve the governance of the Bangladesh RE Program by helping REB

expand delivery of training programs for PBS Directors and increase the number of trained directors

- Strengthen the REB and PBS capacity to deliver effective director and member education programs enhancing overall communication efforts
- Strengthen PBS capacity to deliver effective women only member education programs and general communication recognizing the special place rural women hold in the household and their limitations to participate in a "more traditional" training settings and time periods
- Enhance the capacity of the REB Training Directorate to deliver effective programs for PBS Directors, with emphasis on the importance of PBS director training, and the role of PBS directors within the REB program

Component #3 – Socio-Economic Evaluation (Impact Assessment)

- Develop a basis for the baseline study by establishing the study methodology, socio-economic parameters and data collection instruments
- Complete socio-economic baseline survey and midterm monitoring review along with a socio-economic evaluation following the completion of the REDP to determine the socio-economic impact on the targeted beneficiaries (i.e. households with no electrical connections along with female led and poorer households)

Component #1 – Supervision and Monitoring

The Supervision and Monitoring Task required involvement with all of the subtasks related to the planning and physical development of the PBS distribution systems and therefore has been the major focus of NRECA work throughout the life of the project. This effort included sub-tasks such as monitoring material procurement, crosschecking a selected number of the PBS master plans to confirm that the key elements of the master plan development and updating processes were being properly incorporated, as well as verifying that the correct selection process was used to identify projects constructed under the DFID grant. Essentially NRECA monitored the total project execution involving DFID funds including material procurement, warehousing and project construction.

DFID, through its project development process and discussions with the GoB, REB and other donors confirmed that NRECA's responsibility was to review and provide concurrence on all procurement actions using DFID project funds and be accorded the necessary cooperation from all parties to complete the work in a timely manner. Participating in the material procurement process for both local and foreign source goods was necessary to ensure that solicitations and evaluations were transparent and carried out in accordance with REB procedures and procurement policies. Emphasis was placed on efforts to ensure that quality materials and equipment were being purchased with the project funds, including periodic inspection of these commodities upon delivery to REB/PBS.

Ensuring that procured materials were properly utilized and projects were completed as planned, NRECA monitored material issuance and construction reports. Periodic field visits to a selected number of projects were conducted to provide a crosscheck and verification of the construction reports and other related documents.

The overall purpose of REDP - increased access to affordable and sustainable electricity services in rural areas - is continuing to progress with the full target of 1.35 million new service connections expected to be reached by June 2012. The procurement of materials and construction contracts by the REB, has been conducted with discipline and care, in compliance with established GoB and REB procurement rules and regulations.

Component #2 – Member Awareness / Education and Board Development

The Member Awareness Education and Board Development (MAEBD) Task focused on modest activity under the initial agreement but was greatly expanded with the signing of the Expanded Scope of Work (ESoW) in June 2009. The primary objective of the MAEBD Task was to promote member/consumer participation levels throughout participating PBSs. To accomplish this task, assistance was provided to REB and the PBSs in the development and implementation of programs that helped strengthen the PBS concept (adopted from RE cooperative model of USA) through improved member education and the development of the PBS Boards of Directors. The intended result was to empower membership to take responsibility for actions and decisions, as well to promote capacity building for PBS board members for improved governance in an effort to enhance the sustainability of the PBSs and the RE Program.

The MAEBD Task involved working with the REB Training Directorate, as well as the REB Management Operations Directorates to ensure that the content and approach for these newly developed member education programs address specific PBS needs. At the PBS level, the Member Services Departments are intended to involve themselves with implementation of member education programs. This component of REDP encouraged REB and the PBSs to explore various approaches to successful member and board orientation training, and improved the engagement of PBS Village Advisors. For many of the PBS Board education programs, the REB Training Directorate and REB officers were directly involved in the delivery of the programs while NRECA assisted with the development of curriculum materials.

There has been a considerable amount of effort by NRECA working with the REB to deliver member awareness and PBS board development training, with expressions of appreciation by participants. The longer term impact of this effort will serve to improve member participation, board governance, transparency and organization sustainability. While the REB has a training directorate and plans to establish a new Dhaka-based training academy, a recent NRECA assessment shows that curriculum, training courses and teaching materials all need to be updated, with an emphasis on the training of trainers. The REDP has made significant progress in these areas.

Component #3 – Socio-Economic Program Evaluation

Numerous studies have documented that access to affordable and reliable electricity is a key requirement for both economic development and poverty reduction. The GoB Poverty Reduction Strategy Paper (PRSP) of October 2005 emphasizes the importance of rural electricity for creating employment.

To evaluate the socio-economic impact of the rural electrification improvements on development, REDP calls for completing:

- Baseline Survey
- Annual Review for Monitoring Progress
- Brahmanbaria Micro-credit Impact Study
- Socio-economic Impact Study

The key objective of this component was to examine the overall social and economic impact of the REDP with emphasis on poverty reduction, with gender issues given top priority in the final assessment.

To accomplish this task it was necessary to have a sound methodology and research strategy. Evaluation research methods were designed to ensure that changes in economic and social conditions for households and other measurement units (commercial, industrial, agricultural units, social/human development units) that gained access to electricity were in fact attributed to the rural electrification program and not to other infrastructure or development programs. This was accomplished by conducting surveys and participatory assessments prior to the program, when the program was in the process of implementation, and after the implementation. Both the participatory approaches and the survey methods were required to measure the impact of rural electrification on development.

The REDP socio-economic impact study recently completed (October 2010 to January 2011) was most likely undertaken too soon to measure the full benefits of the program. It is recommended that a further impact assessment be considered after all remaining REDP electric service connections are provided. Such a study should ideally be considered for October 2012 to January 2013.

Quarterly Report

The final project report and quarterly report were both due to be submitted to USAID on the same date (January 31, 2011). NRECA requested USAID concurrence to develop a final project report which would include quarterly results - USAID concurred. The 19th and final Quarterly Report can be found in Annex 1.

SUMMARY PHYSICAL PROGRESS / DFID FUNDED REDP PROJECT – February 2011					
TASK A – SUPERVISION AND MONITORING - PROCUREMENT					
Project Name	**Closing Date**	**Component / Work**	**Target**	**Progress**	**Remarks**
9 PBS	Closed in June 2010	Line Construction, km	8,000	8,736	
		Line Renovation, km	2,000	1,233	
		Consumer Connections	250,000	172,252	Facilities created for 421,471 consumers
10 Lac	Extended by GoB to June 2011	Consumer Connections	1,000,000	357,101	Of the 357,101 cons. connected, 26,825 are commercial & irrigation
67 PBS	Closed in June 2008	New Construction and Renovation, km	13,000	12,397	
		Consumer Connections	100,000	452,886	Facilities created for 580,524 consumers
Master Plan & Construction Verification	December 2010	Field Inspection, Data Collection & Analysis for Construction Projects	9 PBS	9 PBS	Field data collected, analyzed and results provided to PBSs
Monitoring of Material Usage	December 2010	Data Collection & Analysis of Construction Projects, Warehousing & Shipping	9 PBS	9 PBS	Field data collected, analyzed and results provided to PBSs
TASK B – MEMBER AWARENESS & BOARD DEVELOPMENT PROGRAMS					
Sub-Task B.1 Expanded Assistance for PBS Member Education					
Project Name	**Closing Date**	**Component / Work**	**Target**	**Progress**	**Remarks**
Member Awareness Building	December 2010	Member Awareness Workshops Implemented in 50% of PBSs	35 PBS	46 PBS and REB	140 MAE Workshops 7,159 participants, 770 female participants.
Member Awareness Building	December 2010	Workshops for PBS Member Services Dept.	35 PBS	63 PBS 762 Participants	100 percent employee participation with 65 female participants
		Village Advisors – Member Education	9 PBS	Concept Paper	Outlines and training materials developed
Women's Participation	December 2010	Women Participation in AGM at 9 PBS increased 5%	Average of 130 Females (per PBS)	Working with REB Training Directorate	Pilot workshops developed and presented to REB
Sub-Task B.2 Expanded Assistance for PBS Board Development					
PBS Director's Accountability	December 2010	PBS Board Member Orientation Training – 5 day Workshop presented to 50% of new board members elected in Past 2 years	149 New Board Members Elected in 2007-2009	413 total participants - 26% female	19 workshops 68 PBSs represented
PBS Director's Strengthening	December 2010	PBS Directors Strengthening Program completed in 50% of PBS	35 PBS	63 PBSs 703 total participants- 22% female	98 percent Director participation
TASK C – SOCIO-ECONOMIC PROGRAM EVALUATION					
Project Name	**Closing Date**	**Component / Work**	**Target**	**Progress**	**Remarks**
Socio-Economic Program Evaluation	February 2011	Program Evaluation	9 PBS + 6 Non-Poverty PBS	Baseline, Mid-year & Brahmanbaria Completed	Final draft of program evaluation report completed

Rural Electrification Development Program
Final Report
April 2006 through February 2011

Section 1: Introduction

1.1 Background to the Rural Electrification Development Program (REDP)

The REDP was a five year program of activities designed to support the continued development of the REB program management capacity, and to support improvements of selected PBS electric distribution systems that are part of the REB rural electrification program in Bangladesh. REDP was designed to provide support for the electric network expansion and intensification within the Second Rural Electrification Master Plan (2000-2020). Support provided directly to REB, including funding by DFID, to finance up to 1.35 million new electric connections to households and rural businesses, directly benefiting approximately 10 million people. The original REDP/DFID program included a micro-finance component to enable poorer and female led households along with small businesses to finance the home wiring costs and connection fees in an effort to improve the recipients' quality of life and develop new income generating opportunities. The micro-finance component was managed by PKSF and unfortunately, for several reasons, was limited to a pilot program in Brahmanbaria PBS. [1]

In an effort to stimulate economic growth, reduce poverty and improve the quality of life in rural and peri-urban Bangladesh, REDP focused on increasing access to affordable and sustainable electric services. Outputs included: 1) Increasing the number of customers using and paying for electric service within existing distribution areas; and, 2) Increasing the number of poor people receiving electric service providing for income generating opportunities.

The overall investment programme cost was £162 million with the GoB contributing £122 million through the Annual Development Programme (ADP). The National Rural Electric Cooperative Association International Limited (NRECA) was contracted by DFID through the United States Agency for International Development (USAID) to design and manage the REDP oversight and technical assistance program. The USAID–NRECA contract amounted to $5.8 million and provided for oversight of the procurement of material and construction projects, institutional development and an impact assessment. The original DFID contributions to the REDP program totalled approximately £50 million ($86.2 million). The budget was then reduced to £40 ($69.9 million) in October 2008 by reducing the capitalization of the microfinance component, and by taking the benefits of a favourable foreign exchange rate for material procurement. Although the project budget was reduced the REDP's scope of work was not changed. Of the total, DFID is contributing approximately $61.9 million to finance electric system expansion and improvement.

[1] PKSF submitted a request to the GoB and DFID for the discontinuance of the micro-finance component. The request was approved and the micro-finance component was discontinued December 31, 2008.

DFID supported three investment components of the REB Master Plan. The investment components involved a mixture of grid expansion (sub-transmission, mainly 33 kV electrical lines), which is expensive but essential; and intensification, which is less costly, but connects large numbers of customers to existing infrastructure. DFID paid the foreign exchange elements, which are heavier in main grid expansion than intensification work; the Government paid the local costs. These components were the immediate investment priorities of REB. While DFID was seeking to enhance the poverty impact of the program, the REB and NRECA approach was to support the overall REB Master Plan and not 'cherry-pick' specific sub projects.

First, a major expansion of the main distribution infrastructure backbone in nine PBSs was supported. The total DFID investment cost of this component was $46.91 million, which constructed 8,736 km of new distribution line, renovated (upgraded) 1,233 km of distribution line, constructed nine and upgraded six substations. These particular nine PBSs were established by the REB in the mid to late 1990s and have received little additional investment since that time. They are all located in the more remote, poorer areas of Bangladesh. DFID support enabled additional villages to be connected to the rural grid along with increasing the number of connections (intensification) through the construction of new spur lines from the existing backbone within these nine PBSs. The intensification effort enabled 172,252 relatively poor households and a large number of enterprises located near the backbone grid to be connected. This component accounted for approximately 76% of DFID's total investment package.

The second electric system expansion investment package DFID supported was the intensification in fifty-six existing PBSs, at the cost of $13.36 million. This project involved the construction of one and two pole line extensions, linking households and enterprises located near the backbone grid. It connected 357,101 new consumers (1,000,000 goal) with a relatively low investment and accounted for approximately 22% of DFID's total investment package.

The delay in connecting new consumers was due to procurement delays and moratoriums on new connections. Though the procurement process was delayed during the early stages of the project, most of the material required for providing 1,000,000 new connections has been delivered to the PBSs. Another complicating factor was the implementation of two moratoriums on new connections during REDP; from July 2007 through June 2008 and from April – November 2010. During these periods no electrical connections were made. It is expected that no less than 70% of the target will be achieved by June 2011 with the balance being connected in 2012.

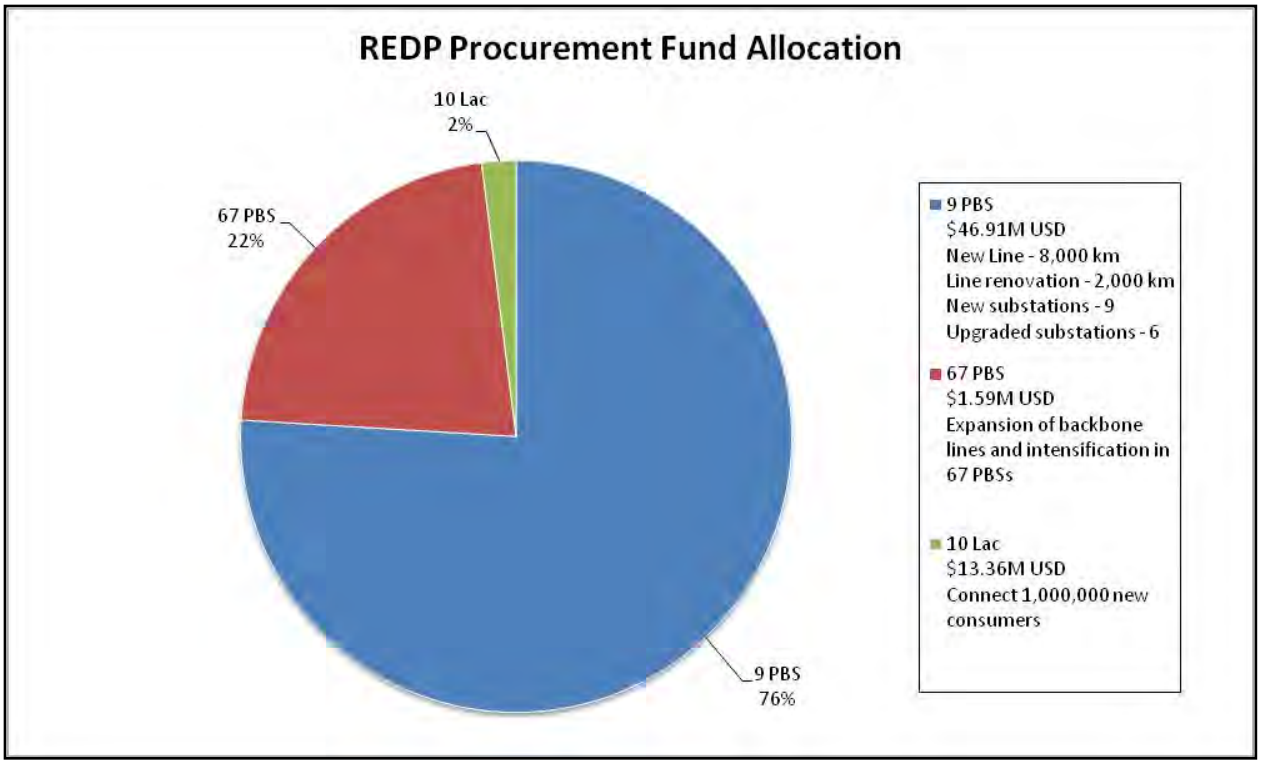
The third investment package provided support for the expansion of the main backbone infrastructure and intensification in sixty-seven PBSs. The DFID investment cost of this component amounted to $1.59 million and focused on the poorer PBSs with lower revenue generation potential. This component connected 452,886 households and a number of

businesses in the more remote locations of the country. This component accounted for approximately 2% of DFID's total investment package.[2]

Funding was also provided for program management, supervision and monitoring along with education and awareness building. NRECA was contracted by DFID through USAID to design and manage the REDP oversight and technical assistance program. On June 24, 2009, Contract Modification #4 – Enhanced Scope of Work was signed. Based on the findings of the DFID Annual Program Reviews, the ESoW called for the expansion of activities under Task B ─ "Member Awareness/Education and Board Development Programs". The additional activities promoted improved governance within the Bangladesh RE Program. The USAID – NRECA contract amounted to $5.8 million.

This is the final project report which follows a series of nineteen Quarterly Reports, providing a full accounting of project activities, plans, progress, and issues for the period April 2006 through February 2011. All Quarterly Reports and Work Plans are made part of this report in digital format (CD).

Chart 1.1.1: DFID Funding Contribution for Material Procurement Identified by Projects - 9PBS, 67 PBS & 10 Lac (1 million consumers) - $ 61.9 million



[2] The majority of funding for these connections was provided by the GoB.

1.2 The Primary Objectives of the REDP Managed by NRECA

- To verify that REB's material selection process was consistent with REDP requirements and the procurement process was in compliance with GoB Public Procurement Policy 2003.
- To review the REB bid evaluation process, providing concurrence when required/requested; to assist REB to retender and re-evaluate unacceptable bids; and, to participate in pre-delivery inspections of materials and pre-contract factory inspections, whenever necessary.
- To monitor and substantiate that materials purchased under REDP were used in accordance with REB Master Plan, REDP investment requirements and, the PBS Construction Work Plans.
- Support ongoing implementation of member education programs by enhancing the capability of the PBS personnel to establish a sustainable education training program for Board Members, Village Advisors and PBS Members.
- Work with the REB Training Directorate and PBS personnel to "institutionalize" delivery of member education programs through village meetings and direct involvement of Village Advisors.
- Design and provide program support for the training of newly elected PBS Board Members using the courses, "Orientation to RE Program" and "Understanding the Financial Reports."
- Establish baseline socio economic data for REDP areas, complete socio-economic surveys within REDP areas midway and upon completion to include a full report on the socio-economic influence of REDP.
- Present quarterly progress reports and thematic reports on REDP activities and challenges

1.3 PBSs Targeted for Assistance under REDP

While the REDP was designed to provide support for the rural electrification countrywide, the program contained targeted support to nine PBSs. The nine PBSs were identified during the REDP design phase as PBSs providing electric service to more marginal, less affluent rural communities, with consequently lower revenue generating potential. The nine targeted PBSs are: Brahmanbaria, Faridpur, Jhenaidah, Kurigram-Lalmonirhat, Magura, Mymensingh-2, Nilphamari, Nowabganj, and Rajshahi. The map and chart on the following pages describe the nine PBSs.

Map 1.3.1: PBSs Targeted for Assistance under REDP

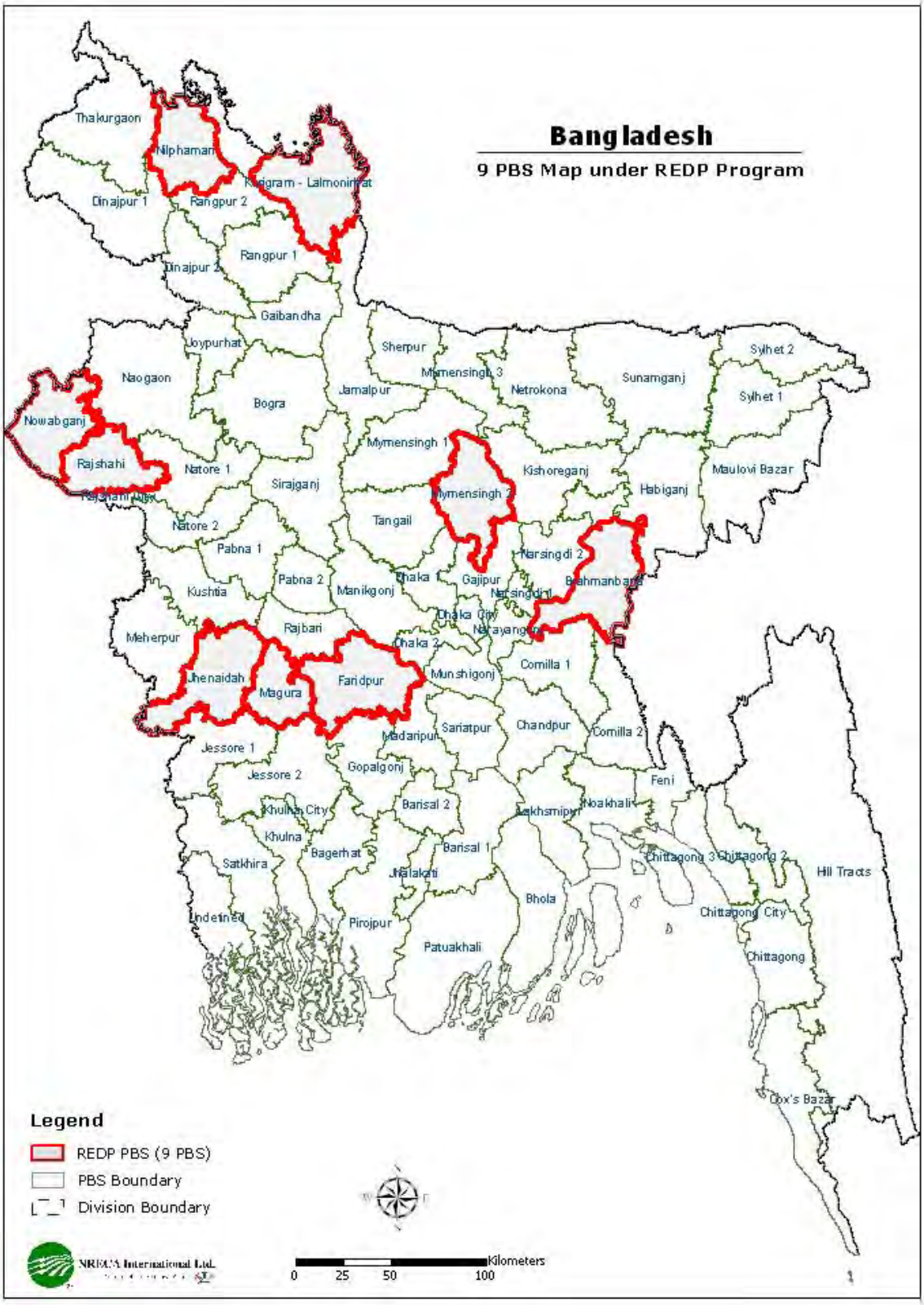


Table 1.3.2: Nine PBSs Key Statistics

Name of PBS	Name of Thana	Name of District	Area (Sq.Km.)	No. of Villages	Population	Name of PBS	Name of Thana	Name of District	Area (Sq.Km.)	No. of Villages	Population
Rajshahi	Boalia	Rajahahi	96.68	-	294,056	Nawabgonj	Bholahat	Nawabgonj	123.52	91	70,507
	Durgapur	Rajahahi	195.03	122	137,640		Gomastapur	Nawabgonj	318.13	235	191,972
	Godagari	Rajahahi	472.13	396	217,811		Nachole	Nawabgonj	283.68	190	97,119
	Mohanpur	Rajahahi	162.65	154	126,396		Nawabgonj	Nawabgonj	451.80	192	389,524
	Paba	Rajahahi	280.42	261	213,379		Shibgonj	Nawabgonj	525.43	367	422,347
	Tanore	Rajahahi	295.39	207	138,015	Mymensingh-2	Bhaluka	Mymensingh	444.05	102	264,991
Brahmanbaria	Akhaura	Brahmanbaria	99.28	125	112,982		Gafargaon	Mymensingh	401.16	218	379,803
	Banchharampur	Brahmanbaria	217.38	118	258,371		Trishal	Mymensingh	338.98	160	336,797
	Brahmanbaria	Brahmanbaria	495.85	398	659,449		Sreepur	Gazipur	465.24	186	320,530
	Kashba	Brahmanbaria	209.76	236	243,833	Magura	Magura	Magura	406.50	252	286,925
	Nabinagar	Brahmanbaria	353.66	198	378,539		Mohammadpur	Magura	234.29	182	160,340
	Nasirnagar	Brahmanbaria	311.66	129	234,090		Shalikha	Magura	228.64	118	132,291
	Sharail	Brahmanbaria	239.52	146	254,481		Sreepur	Magura	179.18	160	144,471
Jhenaidah	Harinakunda	Jhenaidah	227.19	129	162,078	Faridpur	Alfadanga	Faridpur	136.00	118	90,873
	Jhenaidah	Jhenaidah	467.75	283	333,192		Bhanga	Faridpur	216.34	227	214,702
	Kaligonj	Jhenaidah	310.16	196	219,126		Boalmari	Faridpur	272.34	255	190,159
	Kotchandpur	Jhenaidah	165.66	79	107,193		Char Bhadrasan	Faridpur	141.59	129	69,876
	Maheshpur	Jhenaidah	416.96	194	246,350		Faridpur	Faridpur	407.02	298	335,386
	Shailkupa	Jhenaidah	373.42	258	293,341		Madhukhali	Faridpur	230.20	238	165,438
Kurigram	Bhurungamari	Kurigram	236.00	124	176,822		Nagarkanda	Faridpur	379.02	335	267,193
	Chilmari	Kurigram	224.97	152	100,516		Sadarpur	Faridpur	290.21	287	172,059
	Fulbari	Kurigram	163.63	165	129,668	Nilphamari	Dimla	Nilphamari	327.00	58	160,000
	Kurigram	Kurigram	276.45	256	217,311		Domar	Nilphamari	251.00	47	152,000
	Nageshwari	Kurigram	415.30	367	279,775		Jaldhaka	Nilphamari	326.00	77	199,000
	Rajarhat	Kurigram	166.23	180	158,648		Kishoreganj	Nilphamari	265.00	130	202,000
	Ulipur	Kurigram	504.19	418	345,205		Nilphamari	Nilphamari	351.00	107	242000
Total Area (Square km)			**15,371**			**Total Population**			**11,696,570**		

1.4 Project Team

The NRECA project team assigned to support REDP included the following team members, by position:

Person	REDP Duties	Tenure
Robert O. Ellinger	Chief of Party	Full Time
James VanCoevering	Engineering Director	Part Time
Judith A. Burnett	Co-op Institutional Advisor	Full Time
Md. Hasibur Rahman	Project Engineering	Full Time
Maruf Hasan Bhuiyan	Project Engineering	Full Time
Md. Shafiquzzaman	Project Engineering	Part Time
ATM Selim	GIS Team	Part Time
Narayan Chandra Saha	Education and Training Specialist	Full Time
ABM Ali Hossain	Board Development Specialist	Full Time
Syed Nurul Islam	Institutional Development Specialists	Full Time
Krishna Kamal Dey	Socio Economic Specialist	Full Time
Ruh Afza Ruhi Shahana Jannat	Gender Specialists	Full Time
Reza Khasru Shajedul Karim	Program Support Specialists	Full time
Emdad Hossain	Graphics Specialist	Full Time
Brig. M.A. Malek (Rtd.)	PBS Board / Member Development Consultant	Contracted Part Time
Mohammad Y Malik Sakil Bradley Gibson Gregory Boudreaux	HR Specialist Communications Specialist Board Dev. Specialist	Contracted Part Time

Section 2: Key Issues

2.1 Power Shortage

Throughout the five years of REDP, the shortage of power dominated the operation of all PBSs and continues to exacerbate public discontent with REB and the PBSs. Due to the importance of this issue with respect to PBS viability, service quality and because of its overall importance and relevance to the REDP, we highlight this critical issue first in our Key Issues section.

PBSs continued to experience power supply curtailments throughout the five years of REDP. The shortage of power, particularly at peak demand periods, and resulting load shedding affected all PBSs in the REB program. Maintenance issues at aging Bangladesh Power Delivery Board (PBD) power stations contributed significantly to the frequency of outages. Load shedding was most problematic during peak hours throughout Bangladesh, but also occurred during off-peak hours in selected PBSs. Until the necessary steps are taken to increase available electric supply and capacity, load shedding will continue to negatively impact the RE Program and consequently deleteriously affect the productivity of REDP interventions.

With supply deficits in the range of 1,500MW – 2,000MW, power generation needs have been identified as a high priority of the new government. Additional capacity is needed to serve load growth, with the balance required to replace aging plants the efficiencies of which continue to deteriorate with the resulting output being well below the installed capacity.

While recent GoB actions have been taken to add additional power generation to close the gap between supply and demand (construction contracts signed for high cost fuel oil and diesel fired units), these initial steps will only serve to increase short-term generation capacity at a very high cost. The long-term, economical solution of additional baseload generation (fueled by coal, natural gas or nuclear) is still many years away from full implementation.

In addition to scheduled load shedding during hours of peak demand, off-peak load shedding also occurs when system outages are triggered due to low system frequency in PBS areas. Frequent power outages and power quality issues are the cause of recurring difficulties for industrial and commercial operations, particularly export manufacturing processes that require continuous production and are subject to prolonged restart schedules after a power curtailment or experiencing power quality issues. The GoB and REB are developing system rehabilitation projects to address these issues.

Taken as a whole, scheduled and unscheduled outages during system peaks, have introduced substantial and increasing frustration on the part of PBS members, and financial hardship for both PBS consumers and for the PBSs themselves. PBS revenue is derived primarily through the sale of electricity, so as power availability is reduced, revenue decreases in nearly a direct proportion. Moreover, the less reliable the power supply, the more difficult it becomes for PBS staff to collect revenues from PBS membership affecting financial stability.

Most PBSs sell over 85% of the commercialized electricity to low income, residential (“domestic”) customers. These PBSs have been extremely challenged to meet operating costs, resulting in delayed loan repayments to REB. In those PBSs that have relatively higher sales to

industrial and commercial customers the financial hardships are not as acute, but it is becoming significantly more challenging to balance costs with revenue in these historically financially stable systems. Serving to complicate this issue is the Bangladesh Energy Regulatory Commission's (BERC) decision to allow increases in the wholesale power rates being charged but limiting the amount of the wholesale power rate increase that is passed along to the consumers through an approved retail rate increase.

Another complicating factor is the inability of Petrobangla (nationally owned gas transmission and distribution company) to provide an adequate supply of gas to fuel the gas-fired generation plants. Declining production in some existing gas fields and "non-existent" pipeline regulation has reduced the availability of gas supply to the power plants, thus requiring plants to reduce power production. Exploration and development of new gas fields has not kept pace with the demand for gas supply. The limited capacity of the gas transmission/distribution system has also contributed to the power crisis. Gas rationing has been and continues to be employed to maintain existing reserves and to help make gas available for power generation at the newer power plants that are more efficient.

In a positive development in natural gas exploration, several companies were recently awarded contracts for several off-shore natural gas fields to determine capacity and reserves. Petrobangla is also working with international firms to install compressor station(s) at key distribution system locations across the country and construct additional distribution system upgrades. The import of Liquefied Natural Gas (LNG) is a supply option also being pursued by the GoB.

2.2 Bid Evaluations

During the project period REDP procurement focused significant effort to expedite the evaluation and selection process of bid packages, while fully complying with GoB procurement regulations. Although the review and approval process was not explicitly defined in the DFID/ GoB agreement, REB has consistently sought NRECA approval of the tender process, seeking "no objection" or "concurrence" to the bid selection/award process.

It is worth noting that, final indication of "no objection" for bid packages was granted only after clarification of questionable content and/or information was received and thoroughly reviewed. Once clarifications were presented and consultations with REB resolved pending issues, approval via notification of "no objection" was forwarded by the REDP/NRECA review team.

The due diligence process resulted in several delays in the early bid evaluation process. However, the results of this process have illustrated to REB the importance of systematic and thorough due diligence of bid specifications.

2.3 Moratorium on Electrical Connections

During REDP we have seen two moratoriums on electrical connections imposed on rural Bangladesh by the GoB. The first moratorium, while initially expected to expire in three months, was extended to one year (2007-08) ending in June. The most recent moratorium was

implemented in April 2010 and extended through September 2010. During both moratoriums the Ministry's position was to simply instruct REB to stop the PBSs from making new connections. This action was taken as a means of controlling the increase in electric demand. In effect the PBSs were bearing the brunt of the poor performance of BPDB and Ministry officials who had very limited success in being able to improve the power generation situation and thus the PBSs were not allowed to expand their customer base and enhance reviews. It should be noted that now that the moratoriums have been lifted the PBSs face the conundrum that adding new consumers to the system will exasperate the power deficit being experienced by all. The addition of new consumers in a load shedding crisis will most likely result in negative impacts on the financial condition of most all PBSs, and potentially jeopardize their long-term financial viability.

2.4 Wholesale Power and Retail Rate Increases

In October 2008, the Bangladesh Energy Regulatory Commission (BERC) moved to approve a wholesale power tariff increase averaging 20% for all PBSs. This wholesale tariff increase was not accompanied by a retail tariff increase, so the PBSs had to finance the increase in the cost of power internally. For some consumer classes, the cost of wholesale power exceeded the retail tariff, making every kWh sold to these consumers a financial loss. PBSs financed these costs by accessing member equity (which is legally the property of the ratepayers), by drawing down reserves intended to provide for recovery from severe weather events and by reducing debt service payments to REB. The decision to increase wholesale tariffs appears to have been made by the Ministry as a means of improving the balance sheet of the PDB and its generation spinoffs, while refusal to pass on the cost increase was a political decision intended to reduce consumer unrest. For whatever reason, the tariff situation constituted a raid on the cash of the PBSs, and further jeopardized their long term financial viability.

During 2009, BERC did consider retail rate increases for the PBSs but the increases allowed averaged only 6.5%. The new rates became effective December 1, 2009. For the residential consumer class the rate adjustments ranged from less than 3% for minimum usage accounts to 13% for accounts using more than 500 kWh per month. Commercial and Industrial customers saw an average rate increase of 9.5%. The retail rate increase provided some rate relief to the PBSs who have endured a tremendous financial hardship in trying to cover the expenses associated with the increase in the wholesale power tariff approved in October 2008. Unfortunately for many of the PBSs the approved retail rate increase was not enough to fully cover their wholesale power costs plus system operation and maintenance costs thus they continued to experience a serious cash flow deficit.

The BERC recently held hearings to consider additional wholesale power rate increases for PDB. Initial projections call for rate increases of 25+% for 2011 and 2012. While the additional funds are needed to pay for the higher cost generation currently under construction, an increase in the bulk power rate without a corresponding increase at the retail level will only serve to exacerbate the operating loss and cash flow difficulties being experienced by the distribution utilities.

A consequence of the uncertainty and financial stress imposed by the power shortages and by the tariff impositions, has been something of a lack of interest on the part of the PBSs in REDP's focus on improving customer service and acquiring new consumers. This situation has created challenges for the REDP team and contributed to a less enthusiastic reception than anticipated on the part of the PBSs.

2.5 Enhanced Scope of Work

On April 28, NRECA submitted a proposal in response to the USAID RFP for additional tasks identified in the DFID 2007 and 2008 REDP reviews. On May 28, NRECA received a request for Clarification and Revised Cost Proposal from USAID. NRECA responded to the USAID request on June 7. The vast majority of the additional activities fall under Task B - Member Awareness/ Education and Board Development which was divided into two subtasks. Sub-Task B.1: Expanded Assistance for PBS Member Education; and, Sub-Task B.2: Expanded Assistance for Board Development. The ESoW, Contract Modification #4, was signed on June 24.

While NRECA worked very closely with USAID to move the process along as quickly as possible the approval date provided NRECA with little time to mobilize and accomplish many of the tasks assigned prior to the contract end date of February 28, 2011. While preliminary steps were taken prior to formal contract signing, the necessary additions to staff could not take place prior to contract approval. We worked "overtime" to identify and evaluate candidates for consideration to fulfill the additional duties assigned in the ESoW. Local hires and international consultants were brought on board throughout the fall of 2009 and spring of 2010 and began work immediately. NRECA proposed an extension for REDP but the request was denied. In retrospect the REDP supported many positive accomplishments toward the improvement of the Bangladesh RE Program but there are many tasks in the ESoW where only preliminary activity took place.

2.6 Additional Training

We have found considerable interest in the material presented on the part of PBS consumers and employees. Most of our programs attempted to call the audience's attention to their rights, duties and responsibilities as Board Members, Members and PBS employees.

The need for training among the people is tremendous and, while REB recognizes this need, they do not have the resources to address the problem. While much of the training material (trainer and trainee manuals) is available (most developed with the assistance of NRECA) the manpower resources and institutional knowledge at REB are lacking. The development (and funding) of a complete training and education program for REB staff and PBS members through the REB Training Directorate and presented at the REB Training Academy and regional sites around the country is an area of need where program partners could continue to make a positive impact to the long-term sustainability of the organizations and the RE Program.

Section 3: Material Procurement

3.1 Background

DFID supported three investment components of the REB Master Plan. The components involved a mixture of grid expansion (sub-transmission, mainly 33 kV electrical lines), which is expensive but essential; and intensification, which is less costly, but connects large numbers of customers to existing infrastructure.

First, a major expansion of the main distribution infrastructure backbone in nine PBSs was supported. The total DFID investment cost of this component was $46.91 million, which constructed 8,736 km of new distribution line, renovated (upgraded) 1,233 km of distribution line, constructed nine and upgraded six substations. These particular nine PBSs were established by the REB in the mid to late 1990s and have received little additional investment since that time. They are all located in the more remote, poorer areas of Bangladesh. DFID support enabled additional villages to be connected to the rural grid, along with increasing the number of connections (intensification) through the construction of new spur lines from the existing backbone within these nine PBS. The intensification effort enabled 172,252 relatively poor households and a large number of enterprises located near the backbone grid to be connected. This component accounted for approximately 76% of DFID's total investment package.

The second electric system expansion investment package DFID supported was the intensification in fifty-six existing PBSs, at the cost of $13.36 million. This project involved the construction of one and two pole line extensions, linking households and enterprises located near the backbone grid. It connected 357,101 new consumers (1,000,000 goal) with a relatively low investment and accounted for approximately 22% of DFID's total investment package.

The delay in connecting new consumers was due to procurement delays and moratorium on new connections. Though the procurement process was delayed during the early stages of the project, most of the material required for providing 1,000,000 new connections has been delivered to the PBSs. Another complicating factor was the implementation of two moratoriums on new connections during REDP; from July 2007 through June 2008 and from April – November 2010. During these periods no electrical connections were made. It is expected that no less than 70% of the target will be achieved by June 2011 with the balance being connected in 2012.

The third investment package provided support for the expansion of the main backbone infrastructure and intensification in sixty-seven PBSs. The DFID investment cost of this component amounted to $1.59 million and focused on the poorer PBSs with lower revenue generation potential. This component connected 452,886 households and a number of businesses in the more remote locations of the country. This component accounted for approximately 2% of DFID's total investment package.

NRECA monitored the material procurement, delivery, and warehousing along with confirming the proper use of construction material.

3.2 Monitoring Of Material Procurement

3.2.1 Bid Conditions and Compliance

Core monitoring subjects for procurement were established in consultation with DFID and agreed to by REB. They focused on: a) Bid package size, b) Fair conditions for bidders, and c) Advertising.

- Bid package value: The principal requirement was to ensure the bid package financial value was sufficiently high enough to attract potential international bidders. REB has a financial authorization limit of $ 1.7 million; bid sub packages with a higher value require government approval. Given the necessity to expedite REDP material procurement in a timely manner, developing packages with a value greater than $ 1.7 million was not considered appropriate for REDP materials procurement. NRECA in consultation with DFID and USAID concurred with a REB recommendation permitting the value of most bid sub packages to be less than $ 1.7 million.
- Fair conditions for bidders: Bid documents were formulated to include all information necessary for potential international bidders to equitably compete with potential domestic bidders. This additional information was critical particularly in the case of single phase meters where the Bangladesh Standards and Testing Institute (BSTI) standards were specified by REB.
- Advertising: The procurement announcements were advertized in four national newspapers (two English and two Bangla) and on the GoB Central Procurement Technical Unit website. As a further aid to disseminating the procurement information to potential international bidders, NRECA requested copies of the newspaper advertisements be concurrently distributed to embassies and high commissions in Dhaka, the capital of Bangladesh. Examples of procurement announcements are found in Annex 2 (Material Procurement).

3.2.2 Estimating Cost of Materials

In compiling the REDP materials procurement budget, REB used the most recent available, relevant procurement costs adding a percentage increase of up to ten percent. The REB budget authorization did not allow for the use of more probable estimates unless substantiated. This method of estimating the procurement costs often resulted in quoted prices being more than ten percent higher than the estimate. The REB Tender Evaluation Committee did not feel comfortable in recommending the higher priced bids so many of these procurement sub packages were inevitably recommended for retendering. Often, the result of the retendering was yet another increase in price, as well as a reduction in competition as some vendors decided not to expend the effort to prepare a new tender. This was particularly a problem with bids for conductor, as commodity prices for aluminum varied considerably over the period of the project, and previous bidding results were usually not a reliable indicator of subsequent bids. The result was a delay in the procurement process subsequently resulting in the abandoning of several procurements for the 67 PBS project due to the expiration of the project.

In an effort to address this situation so future tendering and retendering actions could move forward with minimal delays and at competitive pricing, NRECA advised REB to consider the

increase in the price of raw materials on the international market during the tendering process. REB followed this recommendation as a matter of practice and the process advanced at a faster pace requiring the minimal retendering of procurement packages.

3.2.3 REDP Material Procurement

The DFID fund for procurement of commodities was to be utilized in three projects of REB namely; a) Intensification & Expansion of Distribution System in sixty-seven PBSs, b) Intensification & Expansion of Distribution System in nine PBSs and c) 10 Lac Consumer Connection in Existing Distribution Network of fifty-eight PBSs. The allocation of funds toward each project was; a) $5.06 million for "67PBS", b) $47.06 million for "9PBS" and c) $14.5 million for "10Lac".

Procurement plans: The summary of the procurement plan funded by DFID for REDP is shown in the following table. Major commodities planned for procurement included bare and insulated conductor, guy wire, wire accessories, line hardware material; single and three phase meters, meter seals; concrete and wooden poles, wooden cross arms and anchor logs; sectionalizing devices, fuse cutouts, lightning arresters; power and distribution transformers; capacitors, current transformers, potential transformers, vacuum circuit breakers, automated circuit reclosers, auto voltage regulators; jeep, pick-up, motor cycle; and submarine cable.

Table 3.2.3.1: Estimated Procurement by Project

Project	No. of Tender Package	No. of Tender Sub-package	Estimated Amount in Million USD
67PBS	2	7	5.06
9PBS (1st Tranche)	13	29	27.66
9PBS (2nd Tranche)	3	7	14.29
9PBS (3rd Tranche)	2	5	5.11
10Lac	11	20	14.49
Total:	31	68	66.61

Procurement lists: The procurement list for each of the three projects namely, 67PBS, 9PBS and 10Lac may be found in Annex 2 (Material Procurement). The summary of the actual procurement for the projects is shown in following table.

Table 3.2.3.2: Actual Procurement by Project

Project	No. of sub-package awarded	Contract Amount in Million USD	Remarks
67PBS	4	1.59	3 sub-packages worth $3.072 million out of 67 PBS project were abandoned due to insufficient time for execution as project validity expired.
9PBS (1st Tranche)	28	26.67	
9PBS (2nd Tranche)	7	14.82	
9PBS (3rd Tranche)	5	5.42	
10Lac	19	13.36	
Total:	63	61.86	

Fund utilization: By the end of the REDP contract with NRECA (i.e. February 2011) all commodities will be delivered. Thus REB utilized DFID funds amounting to $61.86 million for commodity procurement of 63 sub-package contracts.

Chart 3.2.3.3: Material composition and value of procurement for 67PBS project.

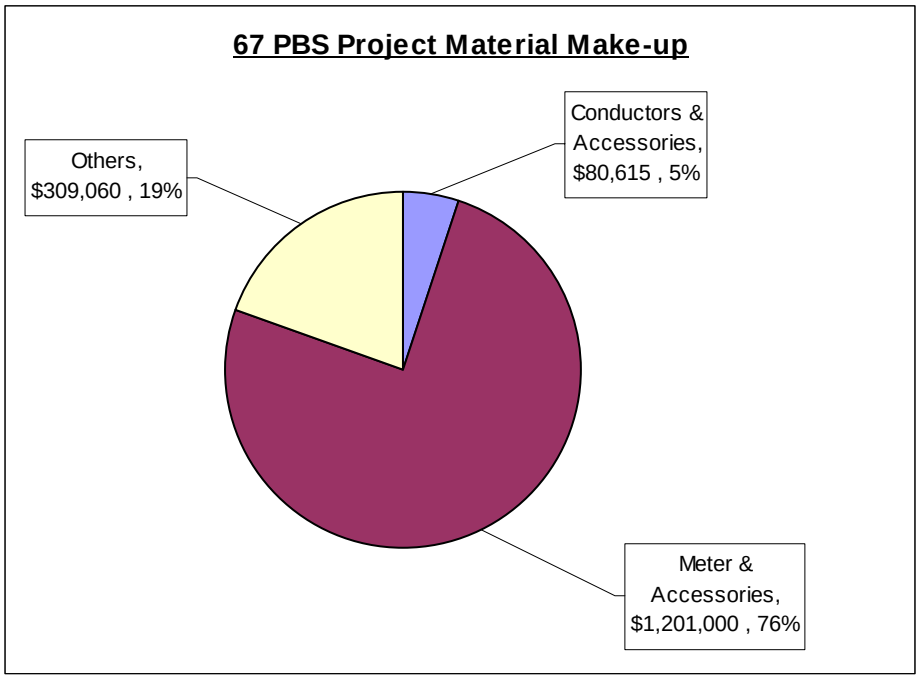


Chart 3.2.3.4: Material composition and value of procurement for 9PBS project.

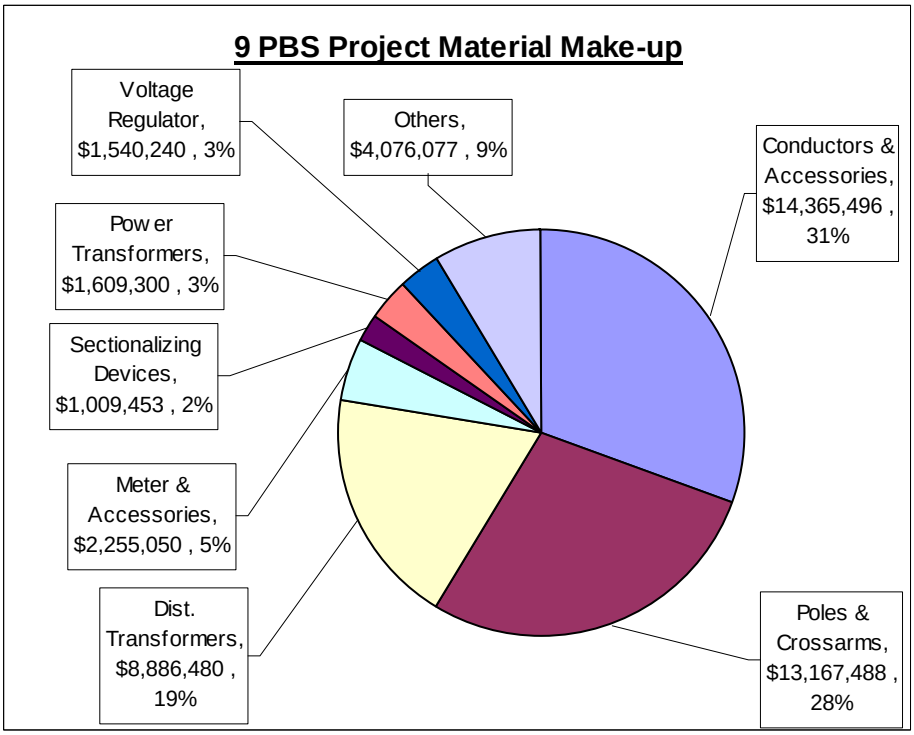
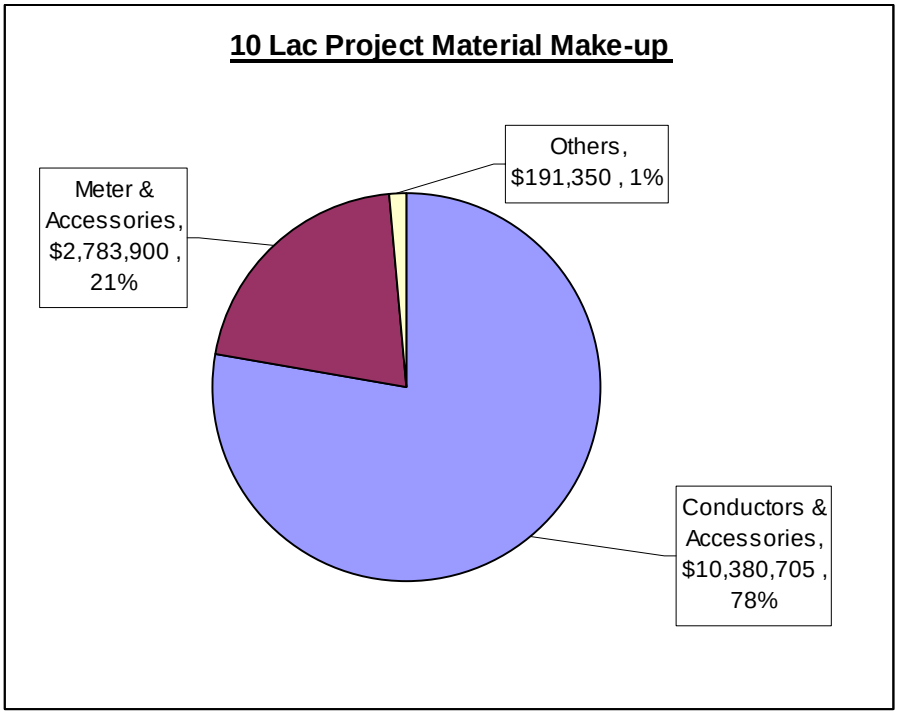


Chart 3.2.3.5: Material composition and value of procurement for 10Lac project.



3.2.4 REDP Material Procurement Cycle

3.2.4.1 Bid document and solicitation

REB developed separate bid documents for items to be procured under a particular tender package. Following the guidelines of GoB Public Procurement Regulations (PPR) these bid documents included sections such as; a) Instructions to Tenderers, b) Tender Data Sheet, c) General Conditions of Contract, d) Particular Conditions of Contract, e) Tender and Contract Forms, f) Schedule of Requirements, g) Technical Specifications, h) Packing and Marking Instructions, and i) Test Requirements. NRECA reviewed these bid documents and assisted REB in removing any ambiguities. Bid solicitations were advertised by REB after obtaining a 'no objection' finding from NRECA on the bid documents.

3.2.4.2 Bid opening and evaluation

Bids were opened at the pre-determined place and time as stated in the bid documents. A Bid Opening Committee comprised of members from REB and an external member outside of REB from the financial community (local bank). NRECA was present at the bid openings as an observer.

REB was entirely responsible for the full, effective and "official" evaluation of all bids. Evaluations by REB were completed in accordance with GoB PPR requirements. NRECA also performed bid evaluations separately from, and in parallel with, REB. This separate bid evaluation by NRECA provided support for either the substantiation or questioning of the REB evaluation.

Evaluations by REB and NRECA were cognizant of the following:

- Determination of commercial responsiveness
- Determination of financial responsiveness
- Determination of technical responsiveness
- Financial adjustments to bid evaluation prices where applicable for issues such as late delivery, capitalized costs for transformer losses and qualifying local preferences.
- Detailed evaluation of pre-selected bids
- Other adjustments as appropriate
- Preparation of bid evaluation report for TEC and recommendation for contract award.

The GoB PPR requires an evaluation committee to be established for reviewing the results of each REB department evaluation. The REB Evaluation Committee was responsible for making recommendations to the REB Chairman, RE Board or GoB Ministry for placing contracts (GoB Ministry approval was required for contracts with values exceeding the REB financial authorization limits - $ 1.7 million).

NRECA attended the REB TEC meetings as an observer. As an observer NRECA was intentionally not a party to decisions made by the TEC. Not being a party to REB TEC decisions ensured NRECA, and by association DFID, full separation from committee actions and avoided the perception of any association with the approval or disapproval of the TEC recommendations for placing contracts. At the REB TEC meetings NRECA was able to observe the proceeding and ask questions to determine the rationale for each of the contract award recommendations. In accordance with the NRECA role in the procurement exercise, NRECA evaluation results and REB TEC recommendations were compared.

3.2.4.3 NRECA concurrence

Where an REB TEC evaluation recommendation was in accord with the NRECA evaluation, no objection was made and REB proceeded with the contract award. Generally evaluation conclusions were in accord with the lowest commercial price offered by the technically responsive bidder and they were selected for award of the contract. REB requested NRECA concurrence with TEC recommendations duly approved by the REB Board or Ministry and concurrence was given in writing where there was no objection.

In the seven cases where NRECA evaluations differed from those of REB, NRECA informed REB in writing. NRECA identified the exception and provided REB with the rationale for the opinion differences with recommendations to address the discrepancies. The REB TEC re-evaluated the bids in question and in all cases supported the NRECA observations and revised their award recommendations.

3.2.4.4 Pre-contract factory inspection

Following extensive consultation with REB, NRECA emphasized the need for pre-contract factory inspection prior to placing a contract with the proposed manufacturers, especially those unknown to REB. Such pre-contract factory inspections were conducted by REB in Bangladesh as well as in China. NRECA representative(s) joined REB in these factory inspections as an impartial observer.

3.2.4.5 Pre-delivery inspection

To ensure that the quality and quantity of the goods offered for delivery conformed to the contract specifications, pre-delivery inspections were conducted by REB. REB established set rules and procedures for conducting such pre-delivery inspections. NRECA representative(s) were present as observers during these inspections for domestically supplied materials.

3.3 NRECA Observation While Monitoring REB's Procurement Process

3.3.1 The evaluation process to be confidential

NRECA noted from the beginning of the evaluation process that confidential information relating to the examination, clarification, evaluation of tenders and even the recommendations for tender award, which were required to be under locked control outside of working hours in the procuring entity, were leaked to the competing suppliers. Once the confidential information became known, suppliers made attempts to influence REB personnel during the bid evaluation process which is contrary to GoB PPR. NRECA took the position that REB procurement units and all other concerned officers must be steadfastly reminded of the importance of maintaining confidentiality of all procurement sensitive information and that all future clarification needs are to be made according to GoB PPR. NRECA emphasized that a bid may be rejected if attempts are made to influence the procuring entity at any time prior to announcement of the contract award. REB heeded our warning and instituted appropriate precautions.

3.3.2 The appropriateness of the discount offered by the supplier

According to REB procurement rules and the instructions provided within the tender document, bidders must specify any discount to be offered in the Tender Submission Sheet (Form-G1), but some of the suppliers placed single discount offer letters inside the tender document; may times only in the original tender document rather than mentioning the discount on the 'Tender Submission Sheet' as stated in REB bid instructions. NRECA took the position that an appropriate discount could only be considered when the bidder clearly writes the discount amount in their 'Tender Submission Sheet' as instructed. The practice of accepting anything other than what is required creates the potential opportunity for malpractice. To address this situation REB introduced an additional form (Form G-2/1: Discount Declaration Sheet) that left no question on the declaration of a discount.

3.3.3 The price estimation of commodities

From REB's experience of re-tendering, in most of the cases it was found that the quoted price in the retendering was higher than the previously quoted price. Re-tendering due to the commodity price being higher than the estimated price (though the tenders are found fully compliant with the tender document) does not make sense when the estimated price does not fully reflect the trends of international market prices. REB's estimated price, which was set by inflating their previous purchase rates on a lump-sum basis, was observed to not accurately reflect the current trend of pricing for basic raw materials and supplies within the international market. NRECA took the position that REB needed to update the estimated rates on the basis of prevailing market price on some international exchange such as the London Metals Exchange for conductor. To address this situation for evaluating bids higher than the estimate, REB considered prevailing price in the international market as the comparison during price evaluation.

3.3.4 The veracity of the claim for domestic preference eligibility

Experience has shown that the domestic price preference is such a significant factor in bid evaluation that it is necessary to ensure that only those firms that actually qualify as being 'domestic' receive this benefit. The practice of non-domestic bidders claiming domestic preference by merely completing the Domestic Preference Eligibility Form (Form G-11) and submitting, without some formal evidence of authenticity of actual domestic content, was not being adequately evaluated. This practice was seen as not being adequate for compliance with GoB PPR. NRECA took the position that the authenticity of stated domestic content must be verified and attested to by a Chartered Accountant or a Certified Cost Accountant, whose report was to be included with the bid documents. To address this situation REB asked local suppliers to submit such supporting documentation as recommended by NRECA to be eligible for claiming domestic preference.

3.4 Monitoring Of Material Usage

3.4.1 Storing DFID funded materials at REB warehouses

DFID funded materials were procured from both foreign and local sources. REB has warehouses at Khulna, Chittagong and Dhaka. Imported material is stored only at the Khulna warehouse whereas locally supplied items except concrete poles are stored at all three warehouses. Suppliers are advised to deliver concrete poles directly to the PBSs. NRECA visited all three warehouses to ensure that DFID funded items were carefully stored to minimize damage in storage and movement. We also made certain that DFID funded items were stored in separate stacks to physically segregate material from material procured using non-DFID funds.

3.4.2 DFID Funded Materials at PBSs

Warehouses of the nine PBSs under the 9PBS project were visited to physically observe the storage status of DFID funded materials. Monthly stock reports were collected from the PBS warehouses to track the receipt and issuance of material. The PBS warehoused both REDP project material and other project material. As per the REB usual practice, following the closing of the 9PBS project, all project material was transferred to PBS stock after completing a full inventory. The list of such material transferred to PBS stock was collected and verified against project closing stock.

3.4.3 Monitoring of Construction Work in nine PBSs

Comparison of the construction plan with master plan: This task required NRECA to reconfirm the master plan and verify the 2007-2008 work plan at all nine PBSs. The work plan for 2007-2008 along with staking sheets for the line extensions in the work plan and corresponding master plan of the concerned PBS were collected. A worksheet was designed with the line extension projects sorted by the expansion category (there were four categories according to the length of line to be constructed) and the number of different types of consumers that were listed. This worksheet was taken to the field along with the staking sheets and the number of different types of consumers were physically counted to verify the corresponding number identified in the staking sheet and the master plan. The length of the line was also estimated in the field and was recorded on the worksheet. According to REB approved criteria, the anticipated revenue, required revenue, benefit-cost ratio and priority were determined on the basis of field data. These determinations were verified with the master plan and construction

plan data. Any noted discrepancies were discussed with the PBS for full clarification. There were times when a second visit was required to field check projects along with PBS personnel for confirmation of NRECA observation. When discrepancies were verified, the PBSs were advised to revise their constructed plan according to verified field data. A random selection of approximately 25% of construction projects were selected for field verification. The summary of this verification is shown in following table:

Table 3.4.3.1: Verification of Construction Work at nine PBSs

Name of PBS	No. of Thana	No. of Projects			% of Non-qualified Projects
		Checked	Found Qualified	Found Non-qualified	
Faridpur	9	257	255	2	0.78
Magura	4	174	173	1	0.57
Jhenaidah	5	28	28	0	0
Mymensingh-2	4	94	91	3	3.19
Nawabganj	5	148	144	4	2.70
Brahmanbaria	7	198	193	5	2.53
Rajshahi	5	208	180	28	13.46
Kurigram-Lalmoni	8	91	89	2	2.20
Nilphamari	5	124	120	4	3.23

The proportion of non-qualifying projects varied considerably from one PBS to another, with the worst offender being Rajshahi, with over 13% of their projects classified as non-qualifying. While all of the PBSs with significant variation corrected their records in accordance with NRECA recommendations, the fact that a significant portion of projects was found to be non-qualifying is disturbing. Discussions with REB have pointed out the need to ensure that the Master Plan process is the cornerstone of the program and the basis for confidence on the part of donors that their funds are being used appropriately.

3.4.4 Monitor construction quality and compare with REB standards

One of the critical components of the success of rural electric line construction is the strict adherence to specified construction standards. To complete the task of inspecting construction quality against REB standards, as-built staking sheets were collected from the PBS consultants for lines constructed during the fiscal year 2007 - 2008. After collecting these documents, approximately 25% of the projects were selected for inspection at each PBS. In selecting the samples, both three-phase & single-phase lines were identified for inspection. Projects were selected both near to the PBS headquarters and at the “end of the line”. A total of 685km of construction, comprising 12,700 poles and associated construction units were inspected,

In order to achieve the objectives of the study, a worksheet was designed where 50 different types of potential errors that might be identified in the construction work were shown as a method of assessment. Skilled Inspectors were recruited and trained in the field by NRECA Project Engineers. The inspectors were provided Geographical Positioning System (GPS) receivers to record GPS locations where they started their assignment. They were also provided a set of binoculars to properly inspect pole top hardware. The use of GPS receivers helped the Supervisors to independently recheck inspectors work without their presence.

Upon field inspection some discrepancies were found. The most significant discrepancies

included the following; errors in recorded span length, transformers installed without fuse cut-outs or with bare wire for jumpers, conductors joined by twisting instead of using connectors or splices, anchor rod being exposed more than 1 meter above the ground, locknuts missing from the bolts on poles, and guys were out of the alignment, etc. For each type of potential problem, the discrepancy rate (the number of errors as a percentage of the total number poles inspected) was less than 3% with some exceptions. For instance, loose guys seem to be a particular problem with incidences ranging from 3% in Nilphamari to 18% in Nawabganj. There also seems to be a problem with neutral loss in some PBSs. Neutral theft is a generic problem in all PBSs on both old and new lines, but in our sample the incidence ranged from 0.1% at Faridpur to over 13% at Nilphamari. It is clear that some PBSs are more successful than others at protecting their lines.

The overall line construction quality was found to be good and following the required standards. Most of the errors found were the result of carelessness and we noted that line construction could have been better if the REB/PBS construction supervision personnel would have taken more care providing oversight at the time of construction. At the end of field evaluation work at each PBS, the NRECA project engineer met with the respective general manager and informed him of the outcome of our inspection. A letter was subsequently issued along with a detailed survey report highlighting our inspection results so that the GM could review any errors in construction and could correct any major defects as soon as possible.

3.4.5 Compare material quantities issued with work completed

For conducting this task as-built staking sheets of randomly selected projects constructed during 2007-2008 were collected from each of the nine PBSs. A worksheet was developed for tracking the material use. A field visit was then made by NRECA engineers to physically count or measure major items physically used during construction. Any cases of noted discrepancies were discussed with REB/PBS for full and acceptable clarification. If a situation was not clarified to our satisfaction, the PBS was requested to correct the problem either in the field or in their statement of material usage, whichever was appropriate. Eight PBSs out of nine could clarify discrepancies noted by NRECA. Only Mymensingh PBS-2 could not clarify the situation. They have been requested to rectify the discrepancies. The summary of the outcome of this field study is shown in following table:

Table 3.4.5.1: Verification of Material Quantities

PBS	Length of line checked in km	No. of poles inspected	Observation
Jhenaidah	5.382	106	No discrepancy noted
Magura	5.560	118	No discrepancy noted
Faridpur	5.717	120	Minor discrepancy was subsequently rectified
Brahmanbaria	5.212	113	Minor discrepancy noted, advised to rectify
Mymensingh-2	8.242	191	Noted discrepancy was subsequently rectified
Rajshahi	15.014	350	No discrepancy noted
Nawabganj	3.276	52	No discrepancy noted
Nilphamari	4.822	80	No discrepancy noted
Kurigram-Lalmoni	0.543	10	No discrepancy noted

Section 4: Member Awareness Education and Board Development Program

4.1 Background

The primary objective of the PBS MAEBD Program Task was to promote member/consumer participation levels throughout participating PBSs. In this task, assistance was provided to REB and the PBSs in the development and implementation of programs to strengthen the PBS concept (adopted from RE cooperative model of USA) through improved member education and the development of the PBS Boards of Directors. The intended result is to empower membership to take responsibility for actions and decisions, as well to promote capacity building for PBS board members. The improved governance will enhance the sustainability of the PBSs and the RE Program.

From the outset of the RE program in Bangladesh, NRECA has assisted REB in the development of training programs to build capacity and to raise the awareness of member–consumers, as well as to build capacity of PBS Board members. The USAID-funded RPPR-II Program completed in September 2007 included a specific task to provide training assistance for both REB and PBS personnel including the development of effective curriculum materials for these programs. A key task in the initial REDP assignment was to review previous member awareness programs undertaken in collaboration with REB and PBS and work towards advanced implementation.

The MAEBD Task involves working with the REB Training Directorate, as well as the REB Management Operations Directorates to ensure that the content and approach for these newly developed member education programs address specific PBS needs. At the PBS level, the PBS Member Services Departments are intended to involve themselves with implementation of member education programs. This component of REDP focused on assisting REB and the PBSs to explore effective approaches to successful member and board orientation training, and assuring improved engagement of PBS Village Advisors. For PBS Board education programs, the REB Training Directorate and REB officers were directly involved in the delivery of the programs while NRECA assisted with the development of effective curriculum materials.

The MAEBD Task included modest activity in the initial agreement but was greatly expanded with the signing of the Expanded Enhanced Scope of Work. As part of the annual program monitoring process established to support the REDP, DFID conducted annual reviews of program activities and accomplishments. In 2007 the review team included staff from the Dhaka DFID office; a United Kingdom (UK) DFID representative; and, a consultant from the Cooperative College in the UK. In 2008 the review team included staff from the Dhaka DFID office; and a DFID representative from Nepal (Growth and Infrastructure Advisor). The modifications to the original REDP scope of work was derived from comments and recommendations presented in the 2007 & 2008 annual program reviews conducted by DFID.

NRECA completed many of the additional tasks associated with the ESoW while continuing its performance of duties under the original proposal. To do so NRECA provided the additional

technical expertise necessary to the expanded Task B activities. NRECA's approach was to ensure that sufficient resources were available to provide the required on-site supervision, monitoring and training throughout the remaining life of the project for all of the tasks associated with the original SOW along with the ESoW to ensure the proper utilization of the existing and additional funds provided by DFID. Based on long-term experience with the Bangladesh RE Program, NRECA recognized the need for an appropriate level of follow-up on project activities. The provision for the necessary checks and balances was viewed as an important part of the overall process of successful implementation of any project or initiative. This in turn helped promote the continued strengthening of the institutional capacity within the overall RE Program.

Based on the findings of the REDP Annual Reviews, the REDP ESoW was expanded to include the additional activities under Task B entitled "Member Awareness/Education and Board Development Programs". To provide additional detail, Task B was divided into two Sub-tasks, as follows:

- REDP Sub-Task B.1: Expanded Assistance for PBS Member Education
- REDP Sub-Task B.2: Expanded Assistance for Board Development

Sub-Task B.1 focused on improving PBS member awareness with respect to rights and responsibilities. The Sub-Task, which was focused specifically on the PBS members was complimentary to Sub-Task B.2 which provided additional training and guidance to support development of PBS Boards. Both activities promoted improved governance within the Bangladesh RE Program and supported gender awareness throughout all activities.

Following the development of the programs and initial implementation through the REB and PBSs, ongoing oversight and monitoring of this initiative was incorporated into the overall Supervision and Monitoring Task. Female participation in all MAEBD programs was monitored and reported.

4.2 Progress

4.2.1 Annual Meeting Attendance

NRECA made the effort to have representation at the annual general meetings (AGM) of our nine focus PBSs. Attendance at the meeting helped NRECA staff develop a bond with REB officials, PBS employees and members opening the lines of communication to better serve one another. Over the course of the project we attended 14 annual meetings.

4.2.2 Member Awareness/ Education

Objectives in this sub-task included:

- Increase the understanding of PBS members regarding their role and responsibilities as effective members;
- Increase participation of members in board elections;
- Strengthen PBS capacity to deliver effective member education programs and general communication with the PBS membership;
- Strengthen PBS capacity to deliver effective women only member education programs and

general communication recognizing the special place rural women hold in the household and their limitations to participate in a "more traditional" training settings and time periods; and,

- Re-establish within the PBSs and REB, the importance of the members and the proper treatment of members by the boards, management and staff.

4.2.2.1 Member Awareness Education (MAE) Workshops

Three MAE workshops were scheduled at the participating PBSs. The PBSs selected included the nine target PBSs of REDP as well as others selected under the guidance of REB. One workshop was held at the PBS headquarters building and the other workshops were held at locations throughout the PBS service territory. The participants included members of the Board of Directors, different types of community leaders such as, teachers of colleges, schools and madrasas, imams of different mosques, chairmen and members of local government institutions, businessmen, reporters and personnel from Non-Government Development Organizations (NGDO). Attendees also included Village Advisors, Village Electricians, PBS staff and REB officials.

The presentation contained information regarding the cooperative concept, the role of REB and the PBS, and the role of the Board, the employees and the members. Also included in the presentation was information regarding the electric supply situation in Bangladesh and information about using electricity wisely and safely.

We strongly encouraged the REB and PBS leadership to design a work plan for follow up courses to further disseminate the workshop message at the grass root level. Participating PBSs planned to include this information in their future consumer motivational meetings.

The program, conducted by NRECA staff with support from the REB Training Directorate and PBS staff, was presented through 140 workshops at 43 PBS from July 2007 through April 2010. Of the total of 7,159 participants 770 or 10.7% were female. A complete workshop schedule can be found in Annex 3 (Member Awareness Education and Board Development Information).

4.2.2.2 Strengthening the PBS Member Service Department – A Dialogue

The full day workshop addressed 100 important questions regarding the work of REB and the PBS focusing on the PBS Member Service Department. The program retraced the history of the rural electrification program in the US and in Bangladesh. It covered the originating ordinances, laws and bye-laws regarding REB and the PBS. The program provided information regarding the responsibilities of the Member Service Department to the PBS and to the members. It defined the roles and responsibilities of how the Member Service Department should work with each department of the PBS and provided information regarding the development of management reports and their use.

A total of 762 Member Service Department employees attended the Dialogue sessions of which 65 or 8.5% were female. Employees attending included; the Assistant General Manager - Member Services, Member Services Coordinator, Power Use Coordinator, Wiring Inspectors and One Point Service Providers. 100% of the PBS Member Service Department employees attended the programs. This program was presented in conjunction with the Board Dialogue program and was presented to 63 of the 70 PBS in one year's time span.

A full listing of the Workshops presented may be found in Annex 3.

4.2.2.3 Improved Customer Awareness through a "Rebirth" of the Village Advisors (VA)

Based on information gathered during a survey of the PBS communications activities, NRECA developed a program to reach the majority of members with the PBS "message" each year using the Village Advisors. By reintroducing the regular education and information exchange with PBS VA, it was expected that:

- Customers would be better informed of PBS activities
- Customer participation would be enhanced
- Customer support would be increased
- Cooperative concept would be effectively communicated and implemented

We discussed with REB the best options to implement an improved VA training program including preparation of the slides and participation in several field trials. Unfortunately the VA plan was not implemented due to REB's delay in approving field work.

4.2.2.4 Strengthening the PBS Management Program

While conducting the Strengthening the PBS Board and Member Service Department Dialogue programs, a frequent comment from most, if not all PBS personnel was that the Assistant General Managers and Supervisors needed to have this information presented to them as well. Although, there was no time to make such presentations under REDP, NRECA developed a handout for a potential program that focuses on the entire management of a PBS. The program addressed important questions regarding the work of REB and the PBS. The program retraced the history of the rural electrification program in the US and in Bangladesh. It covered the originating ordinances, laws and bye-laws regarding REB and the PBS. The program also highlighted the importance of cooperation between departments to better serve customers.

4.2.2.5 Communication Media

NRECA's assignment was to assess and improve the overall communications programs for the Rural Electrification Board (REB) and the Palli Bidyut Samities (PBSs). A Communications Specialist was engaged to assess and improve the communications within REB, the PBSs, and to PBS member consumers. The premise of the initial study was that improving the collection of information and modernizing the dissemination of information would ultimately improve the understanding and participation of member owners in a system that is democratically controlled through a cooperative business model. The premise was that effective communication will strengthen the entire rural electric program of Bangladesh.

Key activities of the Communications Specialist included:

- Develop a work plan to enhance communications capabilities within REB and the PBSs
- Provide guidance and direction to strengthen REB Publications Directorate
- Provide guidance to design and develop REB website
- Provide REB and PBSs with draft publications, newsletters and basic communications

The Publication department of REB was identified as the initial point of contact for communication with PBSs and consumers. This group offers rudimentary communications through newsletters, bill messaging, annual reports, annual meetings, and a loosely organized Village Advisor program. Executed properly these channels of communicating would strengthen the program and serve as a foundation for expanding into new channels. An evolving demographic of Bangladesh electric consumers currently has expectations of paying bills via a

mobile phone and receiving communications through rapidly developing electronic mediums.

An updated REB website (www.reb.gov.bd) was recently successfully launched and plans are in place for continued support, updates, and modifications to this website. Additionally, a pilot video conferencing project was launched and will be tested, with the cooperation of REB, throughout the remainder of the REDP project. These items, along with ongoing efforts to provide materials such as a *Communications Quick Reference* (Annex 4), newsletter samples, and constant interaction with REB to enhance overall communication by educating them on best practices are the highlights of the communications work under the REDP program.

Improving communication is critical as the rural electric program of Bangladesh continues its rapid growth. Currently, PBSs and member consumers are underserved with information related to their electric distribution cooperative. REB has an opportunity to execute and implement low cost initiatives that will create a unified voice surrounding the value, challenges, and opportunities that result from having a local democratically controlled PBS. Organizational structure changes at REB, hiring professional communicators, and integrating new technology will be required to move the REB and the rural electric program forward. The formation of the communications and information technology committee that has been engaged in updating the REB website could become the conduit for modernization at REB pending future funding and additional donor involvement.

Brad Gibson was engaged in late 2009 to serve as Communications Specialist for the REDP.

The full report of the Communications Specialist can be found in Annex 4 (Specialists Reports).

4.2.2.6 Gender Awareness Workshops – Employees

In collaboration with the REB training Directorate, NRECA developed, tested and presented the gender awareness workshops to PBS employees at the supervisor level and below. The program included the concepts of gender versus sex, attributes of a gender friendly work and home environment and a discussion of gender in the community.

The workshops were presented in three of the nine REDP poverty thrust PBSs; Mymensingh 2, Rajshahi and Jhenaidah. Participants included REB representatives, General Manager, Assistant General Managers, Engineering Employees, Billing Supervisors, Cashiers, and Billing Assistants. A total of 107 employees attended with 55 (51%) being female.

A full listing of the workshops presented may be found in Annex 3.

4.2.3 Board Development

Objectives of this sub-task were to:

- Improve the effectiveness of PBS board members by reemphasizing training programs for Board Directors, with a special emphasis on female directors;
- Improve and expand delivery of training programs for PBS Directors and increase the number of trained directors;
- Enhance the capacity of the REB Training Directorate to deliver effective programs for PBS Directors, with emphasis on improving the quality of training materials for PBS Directors; and
- Emphasize the importance of PBS director training, and the role of PBS directors within the REB program to REB and PBS management and staff.

4.2.3.1 Strengthening the PBS Board – A Dialogue

This full day workshop addressed 100 important questions regarding the work of REB and the PBS. The program retraced the history of the rural electrification program in the US and in Bangladesh. It covered the originating ordinances, laws and by-laws regarding REB and the PBS. The program focused on providing information on the responsibilities of the Board of Directors to the PBS and to the members. It defined the roles and responsibilities of each department of the PBS and provided information regarding management reports and their use by the Board.

The Strengthening the Board workshop was presented 26 times covering 63 PBSs (some sessions were attended by several PBSs). The workshops were held between November 2009 and July 2010. A total of 703 board members attended of which 157 (22%) were female. Ninety-eight percent of the directors serving attended the program. It is believed that the presentation of this program is the only time in REB institutional memory that 63 of the 70 PBS were presented the same training within a one year time span.

A full listing of the Workshops presented may be found in Annex 3.

4.2.3.2 Board Training Curriculum Evaluation and Development

NRECA's assignment was to assess and improve the current education programs for the Rural Electrification Board (REB) and the directors and managers of Palli Bidyut Samities (PBSs). These programs were designed to support REB's mandate to provide loans and technical assistance to PBSs to enable them to bring electrification and economic development to rural areas. The effective education of PBS directors and managers is considered essential for REB to fulfill its charter.

Many dedicated professionals have worked long hours to bring education to directors and managers of REB and the PBSs. REDP provided high quality programs that explained the history and foundations of the PBSs and the importance of REB. Directors have learned about the need for gender equality and consumer outreach. But courses that REDP inherited from previous projects were found to be not adequate in training directors on the principles of corporate governance, how to conduct effective meetings where they can have productive discussions about the needs of the PBS, and how to evaluate board performance. The previously developed courses did not meet recognized standards used to identify learning needs, to develop and deliver training programs, and to evaluate training effectiveness. Additionally, there is evidence that REB is not now fully engaged in director education or that it fully supports the concept that each PBS should be prepared to "assure success as an independent enterprise." It is hoped that these observations will be seen as offering enhancements and improvements to past efforts so that REB and the PBSs can achieve their respective missions.

Key activities of the Board Development Specialist included:

- Evaluate current PBS board training programs
- Establish a PBS Director Certification Program
- Design a training program for PBS management and officers
- Establish an association of PBS Directors
- Design and conduct "Training of the Trainers" program

Initial evaluation of the current Board training curriculum and programs was conducted. The evaluation observations led to the development of a new Director Curriculum. The new PBS Board Training Curriculum was completed in full English and Bangla language handouts and power point presentation. The curriculum includes the following courses:

1. Director Duties and the Role of the Board
2. Understanding and Using Bye-laws, Policies and other Governance Documents
3. Conducting Effective Board Meetings
4. Understanding Electric Utility Operations
5. Understanding and Using the Financial Report

Board and management education are priorities for the REB/PBS program. Effective board governance requires trained directors who understand their role, who can participate productively in board meetings, who can supervise a general manager, and who can work together to plan for and evaluate the performance of their PBS. The PBSs under REB guidance have made significant technical and engineering progress in bringing electricity and its benefits to the rural areas of Bangladesh. But until institutional changes occur at REB, PBSs will not become effective, successful, independent local institutions with qualified directors and managers.

Dr. Gregory Boudreaux was engaged in 2010 to serve as Board Development Specialist (BDS) for REDP.

The full report of the Board Training Development Specialist may be found in Annex 4 (Specialists Reports).

4.2.3.3 Board of Directors Orientation Program

NRECA worked closely with the REB Training and Management Directorates to develop a program and handbook for a 5-day New Board Member Orientation program. The programs held at REB included a presentation on the history of the RE program, rules and regulations pertaining to the PBS Board, how to conduct a board meeting, and the role of the Board member in the PBS and with the members.

REB presented nineteen New Board Member Orientation sessions from February 2008 through February 2011. NRECA developed the workshop handout and participated in the inauguration and graduation sessions as well as observing many sessions and contributing when called upon to do so. A total of 413 new PBS board members attended of which 102 (25%) were female.

A full listing of the Orientation Programs may be found in Annex 3.

4.2.3.4 Board Policy Translations

The most frequent recommendation from the PBS Boards and Member Service Departments was the request to translate the PBS “instructions” into Bangla from English. We translated thirteen instructions of the 300 Series which deals with the PBS Board and Management along with instruction 200-7, 550 Form including the “Understanding the 550 Form” handout developed during RPPR II. The translated policies were presented to REB for their use and distribution to the PBSs.

4.2.3.5 Training Manuals

NRECA staff reviewed and updated four training courses at the request of the REB Training Directorate. Each course included trainer and trainee manuals in Bangla. The courses updated:

- Performing the Job Effectively in the Board Room (IM 355)
- Performance Appraisal and PBS Board (IB 345)
- Interpersonal Communication (IM 152)
- Controlling and Measuring Results (IM 165)

4.2.3.6 Gender Awareness Workshops – Board of Directors

In collaboration with the REB training Directorate, NRECA developed, tested and presented the Gender Awareness workshops. The program included the questioning of societal attitudes of the concepts of gender versus sex, attributes of a gender friendly working and home environment and discussion of gender in the community.

The gender awareness workshops were conducted for the PBS Board Directors at the following three PBSs; Mymensingh 2, Rajshahi and Jhenaidah. Participants included REB representatives, Directors, General Manager, Deputy General Manager, Assistant General Managers & PBS Officers. A total of 59 board members participated of which 9 (15%) were female. Ninety-five percent of the directors attended the workshops.

A full listing of the workshop may be found in Annex 3.

4.2.3.7 Gender Awareness Programs

NRECA gender specialists developed a program to increase women's participation in the PBS annual general meeting. The NRECA gender specialists also developed a program outline to increase leadership skills for the female directors of the PBSs. However, due to delays at REB, neither of these programs were implemented.

4.2.4 PBS Human Resources

Currently, the 70 PBSs have more than 26,000 employees. With such a large group of employees, human resources development has been a top priority for PBS and REB management and PBS Board members from the beginning of RE program in Bangladesh. The objective of REDP was to help the REB and PBS continue to develop their professional capacity to manage and lead the organizations as pioneers in the Bangladesh RE sector.

The last Training Needs Assessment (TNA) for REB/PBS Personnel was completed in August of 1998. This thorough assessment examined each position at REB and PBS and was a very highly structured TNA. But following the study of the current HR situation at selected PBSs, it was evident that many of the suggestions and recommendations of this TNA were not possible to be implemented. It has been 12 years since the last TNA and according to the recent Study "Assess Effectiveness of Current Organizational and Management Structure of REB of Bangladesh," commissioned by Power Cell of MOE/GoB, it was suggested that a "full scale training analysis" was needed but a comprehensive Human Resources analysis was not done. More analysis will only be beneficial if there is the political will to implement the recommendations of such an analysis.

During our discussions with PBS staff it was clear that the PBSs operate under considerable REB control (contrary to the REB Ordinance and By-laws), as opposed to monitoring, supervision and mentoring. The management (general managers and assistant general managers) of the 70 PBSs do not meet regularly to discuss and decide their future as there is no such scope or forum. But REB does recognize as important the need for regional/zonal REB managers to meet on a regular basis. Another huge issue is the question surrounding the number of employees at the PBS level. Are these levels sufficient, efficient and effective?

Key activities of the HR Specialist focused on:

- Development of a work plan to assess and address the HR challenges facing REB & PBSs
- Preparation of an appropriate succession planning program to address the rapid loss of experienced officers
- Evaluation of current staffing and job descriptions of PBS Member Services Department
- Evaluation of current PBS staffing needs and available options

Many PBSs have up to 600 staff members. In a recent conversation, the REB Member PBS asked the HR Specialist, if the current staffing is adequate or not. The HR Specialist's view in this regard, based on the HR Assessment, was that each PBS is different. Some PBSs need more staff and some do not. However, the more important issue is the efficiency and skill set of the existing staff to perform their job function at the highest level of quality. Most of the PBS staff who were part of the assessment recognized that they needed capacity building at the local level, which can make the PBSs perform better.

The findings of the field evaluation and the full report of the Human Resources Specialist were discussed with REB's Member PBS.

Sakil Malik was engaged in late 2009 to serve as Human Resources Specialist for the REDP.

The full report of the Human Resource Specialist may be found in Annex 4.

4.2.5 Train the Trainer

The entire Member Awareness and Board Development staff participated in a Training of Trainers course conducted by Dr. Gregory Boudreaux. As part of the course "assignement" employees were asked to review current programs under development and "rethink" the methodology on how best to present the information to local audiences to achieve the best possible (and measurable) results. The program was made available for presentaiton to REB Training Directorate.

NOTE: REDP MAEBD work products including all program plans and outlines, curriculum plans, PowerPoint presentations, manuals (trainee and trainer), handouts, program/ workshop schedules are made part of this report in digital format (CD).

The full report of the consultants may be found in Annex 4.

Section 5: Socio-Economic Study

5.1 Background

It has been documented in numerous studies that access to affordable and reliable electricity is a key requirement for both economic development and poverty reduction. The GoB Poverty Reduction Strategy Paper (PRSP) of October 2005 emphasized the importance of rural electricity for creating employment. The overall objective of the Socio Economic Study was to examine the social and economic impact of the REDP with emphasis on electric connections to poor and women led households.

NRECA contracted with the Human Development and Resources Centre (HDRC) of Dhaka in March 2008, to complete the socio-economic analysis of REDP. HDRC has a proven track record in socio-economic studies in Bangladesh. They have successfully implemented over seventy studies in the diverse fields of socio-economic impact evaluation, monitoring and evaluation (M&E), the socio-economics of poverty, and gender-related issues. The proposal solicitation and contract award was completed in full compliance with USAID procurement regulations.

As indicated in the Key Issues Section of this report, a number of significant actions including the GoB moratorium on electrical connections and the power supply shortages have impinged significantly on the anticipated benefits of the REDP and the REB program in general. Field evaluations showed clearly that households will go to great lengths to gain access to electric service, but small and medium-scale enterprises were reluctant to make investments until and unless power supply improved in rural Bangladesh. The socio-economic survey was designed to quantify the impact of the REB program in general, and REDP in particular against the backdrop of the challenges with power supply in rural Bangladesh.

5.2 Progress

5.2.1 Baseline Study

HDRC submitted the Final Report of the REDP Socio-Economic Baseline Study in August 2009 and it was presented to the Program Partners. The overall objective of the socio-economic baseline survey was to conduct the survey through collecting, collating and analyzing baseline data for all five Observation Measurement Units (OMUs) – Household, Commercial unit, Industrial unit, Irrigation unit, and Social/human development units) – in such a way that all pertinent baseline information would remain for evaluation and measurement of economic and social impact and benefits in the later stage. The Baseline Study covered the nine REDP poverty thrust PBSs and six of the remaining 61 PBSs.

The specific objectives of the survey were:

- To assess the pre-electrification livelihood status of the potential new electric consumers, especially the poor people, directly before provisioning of electricity and/or financing, and indirectly prior to availability of pertinent to electricity services in the community;
- To assess the employment and income-earning opportunities, along with the key human

development indicators such as health, education, safety net support; and female empowerment among the poor and female-headed households;

- To compare income and livelihoods of the project's future participants against a control group of similar poor people who received no benefits from the project; and
- To assess the status of non-electrified industrial, irrigation, commercial units, and human development institutions (educational and health).

The baseline survey data is an excellent compilation of material taken from the nine PBSs which are the main focus of REDP and the control group. This study produced sound and fully supported data on which to build the final program evaluation.

The executive summary of the Baseline Survey may be found in Annex 5 (Socio-Economic). The full Baseline Survey is made part of this report in digital format (CD).

5.2.2 Mid-term Monitoring Review

The Mid-term Monitoring Review was completed in April 2010. The objectives of the interim review were:

- To assess the progress of the project made so far; and,
- To identify both negative and positive factors and also the missing elements which were influencing the implementation of the project.

Both quantitative and qualitative approaches were undertaken to address the objectives of the interim review. Four PBSs were purposively selected as the review locations. They included three REDP thrust PBSs (including the micro-finance pilot Brhamhanbaria PBS, Mymansingh 2 PBS, Kurigram-Lalmonirhat PBS and one from the non-thrust PBSs (Joypurhat PBS)[3]. Altogether 120 households were surveyed using the thumb rule of 30 samples in each of the selected PBSs. The selected households were chosen from those households who participated in the baseline study as respondents. The household survey sample included both electrified households under REDP and non-electrified but eligible for electrification households situated in areas selected for intensive expansion and villages electrified under REDP planned as areas for extensive expansion.

Besides the household survey four group discussions one in each PBS, have been administered involving PBS managerial and other relevant staff.

The review was jointly conducted by NRECA and HDRC. The field data collection was held in February through March 2010.

The executive summary of the Mid-term Monitoring Review may be found in Annex 5. The full Mid-Term Monitoring review is made part of this report in digital format (CD).

[3] The Baseline study covered nine REDP poverty thrust PBSs and six out of the other 61 PBSs. In the Monitoring Review three poverty thrust PBSs and one non-poverty thrust PBS were chosen for data/information collection and review.

5.2.3 Brahmanbaria Socio-Economic Study Focused on Micro-Credit

A special microfinance component for advancing funds to enhance the ability of the poor to obtain electric service was initially part of REDP established as a stand alone agreement between DFID and PKSF. Microcredit as a tool for poverty reduction mediated through electrification of the poor household is a new concept in the development arena. To evaluate the socio-economic impact of rural electrification and microfinance program on development, it was necessary to have sound research. Considering the need of such a study, NRECA held discussions with HDRC to consider how such an assessment could take place under the current contract. An agreement was reached which led to an assignment, consisting of two parts: a Baseline Survey and Impact Study. The Baseline Survey was conducted by HDRC in late 2008 (original baseline survey). In the socio-economic impact phase, in 2010, the same households (interviewed during the baseline phases that were under the microfinance pilot program in the Brahmanbaria PBS service area) have been interviewed to assess the impact of electrification through the microfinance component of REDP.

The executive summary of the Brahmanbaria Micro-Finance Evaluation Report may be found in Annex 5 (Socio-Economic). The full Brahmanbaria Micro-Finance Evaluation Report is made part of this report in digital format (CD).

5.2.4 Socio-Economic Survey

The overall objective of the assignment was to examine the social and economic impact of the REDP with an emphasis on poor and women being top priority.

The specific objectives were:

- To assess the extent to which the project improved the livelihoods of poor people, directly through provision of electricity and/or financing, and indirectly through availability of these services in the community;
- To assess the contribution of having access to electricity has on pro-poor growth, job creation and income-earning opportunities, and assess impact on key human development indicators such as health, education, and women's empowerment;
- To determine whether the project has provided benefit to the extreme poor including female headed households, and consider how this could be increased;
- To assess how far the design of the project met the needs and the demands of the poor women, such as women's specific electricity needs, and equal access to credit and training;
- To compare increased income and livelihoods of project participants against a control group of similar poor people who receive no benefits from the project;
- To assess whether the project increased burdens or indebtedness of poor people, particularly poor women and children; and,
- To assess the factors those need to be combined with electrification, together with their timing, to maximize sustained benefits to the poor.

5.2.4.1 Phases of the Assignment

The "Socio-economic Impact Study of the REDP" had three parts. The aim of the assignment is to conduct the "Socio-economic Impact Study of the Rural Electrification Development Project (REDP)" via the baseline survey, and annual progress monitoring review[4]. This final phase of the Impact Study followed a two-year gap from Baseline Survey (field data collection conducted in end of 2008).

5.2.4.2 Study Design at a Glance

As the assignment has been administered using a baseline survey before the impact study, the final phase of socio-economic impact study used a, *"Catch-up Panel Analysis Design."* In such a process the same respondents (of baseline survey) were interviewed in this phase of socio-economic impact study. It is expected that based on official migration rate, over 90% of baseline respondents will be available for socio-economic impact study.

Thus, in the socio-economic impact study, the sample size will remain the same as the baseline survey. The only change, which will be visible is in the proportion of electrified to non-electrified respondents. It is to be noted that all the respondents at baseline were non-electrified. It is presumable that the same respondent of baseline survey would be taken as sample for socio-economic study, and that many of the non-electrified samples (in experimental and control village) would become electrified. Thus, it would be natural that, the proportion of electrified (actually, no respondent was electrified in baseline) sample would increase in experimental village, though the total sample size will remain the same. This technique will be applicable for all five (5) observation measurement units (OMUs), namely household level, commercial units, industrial units, irrigation units, and social/human development units.

The executive summary of the REDP Socio-Economic Evaluation Report may be found in Annex 5 (Socio-Economic). The REDP Socio-Economic Evaluation Report is made part of this report in digital format (CD).

5.3 Micro-Finance Credit Program for the Poor

5.3.1 Background

The primary objective of the Micro-Finance Component of the REDP was to address the needs of disadvantaged households in rural Bangladesh by creating increased access to financing, thereby enabling households and small business to pay for the wiring of their homes and businesses and finance connection charges for PBS electric service. The rural poor were the main beneficiaries of this program. In addition, efforts were made to provide assistance to the extreme poor, such as single parent households or those with severely disabled family members. Traditionally, a rural household applies for an electrical connection only when they have the money to pay for the connection fee, as well as the cost of internal house wiring. In

[4] The Baseline Study for REDP has been conducted by HDRC and Annul Progress Monitoring has been conducted jointly by HDRC and NRECA.

many cases, rural poor find PBS service connection and internal house wiring prohibitively expensive. The purpose of this task under REDP was to enhance the impact of the Rural Electrification Master Plan (2000-2020) on rural poor.

During the DFID annual and mid-term reviews of the REDP in October 2007 and 2008, a lack of coordination between the micro-finance program participants was identified. This lack of coordination severely limited the progress of the project implementation led by PKSF and its front line lending partner Padakhep. It was determined that improving communication and cooperation specifically between Padakhep, Brahmanbaria PBS and REB was essential if this component was to make progress towards achieving the established project goals.

Following discussions with all stakeholders and at the request of DFID (and with the acknowledgment of USAID) NRECA was asked to take an active role in coordinating the work of the parties in an effort to ensure that the project stayed on track to meet or exceed program expectations. NRECA agreed to take a leadership role.

5.3.2 Progress

Under NRECA leadership the entire Microfinance component of the REDP was reviewed by all stakeholders following the completion of the pilot project in Brahmanbaria. Representatives from DFID, the PKSF, Padakhep, the non-government organization (NGO) tasked with the marketing and servicing the micro-credit loans and NRECA reviewed the program projections and current status. While all parties agreed that there had been many achievements made in terms of the provision of microcredit to a number of beneficiaries, the small number of actual electrical connections made under the project (2,100) strongly suggested that the program would not meet original PKSF program projections. Following the evaluation DFID decided to support PKSF's request to discontinue its involvement in the microfinance provision of REDP linked to providing loans to fund the electric connections for the extreme poor and female led households throughout rural Bangladesh.

The loan program was discontinued in December 2008 and all accounts receiving financial assistance have been connected. The "pilot" project will be evaluated as part of the REDP evaluation.

Section 6: Excerpts From DFID Final Program Memorandum

The final DFID program review for REDP was completed in October 2010. Excerpts from the Program Memorandum are included below.

The overall purpose of the project - increased access to affordable and sustainable electricity services in rural areas - is continuing to progress and will likely be achieved, with the full REDP target of 1.35 million new service connections expected to be reached by June 2012.

- By December 31, the project had delivered 982,239 new electric services for households, small enterprises and agricultural purposes. This total amounts to 73% of the REDP overall target.
- This is a creditable achievement, especially in the context of chronic and worsening national electricity shortages and action by the GoB to suspend the connection of new services in order to slow the growth in demand for electricity.

The procurement of materials and construction contracts by the Rural Electrification Board (REB), carried out with the support and guidance of USAID's contractor NRECA, has been conducted with discipline and care, in compliance with established procurement rules.

For several reasons, the REDP micro-finance component was not taken forward beyond a limited activity in one PBS. The original micro-finance objective will be reached only to very limited extent, although the pilot exercise achieved some isolated successes.

- Experience and some useful lessons were gained from the pilot micro-finance activity, including ways of promoting income generating activities through the expansion of electricity services.

There has been a considerable effort by NRECA working with the REB to deliver member awareness and PBS board development training, with expressions of appreciation by participants. The longer term impact of this effort should be included in any future project evaluation.

While the REB has a training department and plans to set up a new Dhaka-based training academy, a recent NRECA assessment shows that curriculum, training courses and teaching materials all need to be updated, with an emphasis on the training of trainers.

The REDP socio-economic impact study planned for October 2010 to January 2011 is too soon for the full benefits of the project to be realized. A further impact assessment and possible project evaluation may be considered after all remaining connections are provided, ideally over the period October 2012 to January 2013 (i.e. at the same time of year as the 2008/09 baseline study).

The main risk to the project achieving its purpose and goal (increased access to electricity services for economic growth and poverty reduction) is the continuing chronic national electricity supply shortages. These have resulted in extensive and prolonged daily power cuts throughout

the rural service areas. Until the power supply situation improves, the full benefits of the project may not be realized.

The following is a quote from Michelle Edwards, Program Manager for DFID, commenting on the scoring of the DFID Program Review (October 2010).

"For information, on our internal systems the project was scored a 2 – meaning it is likely to be largely achieved. There is good progress towards purpose completion and most outputs are likely to be achieved. We were unable to score a 1 given the current moratorium situation and as we do not have the impact study we cannot yet see conclusive evidence of impact on the target groups. However we note NRECA's excellent assistance in ensuring value for money on the procurement packages and spot checking of quality of installments on our behalf and this we recognize as fully achieved - plus the significant provision of training for members which has exceeded earlier targets in terms of the numbers."

Section 7: Conclusion

7.1 NRECA Assessment

NRECA fully believes that the REDP program objectives, within the control of the organization, have been met.

- NRECA has verified that the material selection by REB was consistent with REDP requirements and the procurement process was in compliance with GoB Public Procurement Policy 2003.
- NRECA observed and reviewed the REB bid evaluation processes, provided concurrence when required/requested; assisted REB in the retendering and re-evaluation of unacceptable bids, and, participated in pre-delivery inspections of materials and pre-contract factory inspections, whenever necessary.
- The analysis of compliance with the PBS Master Plans and construction specifications for project construction indicated that for the majority of the PBSs involved, compliance with the master planning process was acceptable and construction quality was adequate. There were, however, instances in some PBSs in which the projects constructed did not qualify under master planning criteria. REB was advised of the situation, but monitoring of compliance with master planning and construction quality will continue to be an ongoing issue that needs to be reemphasized through training and oversight on the part of REB.
- NRECA provided full support for ongoing implementation of member awareness / education and board development programs by enhancing the capability of the REB and PBS personnel to establish a sustainable education training program for Board Members, Village Advisors and PBS Members.
- NRECA worked with the REB Training and Management Directorates to design and provide program support for the training of newly elected PBS Board Members.
- NRECA hired and worked closely with HDRC to establish baseline socio economic data for REDP areas, completing socio-economic surveys within REDP and upon project completion providing a full report on the socio-economic influence of REDP.
- NRECA provided regular progress reports (monthly, quarterly and upon request) and thematic reports on REDP activities and challenges to program partners.

As started throughout the Final Report, there were two main impediments to full completion of many of the tasks associated with REDP. They were:

1. The moratorium on electrical connections imposed by the GoB to control the load growth and demand on the country's electric system seriously reduced the number of connections made during the 5-year project period. While the connections were not made the distribution facilities are in place and we expect that once the moratorium is removed, electrical connections will proceed at a very quick pace.
2. Many of the MAEBD tasks assigned, especially those areas of need identified in the Enhanced Scope of Work, have been advanced to the point of REB review and approval. NRECA maintained a continuous dialogue with REB concerned officials regarding the

review, approval and scheduling of programs, workshops and training sessions. However, for one reason or another necessary approval from REB to advance these programs past various stages of development was never granted. The materials have been made available to REB and NRECA stands ready to work with the concerned officials to implement the programs as desired to ensure that the hard work of the dedicated professionals serving under REDP was not completed in vain. We hope that implementation measures will be undertaken by REB with the encouragement of development partners and the GoB to advance the organization into the 21st Century. As stated by Sakil Malik in the conclusion of the HR Report, "It is undoubtedly the desire and ability of REB which will determine the future for the RE sector in Bangladesh. Striking the balance between the two will be the keystone for RE Reform."

7.2 Secondary Benefits of REDP

7.2.1 Carbon Dioxide Impact of Electrification

The carbon impact of electrification can be estimated by examining the types of fuel used in unelectrified households, evaluating their carbon impact, and comparing with the carbon impact of electricity generation, transmission and distribution. The principle uses of energy in unelectrified households are for cooking and lighting. Cooking is not generally displaced by electricity, therefore lighting will be considered for comparison.

The two traditional types of lighting in Bangladesh are kerosene lamps and candles. Most households in unelectrified villages use at least one common "hurricane" or globe-type lamp, as well as wet-wick or "chati" lamps that produce very little light, but are very inexpensive to purchase or make at home. Some of the larger, communal family-style households use two or more hurricane lamps and wet wick lamps, fueled by kerosene, on a daily basis. Kerosene consumption in unelectrified houses in Bangladesh averages 0.5 liters per day for lighting alone. The US Energy Information Administration (EIA) estimates that kerosene consumption generates carbon dioxide at the rate of 2.6kg/liter, so an unelectrified household burning 0.5 liters of kerosene per day generates 38.0 kg of carbon dioxide per month. For the number of households electrified by the REDP project (838,000), carbon dioxide generation from kerosene used for lighting prior to electrification therefore amounted to 390,000 tons per year.

By the same token, in the absence of electrification, irrigation pumps are powered by diesel engines. The typical diesel pump of the size considered a candidate for electrification consumes approximately 1,700 liters of diesel fuel annually. EIA estimates that diesel fuel consumption produces carbon dioxide at a rate of 2.7kg/ liter, so a diesel irrigation pump produces approximately 4.6 tons per year of carbon dioxide. The REDP project connected a total of almost 40,000 pumps to electric service. Had these pumps been diesel powered (and some of them were converted from diesel to electric service) they would have produced 184,000 tons of carbon dioxide.

Electricity in Bangladesh is generated by a mix of natural gas, oil, coal and hydro, with gas providing 82% of energy, oil 9%, coal 5% and hydro 4%. Assuming an average heat rate of 10,000 BTU/kWh, which is typical of most combustion processes, and total transmission and distribution technical losses of 20%, the carbon intensity of the Bangladesh electric generation system is 0.7kg/kWh consumed.

Household electricity consumption in the REB system averaged 50kWh/month in 2009, an amount of energy which not only provided lighting of much higher quality than that produced by kerosene, but also powered fans and other domestic appliances as well. Even so, the carbon intensity of 838,000 average REB domestic consumers is 355,000 tons per year, a saving of 35,000 tons per year compared to the carbon dioxide produced by the consumption of kerosene for lighting alone in unelectrified houses.

The average irrigation pump supplied by REB consumed 4,060kWh/year in 2009. Therefore the carbon intensity of the 40,000 irrigation pumps connected by the REDP project was 114,000 tons of carbon dioxide. Using this figure we can deduct that the electric irrigation pumps connected by the REDP project displaced almost 70,000 tons of carbon dioxide, compared with what would have been emitted had the pumps been power by diesel fuel.

The combined carbon dioxide impact of the connection of domestic and irrigation consumers by REDP was therefore a reduction in carbon dioxide emissions of 105,000 tons per year, resulting from displacement of kerosene and diesel fuel by electricity produced mainly from natural gas. The result of carbon offset for electric connection to domestic and irrigation consumers in REDP is summarized in following table:

Table 7.2.1.1: Carbon Offset for Electric Connection in REDP

Item	Quantity
Domestic Consumer	
Keresone consumption/consumer/year (litre)	180.00
Kerosene CO2 emission/consumer/year (kg)	464.40
Electricity consumption/consumer/year (kWH)	600.00
Electric CO2 emission/consumer/year (kg)	420.00
Reduction of CO2 emission/consumer/year (kg)	44.40
Domestic consumer, present (Nos.)	837,931
Reduction of CO2 emission, present/year (ton)	37,204.14
Irrigation Consumer	
Diesel consumption/consumer/year (litre)	1,708.00
Diesel CO2 emission/consumer/year (kg)	4,594.50
Electricity consumption/consumer/year (kWH)	4,060.00
Electric CO2 emission/consumer/year (kg)	2,846.20
Reduction of CO2 emission/consumer/year (kg)	1,748.30
Irrigation consumer, present (Nos.)	39,788
Reduction of CO2 emission, present/year (ton)	69,561.36
Total CO2 reduction due to electric connection (ton/year)	**106,765.50**

A similar computation can be made for most other energy applications in the rural area. For instance it goes without saying that rural industries powered by diesel generators have significantly higher carbon impact than those powered by grid supplied electricity. Therefore rural electrification can be viewed as a carbon reduction strategy of significant value.

7.2.2 Indoor Air Quality

One of the significant impacts of the extension of electric power to rural households is the improvement of indoor air quality. Kerosene lamps and candles, or the even more noxious diesel wick lamps used in some poorer households, are a significant source of carbon monoxide and airborne carbon micro-particulates, all of which become concentrated inside the dwelling. The concentration of these pollutants in indoor air is a significant contributor to respiratory illnesses among children and women especially, since those two groups tend to spend more time indoors.

Introduction of electricity to the household improves indoor air quality in two ways. The major impact of electric power availability on indoor air quality is the result of the substitution of electric lighting for fossil fuel lamps, which reduces the production of these pollutants. However, a second impact that is reported by users, particularly women, to be nearly as important is the introduction of ceiling fans that can disperse the pollutants produced by cooking or other non-electrified domestic processes using traditional fuels such as dung and wood.

SUMMARY PHYSICAL PROGRESS / DFID FUNDED REDP PROJECT – February 2011					
TASK A – SUPERVISION AND MONITORING - PROCUREMENT					
Project Name	**Closing Date**	**Component / Work**	**Target**	**Progress**	**Remarks**
9 PBS	Closed in June 2010	Line Construction, km	8,000	8,736	
		Line Renovation, km	2,000	1,233	
		Consumer Connections	250,000	172,252	Facilities created for 421,471 consumers
10 Lac	Extended by GoB to June 2011	Consumer Connections	1,000,000	357,101	Of the 357,101 cons. connected, 26,825 are commercial & irrigation
67 PBS	Closed in June 2008	New Construction and Renovation, km	13,000	12,397	
		Consumer Connections	100,000	452,886	Facilities created for 580,524 consumers
Master Plan & Construction Verification	December 2010	Field Inspection, Data Collection & Analysis for Construction Projects	9 PBS	9 PBS	Field data collected, analyzed and results provided to PBSs
Monitoring of Material Usage	December 2010	Data Collection & Analysis of Construction Projects, Warehousing & Shipping	9 PBS	9 PBS	Field data collected, analyzed and results provided to PBSs
TASK B – MEMBER AWARENESS & BOARD DEVELOPMENT PROGRAMS					
Sub-Task B.1 Expanded Assistance for PBS Member Education					
Project Name	**Closing Date**	**Component / Work**	**Target**	**Progress**	**Remarks**
Member Awareness Building	December 2010	Member Awareness Workshops Implemented in 50% of PBSs	35 PBS	46 PBS and REB	140 MAE Workshops 7,159 participants, 770 female participants.
Member Awareness Building	December 2010	Workshops for PBS Member Services Dept.	35 PBS	63 PBS 762 Participants	100 percent employee participation with 65 female participants
		Village Advisors – Member Education	9 PBS	Concept Paper	Outlines and training materials developed
Women's Participation	December 2010	Women Participation in AGM at 9 PBS increased 5%	Average of 130 Females (per PBS)	Working with REB Training Directorate	Pilot workshops developed and presented to REB
Sub-Task B.2 Expanded Assistance for PBS Board Development					
PBS Director's Accountability	December 2010	PBS Board Member Orientation Training – 5 day Workshop presented to 50% of new board members elected in Past 2 years	149 New Board Members Elected in 2007-2009	413 total participants - 26% female	19 workshops 68 PBSs represented
PBS Director's Strengthening	December 2010	PBS Directors Strengthening Program completed in 50% of PBS	35 PBS	63 PBSs 703 total participants- 22% female	98 percent Director participation
TASK C – SOCIO-ECONOMIC PROGRAM EVALUATION					
Project Name	**Closing Date**	**Component / Work**	**Target**	**Progress**	**Remarks**
Socio-Economic Program Evaluation	February 2011	Program Evaluation	9 PBS + 6 Non-Poverty PBS	Baseline, Mid-year & Brahmanbaria Completed	Final draft of program evaluation report completed

Section 8: REDP Financial Report

Table 8.1: Budget Information for the Final Report – April 2006 through February 2011 (includes additional funding provided by Contract Modification #4):

Total Summary Cost Elements	Total Amount Budgeted	Cumulative Thru September - 2010	Cumulative Thru December - 2010	Expenditure Final Qtr	Balance Available Thru 2/28/11
Material and services					
Direct Labor	$ 2,656,507	$ 1,752,729	$1,916,359	$ 163,630	$ 740,148
Indirect Costs	$ 1,177,276	$ 879,139	$ 951,250	$ 72,111	$ 226,026
Other Costs					
- Travel	$ 512,792	$ 187,430	$ 203,085	$ 15,654	$ 309,707
- Consulting	$ 736,829	$ 279,428	$ 337,168	$ 57,740	$ 399,661
- Other Direct Costs	$ 533,106	$ 791,528	$ 911,654	$ 120,126	($ 378,547)
Administration Allocated to Activities					
Obligations		$ 30,890	$ 40,015	$ 9,125	($ 40,015)
Summary of Total Costs	**$ 5,616,510**	**$ 3,921,144**	**$ 4,359,530**	**$ 438,386**	**$ 1,256,980**
Fixed Fee	$ 191,772	$ 131,593	$ 143,380	$ 11,787	$ 48,392
Total Costs Plus Fixed Fee	**$ 5,808,282**	**$ 4,021,847**	**$ 4,462,895**	**$ 441,048**	**$1,345,387**

Section 9 :

Annexure

Annex 1 :

Quarterly Report

Quarterly Report

The final project report and quarterly report were both due to be submitted to USAID on the same date (January 31, 2011). NRECA requested USAID concurrence to develop one report which would include quarterly results along with the final project report - USAID concurred.

(October – December) Project Activity

During the final months of the project, activity focused on completion of the various tasks assigned.

Task A: Supervision and Monitoring

Material Procurement

- 10Lac project – Final procurement orders were placed followed by pre-delivery inspections attended by both REB and NRECA. During this final quarter the full procurement of materials funded by DFID was completed.

Monitoring of Material Usage

- In our monitoring of material use by construction contractors, we completed the analysis of sample lots collected from additional close-out documents for all 9PBSs. Reports of our findings were discussed with the respective PBSs and any discrepancies were clarified to our satisfaction.
- We concluded the monitoring of the various construction projects in all 9 PBSs through the office of the Superintending Engineer and Executive Engineers of REB project divisions. We reviewed samples of staking sheets, construction contracting, inspection, and acceptance procedures to determine whether appropriate REB rules and regulations have been followed. The overall process of "as-built" staking of lines and acceptance inspection procedures for construction was followed in all but one PBS. Some deviations were identified during line acceptance inspection at Mymensingh PBS-2 for which a letter was sent to REB. Following numerous meetings and discussions the discrepancies identified by the NRECA inspection team were addressed to our satisfaction.
- We completed the monitoring of the closing stock of DFID funded materials at REB warehouses for the 67PBS and 9PBS projects. Information on the allocation of DFID funded material and equipment post delivery to REB warehouses against different Invitations for Bids (IFBs) was collected including detailed information regarding the usage of this material at various PBSs and the current stock levels held at Savar, Chittagong and Khulna warehouses. We analyzed this data and reported our findings to REB with minor discrepancies clarified to our satisfaction.

Task B: Member Awareness Education and Board Development

Board & Member Services Development

- We revised the "Hand Note" for the Board and Member Services "Dialogue" program. We also developed a "Hand Note" for a potential Management Strengthening Dialogue for PBS staff supervisors and above. Handouts are ready for printing.

Board Development

- The PBS Board Training Curriculum was completed in full English and Bangla language handouts including a power point presentation. The curriculum includes the following courses:
    1. Director Duties and the Role of the Board
    2. Understanding and Using Bye-laws, Policies and other Governance Documents
    3. Conducting Effective Board Meetings
    4. Understanding Electric Utility Operations
    5. Understanding and Using the Financial Report

Gender Awareness

- The draft outline for the Leadership Program for Lady Directors was submitted to REB for review and approval.
- We edited and updated the Gender Awareness program curriculum for the Board of Directors and employees. We completed course outlines and materials for the workshops.

Communications

- We discussed the best options to implement an improved Village Advisor (VA) training program including presenting the communication components update to REB that included preparation of slides and a proposal for several field trials.
- We concluded our review and revised three lessons of "Controlling and Measuring Results", a REB training course. This work includes translation of the material into Bangla.
- We completed translation of important PBS Instructions and submitted to REB for review.
- REB asked NRECA to expand the communication enhancements to include advanced website development for the PBSs and video conferencing. We believe that their request most certainly has merit and that the resources will prove to be very valuable additions to the communications efforts at both REB and the PBSs while supporting enhanced transparency as part of improved governance within the rural electrification program. Following an implementation discussion with USAID we moved forward and began work with on the REB website which included meeting with a small task group of REB ICT staff to move the project towards final integration. We also completed a preliminary cost benefit analysis on the video-conferencing proposal. Both projects are on schedule be completed by February 15th.

Human Resources

- We completed a Leadership Training Module for PBS management and staff along with a Job Description Orientation program. Material was submitted to REB.

Task C: Socio-Economic Study

Socio-Economic Impact Study

- HDRC recruited field staff (52) and field supervisors and organized seven teams for data collection.
- A seven-day orientation and training program for field staff was completed by HDRC and included NRECA participation. The main focus of these sessions was on the data collection instruments (DCIs). The training also included a full day in the field at Manikgonj PBS to test the questionnaire.
- Field data collection began October 10 in Brahmanbaria PBS. All field staff members worked together to complete this survey in a short period of time and to again review the questionnaire and collection methods
- Data entry analysis and tabulation for the Brahmanbaria Socio-Economic Impact study focusing in Microfinance was completed.
  - This smaller, more focused report, which will be included in the final report, was completed in mid-December. A review session with program partners was held on December 22 in Brahmanbaria.
- Data collection for all 15 PBSs sampled was completed.
  - Data entry and "cleaning" are currently taking place.

In summary the principal achievements during the final quarter reporting period were:

- Completed material acquisition, material usage and construction oversight activities
- The Strengthening the PBS Director Dialogue Program "Hand Notes" were updated
- The PBS Board Training Curriculum was completed in full English and Bangla language handouts and a power point presentation
- The Strengthening the PBS Member Services Department Dialogue Program "Hand Notes" were updated
- We completed our review revision and translation of three lesson of the REB training course "Controlling and Measuring Results"
- We continued to try and work with REB staff to analyze the Village Advisor (VA) program and developed a strategy to improve PBS VA training efforts
- We completed our translation of key REB instructions and the 550 Form to address this critical information need identified by the PBS management and board and submitted to REB
- We completed the draft of a leadership module and the translation of key staff job descriptions
- Held Train the Trainers Workshop for REDP staff
- Completed Brahmanbaria Micro-finance draft report
- Planning, Staff Orientation and Field Data Collection began for the Final Program Socio-economic evaluation

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Annex 2 :

Material Procurement

DFID FUNDED REDP PROCUREMENT LIST

Sl No.	Tender-Package No.	Sub Package No.	Item	Estimate Cost (USD)	Last Status	Supplier's Name	Contract Amount (USD)
1	2	3	4	5	6	7	8
9PBS PROJECT (1st Tranche)							
1	DFID (9PBS)-03	DFID (9PBS)-008	Conductor (D-1, D-4, D-5)	1,547,367.00	Delivery complete	M/s. SBS Cables Ltd, Bangladesh .	1,469,000.00
2	DFID (9PBS)-03R	DFID (9PBS)-09/1	SPC Poles (R-40, R-41, R-42, R-43, R-44, R-45, R-46, R-47, R-48)	5,453,988.00	Re-tendered twice. 2 sub-package merged. Delivery complete	Castle Construction Co. Ltd. (JVCA)	5,422,200.00
3	DFID (9PBS)-03	DFID (9PBS)-011	Dist. Transformer (G-5, G-16, G-17)	1,393,700.00	Delivery complete	M/s. Techno Venture Ltd, Bangladesh .	1,302,000.00
4	DFID (9PBS)-04R	DFID(9PBS)-012/1	Conductor (D-6, D-8, DS-9, DS-10, DS-37, DS-38)	386,932.55	Re-tendered. Delivery complete	Eastern Cables ltd.	406,575.00
5	DFID (9PBS)-04	DFID (9PBS)-013	Conductor (D-11, D-12, D-14, D-25)	2,673,300.00	Delivery complete	M/s. SBS Cables Ltd, Bangladesh .	2,502,600.00
6	DFID (9PBS)-04	DFID (9PBS)-014	Conductor & Guy Accessories	797,066.00	Delivery complete	.M/s. Trade East West Corporation Ltd., Bangladesh .	831,390.00
7	DFID (9PBS)-05R	DFID(9PBS)-015/1	Dist. Transformer (G-21, G-4)	2,590,500.00	Re-tendered. Delivery complete	Techno Venture Ltd	2,385,000.00
8	DFID (9PBS)-05	DFID (9PBS)-016	Sectionalizing Device	775,319.40	Delivery complete	M/s. Transcontinental IMX, Dhaka, Bangladesh	827,750.00
9	DFID (9PBS)-05	DFID (9PBS)-017	Fuse Link	236,330.00	Delivery complete	M/s Techno Electrical	181,703.00
10	DFID (9PBS)-05	DFID (9PBS)-018	Capacitor	170,800.00	Delivery complete	M/s Southern Engineers & Trading Agencies	238,520.00
11	DFID (9PBS)-06	DFID (9PBS)-019	Single Ph. Meter (J-1)	843,000.00	Delivery complete	. M/s. Techno Venture Ltd, Bangladesh .	675,000.00
12	DFID (9PBS)-06	DFID (9PBS)-020	3 Ph. Meter & Acc. and Prog. Elec. Meter (J-2, J-3, J-4, J-5, J-6, J-23)	1,553,258.25	Delivery complete	.M/s. Trade East West Corp. Ltd., Dhaka, Bangladesh .	1,153,250.00
13	DFID (9PBS)-06	DFID (9PBS)-021	Meter Seal (J-9, J-31)	177,600.00	Delivery complete	.M/s. Trade East West Corporation Ltd. Bangladesh	130,800.00
14	DFID (9PBS)-06	DFID (9PBS)-022	Single Ph. Meter & Socket (J-16, J-17)	526,420.00	Delivery complete	Jascom Enterprise Ltd.	296,000.00
15	DFID (9PBS)-06	DFID (9PBS)-023	CT & PT (G-12, G-13, GS-1, GS-3, G-14, G-15)	1,004,500.00	Delivery complete	M/s. Esit, Turkey	869,000.00
16	DFID (9PBS)-07	DFID (9PBS)-024	Wooden Cross Arm & Anchor Log (X 1, X-2, Z-1, Z-2)	902,180.00	Delivery complete	M/s Diran with JVCA Esack & Sarc	762,458.00
17	DFID (9PBS)-07	DFID (9PBS)-025	Connector (I-57, I-58, I-59, I-73)	191,790.00	Delivery complete	M/s. Trade East West Corporation Ltd., Bangladesh	199,700.00
18	DFID (9PBS)-07	DFID (9PBS)-026	Guy & Grounding wire (N-1, N-2, N-3, N-4)	1,224,997.80	Delivery complete	.M/s. Trefileurope, France .CFR price Euro 1,099,800.00	1,583,712.00
19	DFID (9PBS)-07	DFID (9PBS)-027/1	Street Light & Accessories (L-1, L-2, L-3, L-4)	156,589.00	Re-tendered. Delivery complete	S.Q. Trading	154,865.00
20	DFID (9PBS)-07	DFID (9PBS)-028	Line Tools & Accessories	393,885.13	Delivery complete	.M/s. Universal Trading & Engineering Corp. USA	380,526.00
21	DFID(9PBS)-08R	DFID (9PBS)-029/1	1-P Power Transformer (GS-42, GS-43)	1,619,200.00	Re-tendered. Delivery complete	Energypac Engineering Ltd.	1,609,300.00
22	DFID (9PBS)-08	DFID (9PBS)-030	Auto. Cir. Recloser (HS-8.200, HS-7.800)	315,945.00	Delivery complete	.M/s. Nu-Lac Industries Pty Ltd, Australia .	347,220.00
23	DFID (9PBS)-08R	DFID (9PBS)-031/1	Auto Volt Regulator (K-1, KS-2.328, KS-2.656)	1,127,298.00	Re-tendered. Delivery complete	Toshiba, Brazil	1,540,240.00
24	DFID (9PBS)-08	DFID (9PBS)-032	Substation Switch & Post Insulator	487,169.60	Delivery complete	.M/s. Energypac Engineering Ltd., Bangladesh .	334,490.00
25	DFID (9PBS)-09R	DFID (9PBS)-033/1	Jeep (TVA-1A)	160,120.00	Re-tendered. Delivery complete	Navana Ltd.	123,291.00
26	DFID (9PBS)-09R	DFID (9PBS)-034/1	Pick Up (Double Cab) (TVA-2A=1 No.)	22,666.00	Re-tendered. Delivery complete	Pacific Motors	28,357.00
27	DFID (9PBS)-09R	DFID (9PBS)-035/1	125CC Motor Cycle (TVA-4)	19,695.00	Re-tendered. Delivery complete	Karnaphuli Industries Ltd.	23,509.00
28	DFID (9PBS)-15	DFID (9PBS)-055/1	33kV submarine cable (DS-61, DS-61.1, DS61.2)	912,000.00	Re-tendered. Delivery complete	Ningbo Orient China	892,825.00
			Total: USD	27,663,616.73			26,671,281.00

DFID FUNDED REDP PROCUREMENT LIST

Sl No.	Tender-Package No.	Sub Package No.	Item	Estimate Cost (USD)	Last Status	Supplier's Name	Contract Amount (USD)
1	2	3	4	5	6	7	8
9PBS PROJECT (2nd Tranche)							
1	DFID(9PBS)-10R	DFID (9PBS)-036/1	Line hardware	1,540,808.71	Re-tendered. Delivery complete	Confidence Steel	1,847,509.00
2	DFID(9PBS)-10	DFID (9PBS)-037	Conductor (D-1, D-28)	2,659,301.00	Delivery complete	BRB Cable Industries Ltd.	2,595,243.00
3	DFID(9PBS)-10	DFID (9PBS)-038	Conductor (D-11, D-12, D-14, D-25)	2,605,500.00	Delivery complete	SBS Cables Ltd.	2,346,606.00
4	DFID(9PBS)-011	DFID (9PBS)-039	Distribution Transformer (G-4, G-5, G 7, G-16, G-17, G-21)	3,814,875.00	Delivery complete	Techno Venture Ltd	3,962,400.00
5	DFID(9PBS)-011	DFID (9PBS)-040	Single Phase Re-closer(H-9.025, H-9.035, H-9.050)	522,000.00	Delivery complete	Cooper, USA	499,500.00
6	DFID(9PBS)-012R	DFID (9PBS)-041/2	Wooden Poles (R-03, R-05, R-06, R-10, R-11, R-14, R-15, R-20)	2,562,590.00	Re-tendered twice. Delivery complete	Nordic Woods Ltd.	2,982,780.00
7	DFID(9PBS)-012	DFID (9PBS)-042	Wooden Cross Arm & Anchor Log (X 1, X-2, Z-1)	585,750.00	Delivery complete	Esack (JVCA with Diran & Sarc)	589,275.00
			Total =	14,290,824.71			14,823,313.00
9PBS PROJECT (3rd Tranche)							
1	DFID(9PBS)-013	DFID (9PBS)-043	Insulated Conductor (D-11, D-12)	334,407.00	Delivery complete	BRB Cable	202,635.00
2	DFID(9PBS)-013	DFID (9PBS)-044	Dist. Transformer (G-4)	1,214,400.00	Delivery complete	Eaglerise China	1,237,080.00
3	DFID(9PBS)-013	DFID (9PBS)-045	SPC Poles (R-40, R-41, R-42, R-43, R-44)	2,928,750.00	Delivery complete	Pather (JVCA with 5 others)	3,410,775.00
4	DFID(9PBS)-014	DFID (9PBS)-046	33kV VCB	283,392.00	Delivery complete	Crompton, India	194,200.00
5	DFID(9PBS)-014	DFID (9PBS)-047	33kV ACR	348,100.00	Delivery complete	Tech Electric & Electronic Co.	370,300.00
			Total: USD	5,109,049.00			5,414,990.00
10 LAC PROJECT							
1	DFID (10 Lac)-1	DFID (10 Lac)-048	Conductor (D-11, D-12)	1,605,900.00	Delivery complete	SBS Cables Ltd.	1,483,650.00
2	DFID (10 Lac)-2	DFID (10 Lac)-049	Conductor & Guy Accessory (E-17, E 18, E-21)	150,450.00	Delivery complete	Trade East West Corpn.	191,125.00
3	DFID (10 Lac)-3R	DFID (10 Lac)-050-051/1	Fuse cutout + Lightning arrester (H-1.100, H-2.009)	47,655.00	Re-tendered. 2 sub-package merged. Delivery complete	Zhejiang, China	53,140.00
4	DFID (10 Lac)-4	DFID (10 Lac)-052	3-Phase Meter (J-2, J-3, J-4)	860,946.00	Delivery complete	Trade East West Corpn.	802,800.00
5	DFID (10 Lac)-4	DFID (10 Lac)-053	Twist Tite Seal (J-31)	82,080.00	Delivery complete	Shenyang Shining Fortune Container Seal Co. Ltd.	70,800.00
6	DFID (10 Lac)-5	DFID (10 Lac)-054/1	Guy Wire (N-2)	129,750.00	Re-tendered. Delivery complete	Trade East West Corpn.	143,750.00
7	DFID (10 Lac)-6	DFID (10 Lac)-056	Conductor (D-11, D-12)	2,254,707.00	Delivery complete	SBS Cable	1,579,281.00
8	DFID (10 Lac)-6	DFID (10 Lac)-057	Fuse cutout + Lightning arrester (H-1.100, H-2.009)	49,052.00	Delivery complete	Zhejiang, China	55,260.00
9	DFID (10 Lac)-7	DFID (10 Lac)-058	3-phase Meter (J-2, J-3, J-4)	812,520.00	Delivery complete	Trade East West Corpn.	652,800.00
10	DFID (10 Lac)-7	DFID (10 Lac)-059	Twist Tite Seal (J-31)	52,800.00	Delivery complete	Shenyang, China	52,000.00
11	DFID (10 Lac)-08	DFID (10 Lac)-060	Conductor (D11)	2,264,600.00	Delivery complete	SBS Cables Ltd.	2,369,187.00
12	DFID (10 Lac)-08	DFID (10 Lac)-061	Conductor (D11)	2,095,600.00	Delivery complete	TPT Cables Ltd.	2,103,444.00
13	DFID (10 Lac)-08	DFID (10 Lac)-062	Conductor (D12)	1,780,800.00	Delivery complete	TPT Cables Ltd.	1,750,968.00
14	DFID (10 Lac)-09	DFID (10 Lac)-063	Conductor & Accessories (E-17, E-18, E-21)	218,200.00	Delivery complete	Trade East West Corpn.	260,100.00
15	DFID (10 Lac)-09	DFID (10 Lac)-064	Fuse cutout + Lightning arrester (H-1.100, H-2.009)	83,370.00	Delivery complete	Zhejiang, China	82,950.00
16	DFID (10 Lac)-09	DFID (10 Lac)-065	Twist Tite Meter Seal (J-31)	66,000.00	Delivery complete	Shenyang, China	58,000.00
17	DFID (10 Lac)-10	DFID (10 Lac)-069	Conductor (D11)	582,000.00	Delivery complete	BRB Cable Industries Ltd.	499,200.00
18	DFID (10 Lac)-10	DFID (10 Lac)-070	1-ph meter (J1)	900,000.00	Delivery complete	Techno Venture Ltd.	765,000.00
19	DFID (10 Lac)-11	DFID (10 Lac)-071	1-ph meter (J1)	450,000.00	Delivery complete	Techno Venture Ltd.	382,500.00
			Total: USD	14,486,430.00			13,355,955.00

DFID FUNDED REDP PROCUREMENT LIST

Sl No.	Tender-Package No.	Sub Package No.	Item	Estimate Cost (USD)	Last Status	Supplier's Name	Contract Amount (USD)
1	2	3	4	5	6	7	8
67 PBS PROJECT							
1	DFID (67PBS)-01R	DFID(67PBS)-001/1	Conductor (D-11, D-12, D-14, D-25)	2,211,100.00	Re-tendered. Order placed but cancelled	BRB Cable Industries Ltd.	
2	DFID (67PBS)-01	DFID (67PBS)-002	Conductor (D-8, DS-9, DS-10, DS-37, DS-38)	90,529.55	Delivery complete	M/s. BRB Cable Industries Ltd. Unit-3 Bangladesh	80,615.00
3	DFID (67PBS)-01	DFID (67PBS)-003	Sec. Device (H-1.100, H-2.009)	307,320.00	Delivery complete	.M/s. Zhejiang People High Voltage Electrical Ceramics Co. Ltd, China.	309,060.00
4	DFID (67PBS)-02R	DFID(67PBS)-004/1	Single Ph. Meter (J-1)	843,000.00	Retendered. Abandoned		
5	DFID (67PBS)-02	DFID (67PBS)-005	3 Ph. Meters & Acc (J-2, J-3, J-4, J-5, J-6)	1,260,480.00	Delivery complete	.M/s. Trade East West Co. Ltd, Bangladesh.	984,000.00
6	DFID (67PBS)-02R	DFID(67PBS)-06/1	Meter Seal (J-9)	17,760.00	Re-tendered. Abandoned		
7	DFID (67PBS)-02	DFID (67PBS)-007	1. Ph. Meter & Accessories (J-16, J-17)	333,840.00	Delivery complete	M/s. Jascom Enterprise Ltd. Singapore	217,000.00
			Total: USD	5,064,029.55			1,590,675.00

DAILY ITTEFAQ
July 25, 201

"বিদ্যুতের আলোর ছটায় বিদ্যা শিক্ষার বিস্তার ঘটায়"

Invitation for International Tender against DFID Fund under the 10 Lac consumers connection Project of Rural Electrification Board.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

1	Ministry/Division	Ministry of Power, Energy and Mineral Resources, Power Division.
2	Agency	Rural Electrification Board.
3	Procuring Entity Name & District	Director, Procurement, Rural Electrification Board. Dhaka.
4	Invitation for	Electrical line Construction Material
5	Invitation Ref No	DFID/GAF-278(5)/2010/29 Date : 20/07/2010
6	Procurement Method	Open Tendering Method, International Competitive Tender (ICT)

FUNDING INFORMATION

7	Budget and Source of Fund	Development Budget under DFID Grant	
8	Development Partners (if applicable)	Department for International Development (DFID), UK	
9	Project / Program Name (if applicable)	10Lac new consumer connection under existing PBSs Project of Rural Electrification Board.	
10	Tender Package No.	DFID (10 Lac)-10 & DFID (10 Lac)-11	
11	Tender Publication Date	24/07/2010	
12	Tender Last Selling Date	05/09/2010 up to office time	
		Date	Time
13	Tender Closing Date and Time	06/09/2010	12.00 Noon (BST)
14	Tender Opening Date and Time	06/09/2010	12.30 P.M. (BST)
15.	Name & Address of the office(s)	Address	
	- *Selling Tender Document*	Directorate of Procurement (7th floor), Rural Electrification Board, Nikunja-2, Khilkhet, Dhaka- 1229. Bangladesh.	
	- *Receiving & Opening Tender Document*	REB Auditorium (1st floor), Rural Electrification Board Nikunja-2, Khilkhet, Dhaka- 1229, Bangladesh.	

INFORMATION FOR TENDERER

16	Eligibility of Tenderer	All Countries except Israel
17	Price of Tender Document (Tk)	Tk. 3000.00
18	Brief Description of Related Services	N/A
19	**Brief Description of Goods and amount of tender Security :**	

Tender-Package No.	Sub-Package No.	For the material of	Tender Security Amount (USD)
DFID (10 Lac)-10	DFID (10 Lac)-10-069	Conductor XLPE (D-11)	17,000.00
DFID (10 Lac)-11	DFID (10 Lac)-11-070	Single Phase Meter (J-1)	25,000.00
	DFID (10 Lac)-11-071	Single Phase Meter (J-1)	12,500.00

20	Regarding Tender Document	Tender Document in English, may be purchased by the interested tenderers on submission of a written application to the address below and upon payment of a non refundable fee of Tk. 3000.00 or USD 50.00. The method of payment will be by Pay order / Bank draft in favor of Rural Electrification Board, Dhaka, Bangladesh. The document may be sent by air mail for overseas delivery and courier or surface mail for local delivery. For overseas delivery, the tenderer may obtain the tender document by any international courier service to collect the same from Rural Electrification Board , Dhaka, Bangladesh. One tender document can not be used for submission of tender proposal (s) by more than one tenderer. One tenderer, however, may submit tenders against any number of sub-packages included in the tender document by purchasing only one copy of the tender document.
21.	Payment Mode	Payment will be made through Irrevocable Letter of Credit (L/C)
22.	Delivery Period	Delivery Period shall begin with effect from the day of L/C opening

PROCURING ENTITY DETAILS

23.	Name of official inviting Tender	Muhammad Nabi Noor.
24	Designation of official inviting Tender	Director (Procurement)
25	Address of official inviting Tender	Rural Electrification Board, Head Office Building (7th Floor), Nikunja-2, Khilkhet, Dhaka-1229, Bangladesh.
26	Contract details of official inviting Tender	Tel. & Fax # 8916420
27	The procuring entity reserves the right to accept or reject all tenders.	

পল্লী বিদ্যুতায়ন বোর্ড
RURAL ELECTRIFICATION BOARD

পবি/জন (০০৮) ২০১০-২০১১ ক-৫৮৯(১০×৩)

Director (Procurement)
Rural Electrification Board
Head Office Building (7th Floor),
Nikunja-2, Khilkhet, Dhaka-1229, Bangladesh.
Phone & Fax : 8916420.
E-mail : rebprocure@yahoo.com

Central Procurement Technical Unit
IMED, MINISTRY OF PLANNING, GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

Invitation for Tenders (Multiple Lot)

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

Ministry / Division:	**Power Division**
Agency:	**Rural Electrification Board**
Procuring Entity Name:	Director, procurement, Rural Electrication Board, Dhaka
Procuring Entity Code:	
Procuring Entity District:	Dhaka
Invitation For:	Goods
Invitation Ref No.:	DFID /GAF- 278(5) /2010/ 29
Date:	20-Jul-10
KEY INFORMATION	
Procurement Method:	ICT Open Tendering Method(OTM)
FUNDING INFORMATION	
Budget and Source of Funds:	Development Budget GOB
Development Partner:	DFID, UK
PARTICULAR INFORMATION	
Project / Programme Name:	
Tender Package No.:	DFID(10 Lac)-10 & DFID (10 Lac)-11
Tender Package Name:	10 Lac new consumer connection under existing PBSs Project of Rural Electrification Board
Tender Publication Date:	25-Jul-10
Tender Last Selling Date:	5-Sep-10
Tender Closing Date and Time:	06-Sep-2010 12:00 PM
Tender Opening Date and Time:	06-Sep-2010 12:30 PM
Name & Addresses of the Offices :	Selling Tender Document Directorate of Procurement (7th Floor), Rural Electrification Board, Nikunja-2, Khilkhet, Dhaka-1229, Bangladesh Receiving Tender Document REB Auditorium (1st floor), Rural Electrification Board Nikunja-2, Khilkhet, Dhaka-1229, Bangladesh Opening Tender Document REB Auditorium (1st floor), Rural Electrification Board Nikunja-2, Khilkhet, Dhaka-1229, Bangladesh
Pre-Tender Meeting (Optional):	Place: Date: Time N/A
INFORMATION FOR TENDERER	
Eligibility of Tenderer:	All countries except Israel
Brief Description of Goods or Works:	N/A
Brief Description of Related Services:	N/A
Tender Document Price:	3,000.00

Lot No.	Identification	Location	Security Amount	Completion Date
1	Conductor XLPE (D-11)- DFID (10 Lac)-10-069	Khilkhet, Dhaka	17,000.00	0
2	Single Phase Meter (J-1)- DFID (10 Lac)-11-070	Khilkhet, Dhaka	25,000.00	0
3	Single Phase Meter (J-1)- DFID(10 Lac)-11-071	Khilkhet, Dhaka	12,500.00	0

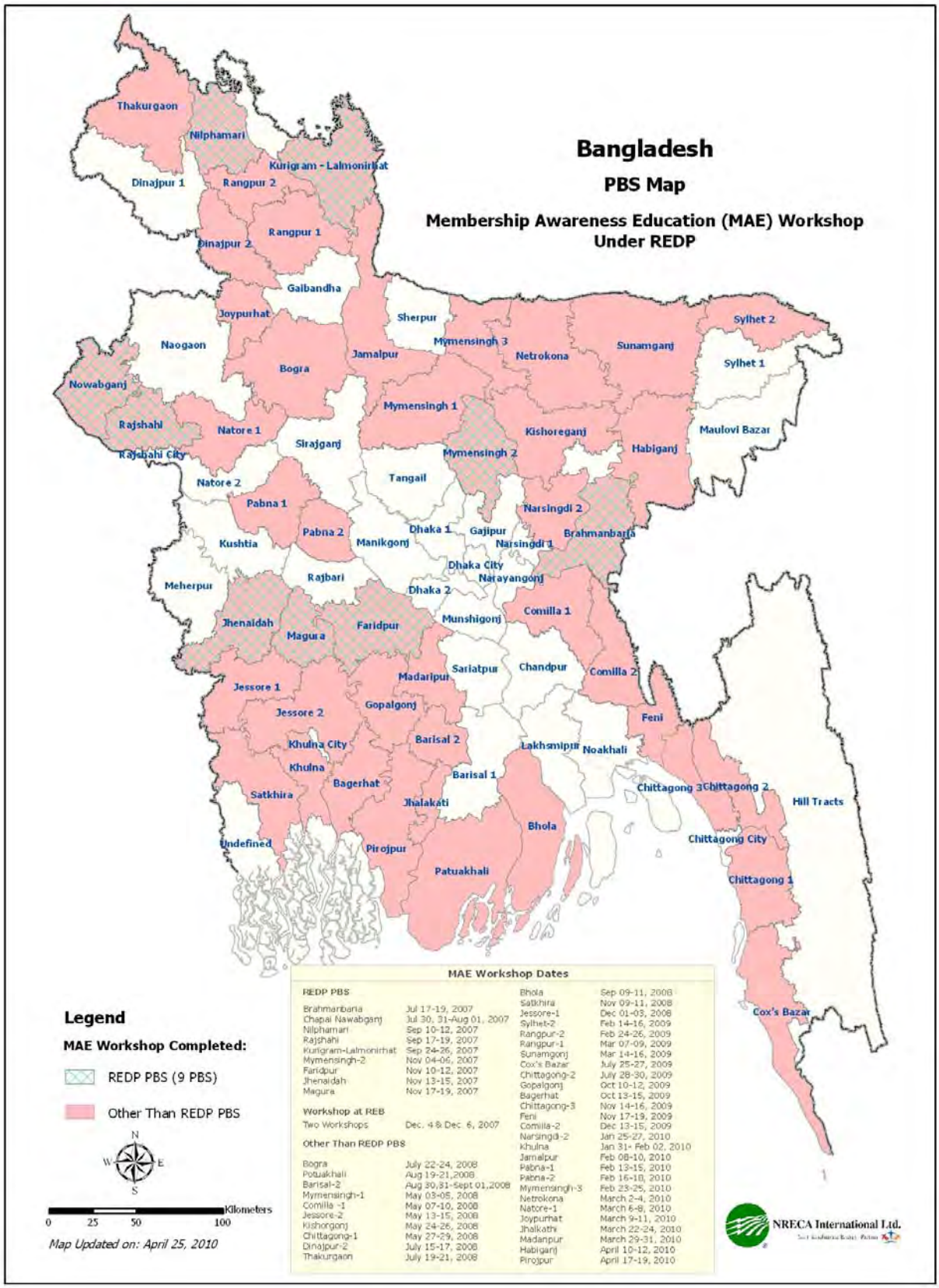
PROCURING ENTITY DETAILS	
Name of Official Inviting Tender :	Munammad Nabi Noor
Designation of Official Inviting Tender :	Director (Procurement)
Address of Official Inviting Tender	Rural Electrification Board, Head Office Building (7th floor), Nikunja-2, Khilkhet, Dhaka-1229, Bangladesh
Contact Details of Official Inviting Tender	Phone: 8916420 Fax: 8916420 Email: rebprocure@yahoo.com

The procuring entity reserves the right to accept or reject all tenders

Annex 3 :

Member Awareness Education and Board Development

Member Awareness and Education Workshops



Member Awareness Education (MAE) Workshops Status (July 17, 2007 thru April 30, 2010)

Sl No.	Date of Work-shop	Name of the PBS	No. of Male Participants	No. of Female Participants	Total Participants
1.	July 17-19, 2007	Brahmanbaria	151	14	165
2.	July 30-31 & Aug 01,07	Chapai Nowabgonj	138	00	138
3.	Sept. 10-12, 2007	Nilphamari	172	11	183
4.	Sept. 17-19, 2007	Rajshahi	132	13	145
5.	Sept. 24-26, 2007	Kuri-Lalmonirhat	125	09	134
6.	Nov. 04-06, 2007	Mymensingh PBS-2	168	16	184
7.	Nov. 10-12, 2007	Faridpur	141	12	153
8.	Nov. 13-15, 2007	Jhenaidah	116	09	125
9.	Nov. 17-19, 2007	Magura	111	41	152
10.	May 03-05, 2008	Mymensingh PBS-1	129	18	147
11.	May 07-10, 2008	Comilla PBS-1	122	10	132
12.	May 13-15, 2008	Jessore PBS-2	123	16	139
13.	May 24-26, 2008	Kishoreganj	164	16	180
14.	May 27-29, 2008	Chittagong PBS-1	135	09	144
15.	July 15-17, 2008	Dinajpur PBS-2	124	24	148
16.	July 19-21, 2008	Takurgaon	106	11	117
17.	July 22-24, 2008	Bogra	126	18	144
18.	Aug. 19-21, 2008	Patuakhali	149	19	168
19.	Aug. 30-31, Sept.1, 2008	Barisal PBS-2	99	23	122
20.	Sept. 09-11, 2008	Bhola	146	08	154
21.	Nov. 09-11, 2008	Satkhira	148	17	165
22.	Dec. 01-03, 2008	Jessore PBS-1	135	21	156
23.	Feb. 14-16, 2009	Sylhet PBS-2	137	13	150
24.	Feb. 24-26, 2009	Rangpur PBS-2	135	15	150
25.	Mar 14-16, 2009	Rangpur PBS-1	145	09	154
26.	Mar 07-09, 2009	Sunamgonj	120	17	137
27.	July 25-27, 2009	Cox's Bazar	146	13	159
28.	July 28-30, 2009	Chittagong PBS-2	124	23	147
29.	Oct. 10-12, 2009	Gopalgonj	156	17	173
30.	Oct. 13-15, 2009	Bagerhat	132	13	145
31.	Nov.14-16, 2009	Chittagong PBS-3	165	26	191
32.	Nov.17-19, 2009	Feni	129	19	148
33.	Dec.13-15, 2009	Comilla PBS-2	144	06	150
34.	Jan. 25-27, 2010	Narsinghdi PBS- 2	133	24	157
35.	Jan. 31-Feb. 02, 2010	Khulna	136	26	162
36.	Feb. 08-10, 2010	Jamalpur	178	08	186
37.	Feb. 13-15, 2010	Pabna PBS- 1	158	24	182
38.	Feb. 16-18, 2010	Pabna PBS- 2	134	27	161
39.	Feb. 23-25, 2010	Mymensingh PBS-3	142	25	167
40.	March 2-4, 2010	Netrokona	136	29	165
41.	March 6-8, 2010	Natore	174	18	192
42.	March 9-11, 2010	Joypurhat	140	17	157
43.	March 22-24, 2010	Jhalakati	131	06	137
44.	March 29-31, 2010	Madaripur	127	25	152
45.	April 10-12, 2010	Habigonj	121	15	136
46.	April 17-19, 2010	Pirojpur	141	16	157
	Total:	**46 × 3 = 138 Workshops at PBSs**	**6344**	**766**	**7110**
47. & 48.	Dec. 4 & 6, 2007	**2-Workshop at REB**	45	4	49
Grand Total:		**140-MAE Workshop**	**6389**	**770**	**7159**

Strengthening the MS Department Dialogue Status
November 17, 2009 thru July 31, 2010

Sl No.	Date of Meeting	Name of the PBS	No. of Male Participants	No. of Female Participants	Total Participants	Total number of possible participants*	Percentage of Attendance
01	11-18-09	**Gajipur PBS** Mymensingh PBS-2	23	01	24	24	100 %
02	11-25-09	**Narsinghdi PBS-1** Narsinghdi PBS-2 Narayangonj PBS	41	--	41	41	100 %
03	12-08-09	**Cox's Bazar PBS**	15	--	15	15	100 %
04	12-21-09	**Bagerhat PBS** Khulna PBS Pirojpur PBS	36	--	36	36	100 %
05	12-24-09	**Barisal PBS-1** Barisal PBS-2 Jhalakati PBS	24	--	24	24	100 %
06	01-21-10	**Sylhet PBS-1** Sylhet PBS-2 Sunamgonj PBS	30	--	30	30	100%
07	01-19-10	**Rangpur PBS-1** Rangpur PBS-2	23	01	24	24	100 %
08	01-27-10	**Jessore PBS-2** Jessore PBS-1 Satkhira PBS	36	01	37	37	100 %
09	03-13-10	**Sirajgonj PBS** Pabna PBS-2	22	--	22	22	100 %
10	03-16-10	**Manikgonj PBS**	14	--	14	14	100 %
11	03-24-10	**Natore PBS-2** Natore PBS-1 Pabna PBS-1	27	--	27	27	100 %
12	03-30-10	**Takurgaon PBS**	15	04	19	19	100 %
13	04-18-10	**Comilla PBS-2** Comilla PBS-1 Chandpur PBS	44	08	52	52	100 %
14	04-19-10	**Bhola PBS**	13	02	15	15	100 %
15	04-21-10	**Patuakhali PBS**	15	--	15	15	100 %
16	04-29-10	**Feni PBS** Noakhali PBS Lakhsmipur PBS	30	06	36	36	100 %

Sl No.	Date of Meeting	Name of the PBS	No. of Male Participants	No. of Female Participants	Total Participants	Total number of possible participants*	Percentage of Attendance
17	05-13-10	**Jamalpur PBS** Sherpur PBS Mymensingh PBS-1	31	02	33	33	100 %
18	05-19-10	**Bogra PBS** Gaibandha PBS Joypurhat PBS	35	03	38	38	100 %
19	05-24-10	**Tangail PBS**	20	04	24	24	100 %
20	04-27-10	**Kushtia PBS** Jhenaidah PBS Meherpur PBS	29	04	33	33	100 %
21	06-16-10	**Dinajpur PBS-1** Dinajpur PBS-2 Nilphamari PBS	28	--	28	28	100 %
22	06-24-10	**Rajshahi PBS** Chapai Nowabgonj PBS Naogaon PBS	29	07	36	36	100 %
23	06-30-10	**Madaripur PBS** Gopalgonj PBS Sariatpur PBS	25	02	27	27	100 %
24	07-14-10	**Netrokona PBS** Mymensingh PBS-3 Kishoreganj PBS	34	07	41	41	100 %
25	07-21-10	**Faridpur PBS** Rajbari PBS Magura PBS	23	02	25	25	100 %
26	07-27-10	**Habigonj PBS** Maulovibazar PBS B-Baria PBS	35	11	46	46	100 %
TOTAL MSD		**26 Programs 63 PBS**	**697**	**65**	**762**	**762**	**100%**

* Participants include Assistant General Manager (Member Service), Member Service Coordinator, Power Use Coordinator, Wiring Inspector, One Point Service Provider.

Strengthening the PBS Board Dialogue Status
17 November 2009 thru 31 July 2010

Sl No.	Date of Meeting	Name of the PBS	No. of Male Participants	No. of Female Participants	Total Participants	Total number of possible participants	Percentage of Attendance
01	11-17-09	**Gajipur PBS** Mymensingh PBS-2	17	04	21	22	95.45 %
02	11-24-09	**Narsinghdi PBS-1** Narsinghdi PBS-2 Narayangonj PBS	22	09	31	31	100 %
03	12-07-09	**Cox's Bazar PBS**	08	03	11	12	91.66 %
04	12-20-09	**Bagerhat PBS** Khulna PBS Pirojpur PBS	32	07	39	41	95.12 %
05	12-23-09	**Barisal PBS-1** Barisal PBS-2 Jhalakati PBS	20	04	24	26	92.30 %
06	01-11-10	**Sylhet PBS-1** Sylhet PBS-2 Sunamgonj PBS	21	06	27	28	97 %
07	10-18-10	**Rangpur PBS-1** Rangpur PBS-2	20	06	26	26	100 %
08	01-26-10	**Jessore PBS-2** Jessore PBS-1 Satkhira PBS	32	08	40	40	100 %
09	03-13-10	**Sirajgonj PBS** Pabna PBS-2	25	06	31	31	100 %
10	03-16-10	**Manikgonj PBS**	09	03	12	12	100 %
11	03-23-10	**Natore PBS-2** Natore PBS-1 Pabna PBS-1	29	06	35	36	97.22 %
12	03-30-10	**Takurgaon PBS**	11	03	14	14	100 %
13	04-12-10	**Comilla PBS-2** Comilla PBS-1 Chandpur PBS	27	07	34	36	94.44 %
14	04-19-10	**Bhola PBS**	09	03	12	12	100 %
15	04-21-10	**Patuakhali PBS**	09	03	12	13	92.30 %
16	04-28-10	**Feni PBS** Noakhali PBS Lakhsmipur PBS	23	09	32	32	100 %
17	05-12-10	**Jamalpur PBS** Sherpur PBS Mymensingh PBS-1	24	07	31	31	100 %

Sl No.	Date of Meeting	Name of the PBS	No. of Male Participants	No. of Female Participants	Total Participants	Total number of possible participants	Percentage of Attendance
18	05-18-10	**Bogra PBS** Gaibandha PBS Joypurhat PBS	26	07	33	33	100 %
19	05-24-10	**Tangail PBS**	09	03	12	12	100 %
20	05-26-10	**Kushtia PBS** Jhenaidah PBS Meherpur PBS	29	08	37	37	100 %
21	06-25-10	**Dinajpur PBS-1** Dinajpur PBS-2 Nilphamari PBS	28	08	36	36	100 %
22	06-23-10	**Rajshahi PBS** Chapai Nowabgonj PBS Naogaon PBS	21	10	31	31	100 %
23	06-29-10	**Madaripur PBS** Gopalgonj PBS Sariatpur PBS	17	09	26	26	100 %
24	07-13-10	**Netrokona PBS** Mymensingh PBS-3 Kishoreganj PBS	20	05	25	28	89 %
25	07-20-10	**Faridpur PBS** Rajbari PBS Magura PBS	26	08	34	34	100 %
26	07-26-10	**Habigonj PBS** Maulovibazar PBS B-Baria PBS	32	05	37	37	100 %
TOTAL BOARD		**26 Programs 63 PBS**	**546**	**157**	**703**	**717**	**98%**

PBS Board of Directors' 5-day Orientation Courses Presented by REB through MAEBD Program February 2008 thru December 31 2010

Sl. No.	Course Duration		No. of Participants		
	From	To	Male	Female	Total
1.	February 24, 2008	February 28, 2008	15	1	16
2.	February 24, 2008	February 28, 2008	12	3	15
3.	March 02, 2008	March 06, 2008	20	2	22
4.	March 02, 2008	March 06, 2008	23	4	27
5.	March 09, 2008	March 13, 2008	11	9	20
6.	March 09, 2008	March 13, 2008	12	5	17
7.	March 16, 2008	March 20, 2008	17	3	20
8.	March 16, 2008	March 20, 2008	12	6	18
9.	October 26, 2008	October 30, 2008	10	7	17
10.	November 09, 2008	November 13, 2008	11	9	20
11.	February 22, 2009	February 26, 2009	22	4	26
12.	March 01, 2009	March 05, 2009	21	5	26
13.	March 15, 2009	March 19, 2009	11	5	16
14.	May 24, 2009	May 28, 2009	19	6	25
15.	August 16, 2009	August 20, 2009	14	8	22
16.	November 08, 2009	November 12, 2009	12	8	20
17.	April 4, 2010	April 8, 2010	21	6	27
18.	October 10, 2010	October 14, 2010	26	9	35
19.	Nov 28, 2010	December 2, 2010	22	2	24
Total			**311**	**102**	**413**

Gender Awareness for PBS Board
Thru July 31, 2010

Sl No.	Date of Workshop	Name of the PBS	No. of Male Participants	No. of Female Participants	Total Participants	Total number of expected participants	Percentage of Attendance
01.	04-18-10	**Mymensingh 2 PBS**	12	03	16	18	88%
02.	07-13-10	**Rajshahi PBS**	19	03	22	22	100%
03.	07-18-10	**Jhenaidah PBS**	18	03	21	22	95%
	TOTAL	**3 PBS**	**49**	**09**	**59**	**62**	**95%**

Gender Awareness for PBS Employees
Thru July 31, 2010

Sl No.	Date of Meeting	Name of the PBS	No. of Male Participants	No. of Female Participants	Total Participants	Total number of expected participants *	Percentage of Attendance
01.	05-17-10	**Mymensingh 2 PBS**	22	16	38	38	100%
02.	07-14-10	**Rajshahi PBS**	15	20	35	35	100%
03.	07-19-10	**Jhenaidah PBS**	18	16	34	34	100%

*Participants: REB representatives, General Manager, Assistant General Manager, Engineering Employees.

Annex 4 :

Specialists Reports

Communications:

Final Report
Communications Specialist
Rural Electrification Development Program (REDP)

Background

NRECA International was awarded a contract through the United States Agency for International Development (USAID), financed by the Department for International Development (DFID) to provide project supervisory services for a rural electrification expansion program in Bangladesh in 2005. The project has a five year term and addresses several key issues related to the long-term sustainability of the Bangladesh rural electrification program that is managed by the Bangladesh Rural Electrification Board (REB).

One of several tasks assigned to NRECA through Rural Electrification Development Program (REDP) is to provide support for the continued improvement of member awareness and education, as well as capacity development of PBS board members through a technical assistance program to selected Palli Bidyut Samities (PBSs). In late 2009, Mr. Brad Gibson was recruited as a short-term consultant and served as Communications Specialist for REDP.

Executive Summary

The Communications Specialist was engaged to assess and improve the communications within REB, the PBSs, and to PBS member consumers. Improving the collection of information and modernizing the dissemination of information will ultimately improve the understanding and participation of member owners in a system that is democratically controlled through a cooperative business model. Effective communication will educate and strengthen the entire rural electric program of Bangladesh.

The Publication department of REB was identified as the initial point of contact for communication with PBSs and consumers. This group offers rudimentary communications through newsletters, bill messaging, annual reports, annual meetings, and a loosely organized Village Advisor program. Executed properly these channels of communicating would strengthen the program and serve as a foundation for expanding into new channels. An evolving demographic of Bangladesh electric consumers currently has expectations of paying bills via a mobile phone and receiving communications through rapidly developing electronic mediums.

Direct observation of the REB Publications department identified some large gaps in the ability of this group to effectively communicate through existing channels, let alone modernize and adapt to new technology. There was little evidence that the human resources in the Publications department understood what it meant to be a “communicator” and instead only acted as a group that was given information, which they were to redistribute. This lack of appropriate human resources made it difficult for them to understand the value of creating content, delivering a unified message, organizing an editorial calendar, developing an annual work plan, and implementing new technology that would aide them in communicating to over eight million consumers.

An updated REB website (www.reb.gov.bd) was recently successfully launched and plans are in

place for continued support, updates, and modifications to this website. Additionally, a pilot video conferencing project was launched and will be tested, with the cooperation of REB, throughout the remainder of the REDP project. These items, along with ongoing efforts to provide materials such as a *Communications Quick Reference*, newsletter samples, and constant interaction with REB to enhance overall communication by educating them on best practices are the highlights of the communications work under the REDP program.

The work that was completed is certainly a step forward, but significant human resource changes and technology integration are essential to take the next step in effectively communicating the rural electric message to consumers throughout Bangladesh.

Work Activities

Mr. Gibson worked to enhance the communication activities through the following:

- During seven weeks in January-February 2010 he:
  - Visited six PBSs to familiarize himself with the Bangladesh rural electric system
  - Was introduced to key officials at REB
  - Observed PBS Director & Member Service training conducted by NRECA
  - Observed Member Awareness Training delivered by NRECA
  - Established relationship with REB Director of Publication and other key staff in the department of publication
  - Set up meetings with technology vendors to assess available local tools to enhance communication channels
- During the four weeks in March-April 2010 he:
  - Established a part-time office within REB, co-locating with Director of Publication
  - Observed and participated in Village Advisor training delivered by REB and PBS
  - Contributed to microcredit field observation at PBS
  - Interviewed cross section of PBS members on effective communication methods
  - Drafted sample articles for REB newsletter to PBSs (English version)
  - Wrote a Communications Initial Assessment (included in attachments)
- During the five weeks in May-June 2010 he:
  - Assisted in the development and rehearsal of a formal REDP Update presentation for senior REB officials, delivered by NRECA
  - Organized a photography field visit to develop a stock photo library
  - Oversaw the development of a sample REB website
  - Continued working with REB Publication department on developing formal communication strategies
  - Contributed to the Compact Florescent Light (CFL) program through enhancement of advertising pieces and an updated Request For Proposal (RFQ)
  - Observed the CFL exchange at a participating PBS
- During the eight weeks in September-November 2010 he:
  - Organized, developed, and rehearsed follow up REDP presentation for REB, delivered by NRECA

- Developed and delivered a course for NRECA staff on "Social Media & Web Tools (4 classes offered)
- Developed and delivered a course for NRECA staff on "Improved Productivity Using Microsoft Outlook" (3 classes offered)
- Developed and delivered a course for NRECA staff on "Presentation Tips Using Microsoft Power Point" (2 classes offered)
- Evaluated technology for a potential video conferencing pilot project
- Suggested and assisted with the development of a communications & technology committee at REB
- Development of a Communication Quick Reference in English & Bengali (included as an attachment)

- During the seven weeks in January-February 2011 he:
  - Served as a member of the newly formed REB communication & technology committee (1st official meeting)
  - Planned for February 1st launch of redesigned and updated REB website
  - Organized brainstorming session for the development of PBS micro-websites
  - Implemented video conferencing pilot project
  - Assisted in the preparation and participated in America Week 2011 in Khulna
  - Completed this Final Report

Terms of Reference

1. **Development of a work plan to enhance communications capacities within the REB and the PBSs.**

   Considerable time was spent assessing the current work and deliverables the REB Publications Directorate and Publications department provide both internally at REB and to PBSs. Assistance was provided to improve dissemination of information resulting in the following deductions:

   - After establishing an office within the confines of the Directorate of Publications office at REB and observing the actions, work, and processes of this group it is my opinion that the Publications department does not have the capacity to deliver high quality, timely, and relevant information to PBS members. A lack of technology and qualified human resources are the core culprits of these incapacities.
   - The production of newsletters in Bangla and English occur on an irregular schedule and include little information of value. Additionally, the quantity of newsletters produced is not even enough to provide a copy to every PBS employee, let alone the eight million member consumers. A discussion with regard to producing a quantity sufficient to deliver to Village Advisors and community elites did not lead to an increase in production.
   - The publication department is not held accountable to develop and follow a work plan and/or an editorial calendar, which would aide in producing recurring high quality communications.

- PBSs do not have qualified staff to supplement or develop their own communication pieces beyond the required bills and corresponding bill messages. Suggestions were provided to both REB and PBSs to plan for bill messages that would assist in answering the most frequent member service inquiries.

2. **Provide REB and the PBSs with draft publications, newsletters and basic communications to be used to improve member education.**

   - Draft articles were written and provided to REB, not only to improve the quality of the current communication pieces, but were also used to demonstrate the importance of planning. The development of an editorial calendar to accomplish defined communication goals did not result from the creation of communication pieces and corresponding dialogue surrounding the REB newsletter, which is distributed to PBSs and members.
   - Assistance was offered to increase the production quantity of newsletters in a pilot PBS. As mentioned in TOR item one, the current production quantity is not enough to distribute the newsletter to employees, let alone begin to distribute to the entire eight million member consumer or even a select group of Village Advisors and community leaders. The offer to increase the production quantity was dismissed.
   - In the winter of 2010, the 2007-2008 annual report was still being developed by REB. Assistance was offered to proof read, as well as assist in the design of this document, but the offer was not accepted by REB.
   - Through numerous dialogues with PBS member service staff, It is my understanding that this group is eager to have access to high quality communication pieces to assist them in mitigating the number of member contacts, as well as strengthen their Village Advisor program; however, they did not want to go outside of REB to create and fund such pieces.
   - A communications quick reference was developed to assist in the ongoing improvement of REB communication processes. (included as an attachment)

3. **Provide guidance and direction to strengthen REB Publications Directorate and PBS Member Services Departments with respect to improved communications to support member education activities**.

   - Village Advisor training was observed at multiple PBSs and although current training appeared to be ineffective, the concept of Village Advisors has great potential and should be an area of increased focus. The Village Advisors provide a grassroots advocacy group to not only disseminate information, but also serve as a sounding board and mechanism to collect member feedback.
   - A pilot project was developed, evaluated, and will be implemented in February 2011 to incorporate video conferencing as a means to communicate better between REB and PBS staff. Overall, technology is a critical area that deserves attention in future projects.

Improved technology integration will enable a higher return on the investment of time and capital in all areas of the rural program.

- The CFL bulb exchange, a program initiated and funded by the Government of Bangladesh, had a significant impact on member communications at various times throughout 2010. Millions of CFL's were exchanged at PBS locations in rural areas. Unfortunately, little effort was made by REB to customize the messaging provided by the Government to use this opportunity to communicate beyond the Government's energy efficiency message. This served as a prime example of how the REB Publications department does not view themselves as communicators and avoids creating their own content to best communicate with member consumers.

4. **Design and develop REB website.**

   Initially, the pursuit of an updated REB website was attempted through the REB Publications department. Suggestions to form a multidepartment committee in an effort to create interest and involve others to improve content were ignored by this department. However, the ICT (information technology department) of REB was approached and progress has been made on an updated REB website.

   - A multidepartment communications and information technology committee was established and has representation from ICT, Publications, Finance, Engineering, and Administration, along with participation from NRECA. This group is engaged in helping set the direction of the site, provide updated content, and discuss future technology. This level of participation helps ensure sustainability of the site and holds each group accountable for accurate and timely content.
   - NRECA is evaluating an option to continue assistance with a local design expert through 2011 and 2012 which will carry on the education and technical updates of their new site in coordination with the new committee.
   - Through the enthusiasm of this committee it has been identified that there is a need to have PBS websites. Pending the approval and launch of the updated REB site, a pilot project to create sub-sites for PBSs will commence.

   The REB communications and technology committee has an opportunity to lead REB through much needed modernization in both technology and the way that it views communications. The individuals currently involved in this committee appear enthusiastic and willing to tackle these new challenges and hopefully their work will be able to continue through a new round of funding and additional donor projects.

5. **Work with the international consultants and existing NRECA staff, REB and the PBSs to enhance communication efforts for all tasks in member awareness, board development and REB/PBS training.**

   - Assistance and oversight for the July 7, 2010 REDP Update to REB officers was provided.

- Assistance and oversight for the October 7, 2010 REDP Follow Up to additional REB officers was provided.
- Observation of Member Awareness, PBS Board Governance, PBS Management Development, and Gender Awareness courses and review of corresponding materials took place throughout 2010. Suggestions for improvement were given when appropriate.

6. **Work with and coordinate closely with staff training, education and evaluation efforts**.

   Multiple courses were designed, developed, and delivered to internal NRECA staff. These courses included; *Social Media & Web Trends*, *Improved Productivity Using Microsoft Outlook*, and *Presentation Tips Using Microsoft Power Point*. These three courses were presented multiple times at the NRECA office and offered to all office staff.

7. **Participate in both formal and informal review meetings and provide input for various reports required under the project.**

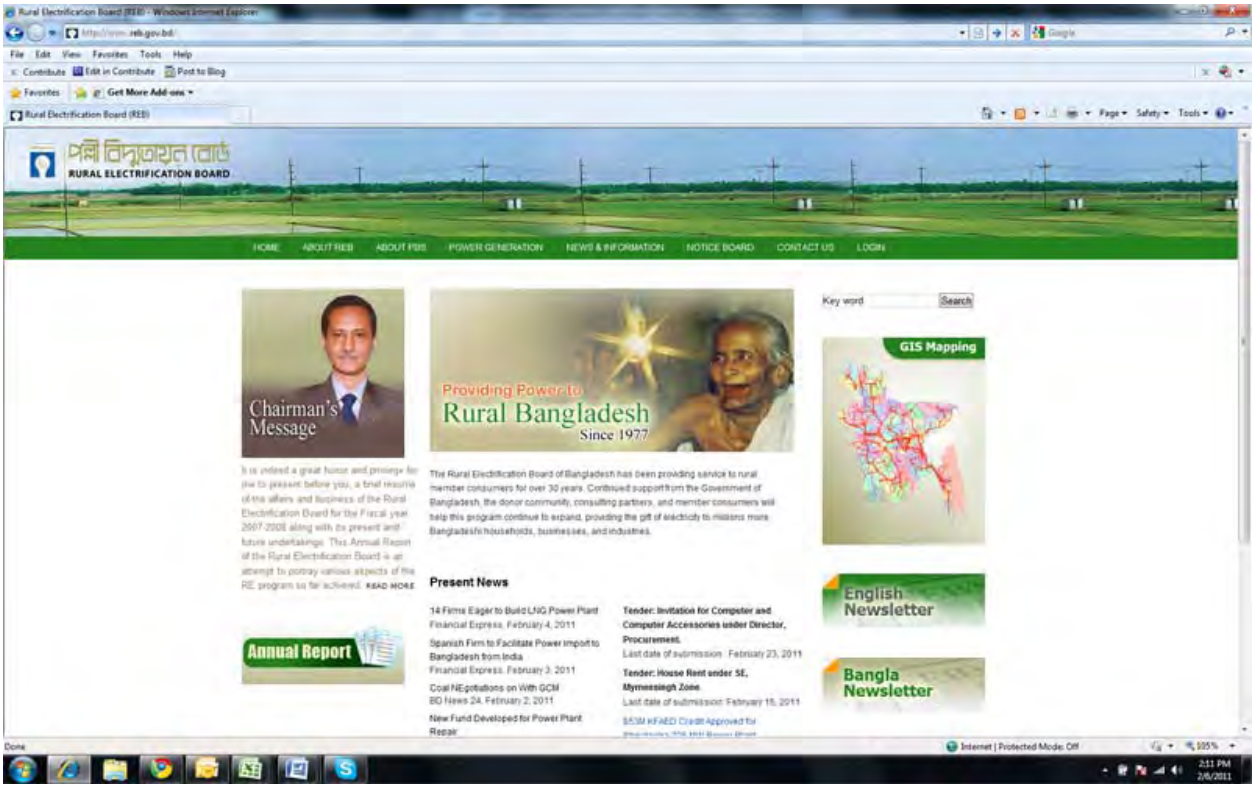
   - As mentioned above, July 7, 2010 and October 7, 2010 meetings were attended either in person or via video conference.
   - Frequent and ongoing meetings with key stakeholders at REB took place on a weekly basis throughout 2010 and early 2011.
   - Monthly report data was provided to the REDP Chief of Party.

Conclusions

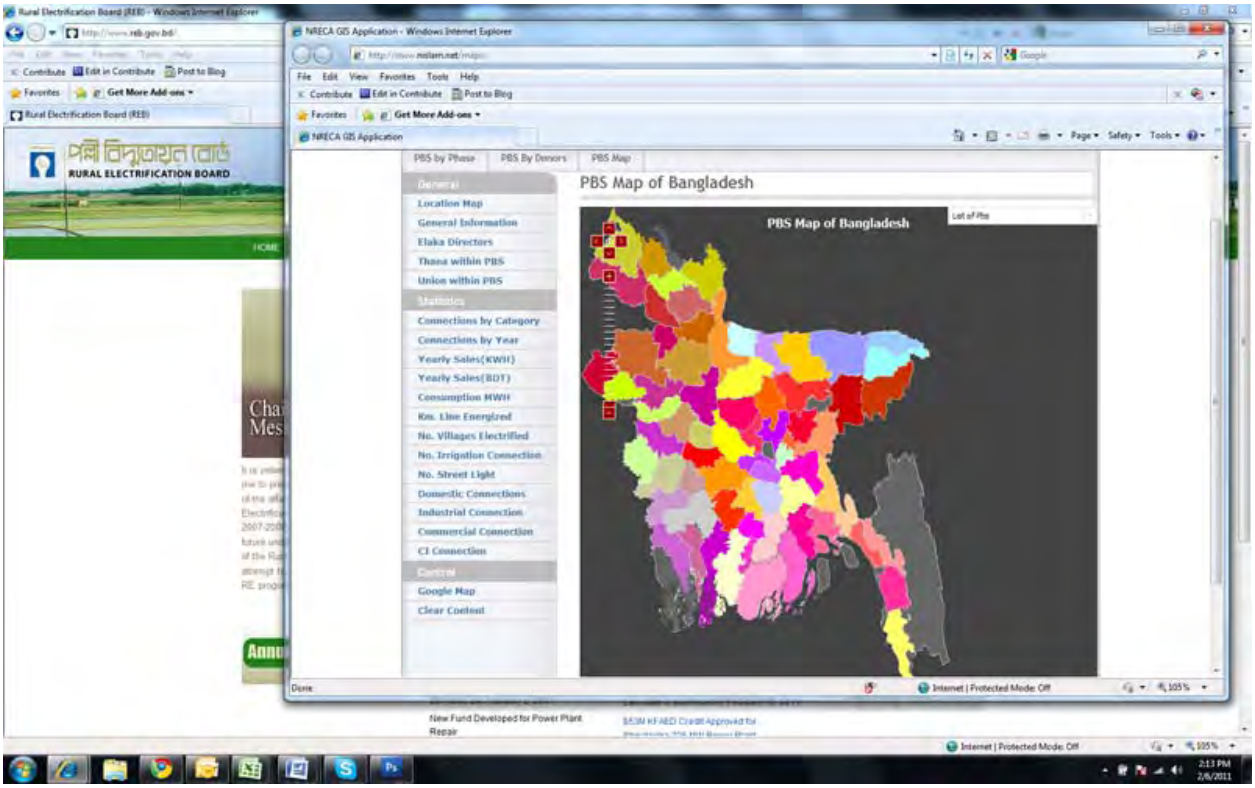
Improving communication is critical as the rural electric program of Bangladesh continues its rapid growth. Currently, PBSs and member consumers are starving for additional information related to their electric distribution cooperative. REB has an opportunity to execute and implement low cost initiatives that will create a unified voice surrounding the value, challenges, and opportunities that result from having a local democratically controlled PBS. Organizational structure changes at REB, hiring professional communicators, and integrating new technology will be required to move the REB and the rural electric program forward. The formation of the communications and information technology committee that has been engaged in updating the REB website could become the conduit for modernization at REB pending future funding and additional donor involvement.

Attachment(s)

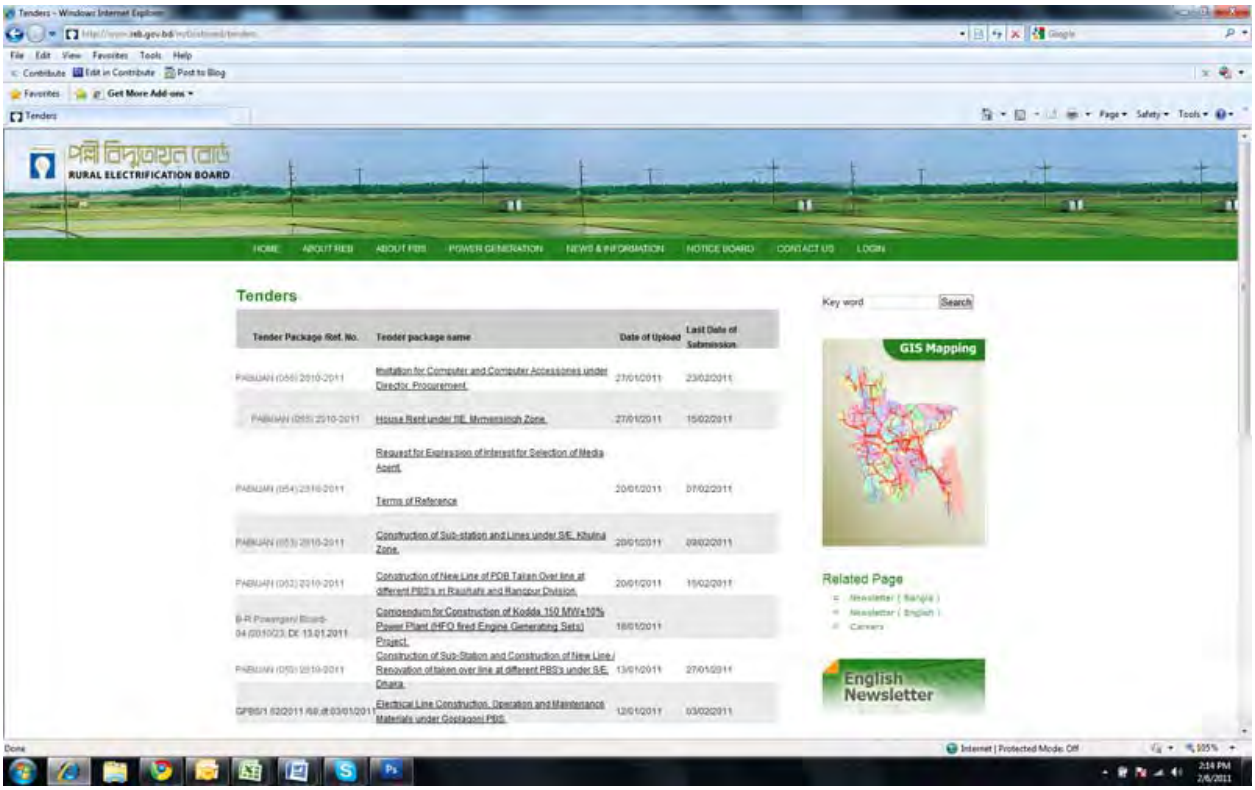
REB Updated Website (Home Page)



REB Updated Website (NRECA Developed GIS Mapping)



REB Updated Website (REB Tenders Page)



RE Program Bangladesh: Initial Communications Assessment
NRECA International REDP Program
Bradley A. Gibson, NRECA Communications Consultant
March 30, 2010

Overview:

The Rural Electrification (RE) Program in Bangladesh has been in existence for over 30 years and has had tremendous success. Over seven million connections exist, with 49 million people receiving their power from 70 Palli Bidyut Samities (PBS) with rural service territories across the country. As a result of this success there are many challenges facing the program, the leaders, and the member owners. A remarkable amount of emphasis has been placed on building the system; poles, wire, transformers and substations have swept the landscape of many rural areas.

However, with this rapid growth there has been little emphasis on developing a robust communications program; which will be required to maintain a thriving member owned organization. My initial assessment indicates that there are some areas that can be explored quickly and inexpensively to begin the process of a successful turnaround of the communications program.

Additionally, the development of new mechanisms for communications will be required. The concept of branding, focused communications messaging, and adaptation of technology will be critical in the relatively short-term. Many delivery channels exist in rural Bangladesh and those options are rapidly expanding. Traditional channels include print, radio, television, word of mouth, and web, while I fully anticipate mobile data, social media, SMS, and new variations of these conduits to rapidly develop in the next 18 to 60 months. Not only is this an opportunity, but there will also be an expectation that information will be delivered through all of these channels.

Focus:

Short-term efforts will need to focus on a few critical areas to improve communication to member owners. The best areas to focus are those items that are already being executed and have room to improve or change, such as bill messaging, bi-monthly newsletters, the village advisor network, and capitalizing on the newly initiated CFL give-a-way program. Additionally, the REB website needs a dramatic face lift and could potentially be the springboard to enhance many facets of communications.

Communication between REB, the PBS, and the community can all be advanced through an improved online presence and an expanded use of the Village Advisors. Considerable resources are available through REDP to take the REB website into 2010 and increase the quantity and quality of training offered to Village Advisors. A positive REB brand will help attract the donor community as they evaluate the allocation of significant financial and human resources around the world.

Branding:

As the areas of focus are explored it will be important to have a thoroughly developed long-term communications plan that creates a unified and consistent brand. Moving from some of the

small items mentioned above into more robust communications efforts, including unified branding, will be much easier if those small pieces have been consistently developed with a larger goal in mind.

There will be a delicate balance when attempting to establish brand awareness among PBSs. There is a risk that REB will become the brand and in turn strengthen their control over the PBS rather than release the direction of the brand to the PBSs. PBSs uniting to form their own marketing and communications PBS would be the ultimate long-term goal, but in the short-term the awareness that a strong REB brand could damage the PBS's independence is sufficient.

Program specifics:

There are a variety of channels that have been mentioned above regarding how to deliver information outlined in an annual communications plan. Examples outlined below are a sampling of the methods identified as potential channels which could build member consumer awareness of the cooperative business model in Bangladesh. These areas should be considered during the formulation of an annual communications plan and updated as new channels become available.

Print – bill messaging, bill stuffers, hand delivered information via bill delivery employee, quarterly newsletters, monthly GM report, member service support information & handouts, billboards, lobby signage, annual report

Word of mouth – using the Village Advisors, bill delivery personnel, and meter readers there is an opportunity to capitalize on grassroots efforts and one of the most powerful methods of communications/marketing, word of mouth

Digital media – Internet, social networks, text messaging (SMS), blogging, micro blogging

Television/Radio – programming and campaign kickoff, commercials with brand messaging and cooperative value statements

Special programs – CFL program as an example of a low cost communications channel by using other project resources (package design, message delivery, and instruction manual)

Logo modernization – unified brand and logo modernization for quick recognition of the RE program and seven principles of a cooperative

Recommendations:

There are many recommendations throughout this initial assessment document, but to formally bring them together I have included the following:

1. Get some early victories with the low hanging fruit
   a. Improve the content, layout, and distribution of the already existing newsletter
   b. Improve bill messaging to include relevant and timely information, as well as information regarding the seven cooperative values

   c. Maximize the use of the bill delivery employees at each PBS to include other meaningful communication, such as “bill stuffers” and PBS announcements

2. Redevelop the REB website
   a. Requires coordination with Directorate of Publication to enhance the design and functionality of the site, as well as improving the content
   b. REB site has many customers that need to be addressed with relevant information (i.e. PBS, REB, community, government, foreign investors)

3. Maximize the utilization of village advisors as a bidirectional conduit for communicating PBS and RE information
   a. Develop a pilot program for the nine REDP focus PBSs
   b. Provide funding to augment the current REB village advisor training program
   c. Provide input to improve the value of village advisors, maximizing their potential

4. Develop long-term communications strategy
   a. Branding and updated logo
   b. Annual communications plan that outlines a monthly editorial schedule for the newsletter
   c. Plan for future technology integration (i.e. social media, SMS, enhanced web capabilities)

How to proceed:

Short-term: There is an immediate need to improve the REB website. Initially, it appeared that ICT had an interest in making this happen quickly, but this might not be the case as they informed me the site is currently being transitioned to Joomla backend server software. It will be critical to get the Directorate of Publication on board and move forward with an updated design and fresh content.

Simultaneously, there can be ongoing efforts to improve the other areas identified as low hanging fruit and tie them directly to the web project as a source of fresh and relevant content. If these items are successful, I believe there will be considerable goodwill and trust created between those involved with communications at REB and myself.

Also in the short-term, the Village Advisor member group at each PBS has the potential to develop into a robust network of “cooperative champions”. These Village Advisor members can be further developed to assist with the dissemination of information, serve as conduits for conversation and concerns between members and the PBS, and encourage the education of members regarding their responsibilities as member owners.

Long-term: The more short-term victories that occur, the more likely I believe we’ll be able to start setting long-term strategic changes with how to set communications strategy, branding, and editorial calendars. As this happens we can work on creating a bidirectional channel of communicating between the PBS’s and REB. Soliciting information from the PBS for content in the newsletter and on the web will start to break down walls that currently exist and slowly strengthen the PBS’s position to communicate more independently.

Sample REB Newsletter Story

Introduction to the Rural Electrification Development Program (REDP) Consulting Services

This is the first of a three part series to introduce you to the REDP program. NRECA International was awarded a contract through the United States Agency for International Development (USAID), with funding provided by the Department for International Development (UKAID) to provide project oversight services for a rural electrification expansion program in Bangladesh.

NRECA International offers a variety of consulting services to REB and to member owned PBSs. Many experts in the following fields; human resources, communications, engineering, gender awareness, and business strategy, are available to tackle the many challenges distribution not-for-profit member owned electric utilities face today.

Chief of Party for REDP, Bob Ellinger, has a team of local specialists and international staff that offer expert guidance in areas such as monitoring of material procurement, construction supervision, member awareness and education, board development, training programs, and gender awareness. These ladies and gentlemen are working everyday to help ensure the ongoing success of the RE program in Bangladesh. Mr. Ellinger states, “REDP and its employees are a tremendous resource for the RE program in Bangladesh. We’ve attracted a variety of experts that can help deliver on the goal of an improved member owned PBS.”

Local professionals working for NRECA have recently been focused on strengthening the board and member services training at the 9 focus REDP PBSs, which include Brahmanbaria, Chapai Nowabgonj, Faridpur, Jhenaidah, Kurigram-Lalmonirhat, Magura, Mymensingh 2, Nilphamari, and Rajshahi PBSs. Other initiatives that are currently being developed for deployment through the REDP are a gender awareness program and enhancing the existing REB village advisor program.

Make sure to watch the next two issues of the *REB News Letter* for detailed articles on *Strengthening the PBS Board & Member Services Dialogue* and updates on future programs in *Gender Awareness and Village Advisor* initiatives.

REDP works closely with the Improved Capacity for Energy Access (ICEA) team and both groups are headquartered out of the NRECA local office near Gulshen-2, Dhaka. To learn more about NRECA International and their involvement with the RE program in Bangladesh, as well as other programs around the world, visit www.nrecainternational.org.

communication quick reference

Definition:

Communication is a process whereby information is enclosed in a package and is channeled and imparted by a sender to a receiver via some medium. The receiver then decodes the message and gives the sender a feedback. All forms of communication require a sender, a message, and an intended recipient, however the receiver need not be present or aware of the sender's intent to communicate at the time of communication in order for the act of communication to occur.
– Wikipedia.org

A process by which information is exchanged between individuals through a common system of symbols, signs, or behavior
– Merriam-webster.com

The imparting or interchange of thoughts, opinions, or information by speech, writing, or signs
– Dictionary.com

7 C's:

- ***Correct***
  facts, figures, language, mechanics, punctuation
- ***Concise***
  (need we say more)
- ***Clear***
  accurate and appropriate level of language
- ***Complete***
  provides all necessary facts to complete the thought
- ***Concrete***
  vivid language that builds the message using accurate data
- ***Considerate***
  emphasize the reader; you, not I or we
- ***Courteous***
  be sincere in your message

Key Concepts:

Effective communication must be factual and clear.

Communication is bidirectional; being a good listener is required to be a successful communicator.

Communication requires strategic planning and articulate execution to be valuable.

Understand your audience in order to appropriately deliver your message.

Use repetition of key points to build understanding; however, quantity is not a substitute for quality.

Do's & Don'ts

Do:

Communicate both internally and externally.
In the absence of information people make up their own "story". Make sure you provide accurate and timely information.

Strategically plan.
Always prepare an annual communications work plan (12 to 18 month scope).

Frequently evaluate your plan.
Make notes after the completion of each month to help prepare for next year's work plan.

Afford flexibility.
Be willing to make changes to your plan, but make sure those changes are in the long-term interest of the best communication strategies for your specific message.

Use an appropriate mix of media.
Evaluate the use of a variety of mediums to disseminate information (i.e. print, radio, television, electronic, personal etc.).

Solicit feedback.
Both before and after releasing information, request input from other stakeholders.

Create partnerships.
Use external resources to help scale your communication efforts and use the resources of experts in message development and design.

Be a good listener.
Always open your ears and mind, prior to opening your mouth or putting a pen in your hand.

Respond quickly.
Use factual information to respond in a timely and professional manner in a crisis or otherwise.

Commit to a regular release of information.
Frequent and consistent dissemination of information helps build your message, identity, and credibility.

Embrace technology.
Allow your communication channels to evolve and progress with your recipient's use of technology.

Don't:

Don't forget to tell your story.
Mass media provides information, but with their interpretation. Make sure to tell the story from your point of view, supported with facts, to your audience.

Don't ignore your internal audience.
Information dissemination within an organization or internal group will ultimately enhance your external communication.

Don't overuse technical or industry specific jargon.
This complicates your message to a general audience.

Don't forget that communication is bi-directional.
Listen to your audience for facts, feedback, and future opportunities.

communication quick reference

সংজ্ঞা

যোগাযোগ এমন একটি প্রক্রিয়া যা বার্তা প্রেরণকারী ও গ্রহণকারীর মধ্যে ভাব বিনিময় কিছু মাধ্যমের ভিতর দিয়ে সুসংগঠিত হয়। সংক্ষেপে বার্তা প্রেরণকারী ও গ্রহণকারী মধ্যে বার্তা বিনিময় ও এর উত্তর প্রদানই হলো যোগাযোগ। সকল প্রকার যোগাযোগের জন্যই বার্তা প্রেরণকারী ও গ্রহণকারীর প্রয়োজন হয়। যাহোক, বার্তা প্রেরণের সময় বার্তা গ্রহণকারীর উপস্থিতি জরুরী বিষয় নয় বা এর বার্তা প্রেরণের উদ্দেশ্য সম্বন্ধে অবহিত না থাকলেও চলে।

- উইকিপিডিয়া

যোগাযোগ একটি প্রক্রিয়া যা কতকগুলো সাধারণ চিহ্ন, প্রতীক এবং আকার ইংগিতের এর মাধ্যমে ব্যক্তি বিশেষের তথ্য বিনিময়ের মাধ্যম হিসাবে কাজ করে। *- মিরিয়াম-ওয়েবষ্টার. কম*

চিন্তার আন্তঃবিনিময় (interchange of thought) যেমন- কথা বলা, লেখা, মতামত অথবা বিভিন্ন চিহ্ন যোগাযোগের মাধ্যম হিসেবে কাজ করে।

- ডিকশেনারী.কম

৭ সিঃ *(7C's)*

- *সঠিক (Correct)*
  ঘটনা, সংখ্যা, ভাষা, মেকানিক, যতি চিহ্ন
- *সংক্ষিপ্ত (Concise)*
  (প্রয়োজনে আমরা আরোও বেশী বলতে পারি)
- *পরিষ্কার (Clear)*
  শুদ্ধ এবং সঠিক মাত্রায় ভাষার ব্যবহার
- *সমাপ্তি (Complete)*
  ঘটনার প্রয়োজনীয় তথ্যাদি প্রদান চিন্তা চেতনার সমাপ্তি নির্দেশ করে।
- *চূড়ান্ত তথ্য (Concrete)*
  সঠিক তথ্যাদির ব্যবহার বার্তায় ভাষার মাধুর্য্য আনায়ন করে।
- *বিবেচনা (Considerate)*
  পাঠককে গুরুত্ব দিন। আপনি, আমি বা আমরা নই।
- *বার্তার ভাষা হবে মার্জিত (Courteous)*
  বার্তার ভাষা হবে মার্জিত এবং সাবলীল।

মূল ধারণাসমূহ

কার্যকর যোগাযোগের ক্ষেত্রে তথ্যসমূহ অবশ্যই ঘটনাবহুল, নির্ভুল এবং স্বচ্ছ হতে হবে।

যোগাযোগ হচ্ছে বহুমুখী। একজন ভাল শ্রোতাই কেবল হতে পারে একজন ভালো যোগাযোগকারী।

যোগাযোগের জন্য প্রয়োজন কৌশলগত পরিকল্পনা এবং মূল্যবান যন্ত্রপাতির যথাযথ ব্যবহার।

সঠিক বার্তা পরিবেশনের লক্ষ্যে উপস্থিত শ্রোতা ও দর্শকমন্ডলীর ভাব বা আচরণ অনুধাবন করা।

মূল বিষয়ের পুনরাবৃত্তি বিষয়বস্তু অনুধাবনে সাহায্য করে। যাহোক, পরিমান কখনো গুণাবলীর বিকল্প হতে পারেনা।

করবেন ও করবেন না

করবেন:

অর্ন্তমুখী এবং বর্হিমুখী উভয় প্রকার যোগাযোগ:
তথ্যের অনুপস্থিতে মানুষ তার নিজ সৃষ্ট গল্পের অবতারণা করে থাকে। এক্ষেত্রে নিশ্চিৎ হতে হবে যে, সত্য এবং সময়োচিত তথ্য প্রদান করা হয়েছে।

কৌশলগত পরিকল্পনাঃ
সব সময় একটি বার্ষিক যোগাযোগ কর্ম পরিকল্পাপনা তৈরী করতে হবে। (১২ থেকে ১৮ মাস মেয়াদী)।

আপনার পরিকল্পনা বার বার মূল্যায়ন করুনঃ
পরবর্তী বছরের কর্ম পরিকল্পনা প্রণয়নের লক্ষ্যে প্রতি মাসের শেষ নাগাদ সে মাসে সম্পাদিত কাজের বিবরণ লিপিবদ্ধ করুন।

সহজে পরিবর্তনীয় কাজঃ
আপনার পরিকল্পিত কাজে পরিবর্তন আনুন, কিন্তু তার আগে নিশ্চিৎ হতে হোন যেন সে পরিবর্তনে দীর্ঘমেয়াদী ও সুনির্দিষ্ট যোগাযোগ বার্তার স্বার্থ রক্ষিত হয়।

যথাযথ প্রচার মাধ্যমের মিলিত ব্যবহারঃ
ছড়িয়ে ছিটিয়ে থাকা বিভিন্ন প্রচার মাধ্যম ব্যবহার মূল্যায়ন করুন। যেমন- প্রিন্ট মিডিয়া, রেডিও, টেলিভিশন, ইলেকট্রনিকস, ব্যক্তিগত যোগাযোগ ইত্যাদি।

ফিডব্যাকঃ
যে কোন তথ্য আদান-প্রদানের আগে ও পরে উপকারভোগীদের মতামত প্রদানের জন্য অনুরাধ করা।

অংশীদারিত্ব সৃষ্টিঃ
আপনার যোগাযোগ কর্মকান্ড সমৃদ্ধ করার লক্ষ্যে বার্তা উন্নয়ন এবং ডিজাইন প্রনয়নে অভিজ্ঞ এবং বাইরের সম্পদ ব্যবহার করুন।

একজন ভাল শ্রোতা হতে হবেঃ
যে কোন তথ্য আদান প্রদানের ক্ষেত্রে অবশ্যই একজন ভাল শ্রোতা হতে হবে। কিছু বলার ক্ষেত্রে সর্বদা হাতে কলম সহ চোঁখ-কান খোলা রেখে কথা বলতে হবে।

দ্রুত সাড়া দিনঃ
যে কোন সংকটে অথবা পরিস্থিতিতে তথ্যপূর্ণ বক্তব্য নিতে দ্রুত এবং সময়মত পেশাগত শিষ্টাচারের সাথে সাড়া দিন।

তথ্য পরিবেশনে নিয়মানুবর্তী হউনঃ
স্বতস্ফূর্ত ও সঙ্গতিপূর্ণ তথ্যের প্রচার: আপনার বার্তা, পরিচিতি এবং বিশ্বাসযোগ্যতা অর্জনে সাহায্য করে।

আধুনিক প্রযুক্তি গ্রহন করুণঃ
তথ্য গ্রহণকারীকে আপনার আধুনিক প্রযুক্তির যোগাযোগ কৌশল ব্যবহারে উদ্বুদ্ধ করুন।

করবেন না :

আপনার গল্পটি বলতে ভুলবেন না
গণমাধ্যম পুনরাবৃত্তিসহ তথ্য প্রদান করে, তাই দর্শকদের উদ্দেশ্যে আপনার নিজস্ব দৃষ্টিকোন থেকে প্রমানাদিসহ গল্পটি বলার চেষ্টা করুন।

আপনার আভ্যন্তরিন দর্শকমন্ডলীকে অবজ্ঞা করবেন না
আসলে সংস্থা অথবা আভ্যন্তরিণ গ্রুপের আনাচে কানাচে ছড়িয়ে ছিটিয়ে থাকা তথ্যগুলোই বর্হিমুখী যোগাযোগ বৃদ্ধি করে।

কারিগরি অথবা শিল্প সংশিষ্ট কাজে বিশেষার্থক শব্দপূর্ণ ভাষার অতি ব্যবহার পরিহার করুন।
ইহা সাধারণ দর্শকদের কাছে বার্তা প্রেরণে জটিলতা সৃষ্টি করে।

যোগাযোগ একটি দ্বিমুখী প্রক্রিয়া, তা ভুলা যাবেনা
যোগাযোগ একটি দ্বিমুখী প্রক্রিয়া, তাই ভবিষ্যৎ সুযোগ সন্ধানে দর্শকদের বক্তব্য শ্রবণ ও ফিডব্যাক গ্রহনের কথা কোনভাবেই ভুলা যাবেনা।

Board Development:

FINAL REPORT
COOPERATIVE BOARD DEVELOPMENT SPECIALIST
RURAL ELECTRIFICATION DEVELOPMENT PROGRAM IN BANGLADESH

EXECUTIVE SUMMARY

NRECA International was awarded a contract in 2005 through the United States Agency for International Development (USAID) to provide services for rural electrification expansion in Bangladesh. Gregory Boudreaux was engaged in 2010 to serve as Board Development Specialist (BDS) for the Rural Electrification Development Program (REDP). His resume is attached. His assignment was to assess and improve the current education programs for the Rural Electrification Board (REB) and the directors and managers of Palli Bidyut Samities (PBSs). These programs were designed to support REB's mandate to provide loans and technical assistance to PBSs to enable them to bring electrification and economic development to rural areas. According to its By-Laws, REB is required to protect loan security, recognizing that each PBS is an independent body subject to laws and REB By-Laws. REB activities are to be carried out in a manner to help develop…

> "the resources and ability of each Palli Bidyut Samity to meet its needs, handle its own affairs effectively, and achieve as soon as possible the internal strength and soundness to assure its success as an independent enterprise. As a Samity develops adequate internal strength and financial soundness, direct Rural Electrification Board assistance will diminish accordingly."

Effective education of PBS directors and managers is essential for REB to fulfill its charter. This perspective guided the work of the BDS.

Many dedicated professionals have worked to bring education to directors and managers of REB and the PBSs. REDP has provided high quality programs that explain the history and foundations of the PBSs and the importance of REB. Directors have learned about the need for gender equality and consumer outreach. But courses that REDP inherited from previous projects were found to be not adequate in training directors on the principles of corporate governance, how to conduct effective meetings where they can have productive discussions about the needs of the PBS, and how to evaluate board performance. These previously developed courses did not meet recognized standards used to identify learning needs, to develop and deliver training programs, and to evaluate training effectiveness. Additionally, there is evidence that REB is not now fully engaged in director education or that it fully supports the concept that each PBS should be prepared to "assure success as an independent enterprise." It is hoped that these observations will be seen as offering enhancements and improvements to past efforts so that REB and the PBSs can achieve their respective missions.

Work Activities

In fulfillment of his duties, the BDS performed the following actions while visiting Bangladesh a total of three times:

- During three weeks in April, 2010 he:
  - Familiarized himself with existing director training materials;
  - Visited REB to meet with key officials and to observe a director training program;
  - Traveled to four PBSs to meet directors and managers and to observe board meetings and a course for directors;
  - Wrote a *Preliminary Report: Improving Director Training in Bangladesh*.
- During eleven weeks in June-August, 2010, he:
  - Helped to develop and rehearsed presenters for a formal REDP-Update for senior REB officials;
  - Developed a proposed Director Curriculum;
  - Wrote four of the five courses in the proposed curriculum;
  - Developed and delivered a "Train the Trainer" program for REDP staff ;
  - Visited REB to brief officials on his findings.
- During approximately 8 weeks in November-January 2011, he:
  - Completed the final English language version of the Director Curriculum
  - Worked with fellow REDP professionals to translate the Director Curriculum content into the Bengali language
  - Developed a PowerPoint format for the course materials that include both English and Bengali
  - Completed this Final Report.

Duties Under The Terms Of Reference

The BDS addressed the following duties as defined in the Terms of Reference:

1. **Define a work plan to provide board training for PBSs**.

   Discussions with directors, managers and NRECA staff and observations conducted in the field resulted in the following conclusions:

   - The REDP educational effort is effective in exposing directors to the history of the PBS program and the role of REB. Directors learn the importance of consumer understanding and gender equality. But existing courses do not identify clear learning objectives, especially objectives related to the concept of the board, the legal duties of directors, and the skills directors need to participate effectively in board meetings. A learning objective is a measurable outcome that defines what is important for directors to know or be able to perform. Learning objectives must be developed on the basis of a Needs Assessment.
   - A Needs Assessment is conducted by comparing learners' current knowledge and skills with what they need to fulfill their professional responsibilities. Without a Needs Assessment there is no basis for identifying learning objectives or what belongs in the

Core Curriculum. A clear statement of learning objectives enables instructors and education professionals to distinguish between what is essential to be included in a course and what is optional. The identification of learning needs and objectives also provides the only basis for course evaluation. The current evaluation process consists of a headcount of attendees (whether they are awake or not). Without measurable objectives, course and instructor evaluations are meaningless.

- The existing curriculum fails to distinguish between factual information that directors should know (e.g., fiduciary duties), and behavioral skills that directors need to perform their role (e.g., how to participate effectively in board meetings; how to debate motions). Helping people learn facts requires one training approach; helping them acquire behavioral skills requires another approach. This distinction was not apparent in the former curriculum.
- There is no identifiable Core Curriculum. A curriculum consists of a coherent set of core courses that teach key issues in a logical sequence and that collectively address the learning objectives that are necessary for director effectiveness. Because course objectives are not clearly identified, there is a tendency for courses to be redundant and to be added or subtracted at will, rather than on the basis of what directors need to know.
- Existing courses do not reflect principles of adult learning. Unlike children, adults do not learn by rote memorization. Adults learn better through group problem solving and interaction and when they understand why the topic is relevant to their professional needs. The courses that were observed consisted primarily of “one-way” talking by the instructor and little use of visual aids. Instruction should include multiple techniques to create variety and to enable learners to be active and not passive in the classroom.
- Course manuals have written text, but are not organized around learning objectives and are not designed to draw attention to the most important issues. Adults learn best when there are three or four essential points that are concentrated on in a learning session. Courses structured around 80 or 100 items of information tend to be ineffective. It is more effective to focus on the 3-to-5 essential topics that are elucidated through role-play, group problem solving, and similar techniques. It is also more effective to design and use PowerPoint slides, each with only a few items listed for emphasis and discussion; additional explanatory material can be presented in the “notes” section below each slide. Slides should be written in both English and Bengali. The English is preserved to serve as a benchmark for future revisions; Bengali is necessary for the course to be accessible to directors who do not speak English.
- There is no apparent process to train course instructors. In some cases, instructors presented a large amount of information, but did so in a way that put attendees into a passive mode. Instructors require training to learn how to be effective in the classroom. Only Bengali speakers should be instructors, at least in the director training arena.
- There is no course evaluation system based on assessment of whether learning objectives were achieved and no process to track and improve instructor or course

effectiveness. As noted, the prevailing "evaluation" consists only of a headcount of attendees in each course delivery.

2. **Establish a PBS Director Certification Program, and ensure that the certification process is approved as a Policy Instruction**.

   The components of a director certification program were designed and presented to approximately 30 REB directors and senior staff on July 7, 2010, along with a request for REB endorsement. It was emphasized to REB officials that increasingly, donors and investors expect boards to follow internationally recognized principles of corporate governance, such as endorsed by the Organization for Economic Development and Cooperation and by Hawkamah, the Dubai-based Institute for Corporate Governance. The officials received this information, but asked no questions and have issued no follow-up response. Although there is consensus that PBS boards are not now qualified to act effectively, senior officials seem uninterested in addressing this on a systematic basis.

3. **Design a training program for PBS management and officers**.

   Following the July 7 REDP Update, it was proposed to REB to endorse a day-long conference for PBS general managers to be conducted with REB input and involvement. This was designed to enable managers to form a network of peers to talk together, identify common problems, seek solutions from each other, recognize role models, and communicate as a group with REB. REB did not respond to this proposal.

4. **Establish an association of PBS directors**.

   As a first step in this process, it was proposed to REB to participate in the development and delivery of a day-long seminar for board presidents. This would enable them to see the value of an organized approach to director education, including the creation of an association where directors could recognize common interests and training needs. REB did not respond to this proposal.

5. **Develop a training program designed to meet the needs of female directors**.

   REDP has engaged two Gender Specialists. The Gender Specialists and the BDS coordinated their efforts to ensure that a consistent message is delivered about the duties of directors, whether male or female. The Gender Specialists have delivered their program to directors at four PBSs.

6. **Evaluate how PBS board training programs should be modified**.

   As discussed above, a significant level of modification was proposed regarding director education, including:
   - Development of a Core Curriculum, which consists of five one-day courses. These courses were written in English and then translated into Bengali. Master copies of the English and English/Bengali versions of these courses are available electronically
   - Clear identification of learning objectives in each course
   - Training of trainers
   - Development of a course evaluation system

- Improvement of training manuals

7. **Develop a seminar which all REB officers should attend**.
   Senior REB official attended the meeting on July 7, but there was no interest expressed in attending additional sessions.

8. **Evaluate options to outsource some PBS director training.**
   Efforts were made to establish relationships with the BRAC Governance Institute and with local attorneys familiar with the PBS program. None of these efforts resulted in the identification of interested and qualified trainers. But there is a group of current REDP employees that has been identified that could provide board training in the future.

9. **Design and conduct "Training of Trainers**."
   A two-day seminar was developed and delivered by the Board Development Specialist to REDP personnel. The program material is available for future use. Attendees learned how to:
   - Target the needs of a specific audience
   - Write program objectives
   - Distinguish between information and skill acquisition
   - Design an effective PowerPoint presentation
   - Make a stand-up presentation

10. **Establish an annual conference for PBS board presidents and directors**.

    As discussed in Items 3 and 4, above, a conference for PBS presidents was not accepted by REB.

11. **Participate in review sessions to provide input to relevant stakeholders**.

    The July 7 REDP Update was intended to start this process, but REB has not responded to follow-up proposals. Overtures were made to the BRAC Governance Institute to serve as a potential participant or stakeholder. Internally, several REDB staff members participated in translating English language course material into Bengali. This resulted in discussions about the exact meaning of governance concepts (e.g., how much care must the director exercise) and how to best translate these concepts into Bengali.

CONCLUSIONS

Board and management education are priorities for the REB/PBS program. Effective board governance requires trained directors who understand their role, who can participate productively in board meetings, who can supervise a general manager, and who can work together to plan for and evaluate the performance of their PBS. The PBSs under REB guidance have made significant technical and engineering progress in bringing electricity and its benefits to the rural areas of Bangladesh. But until institutional changes occur at REB, PBSs will not become effective, successful, independent local institutions with qualified directors and managers.

ATTACHMENT: CORE CURRICULUM FOR DIRECTORS

1. DIRECTOR DUTIES AND THE ROLE OF THE BOARD

   This course for PBS directors explains the formation and role of the Palli Bidyut Samity in rural electrification. Key objectives include ensuring that all directors:
   - Know the role and power of the Board
   - Understand their duties and liabilities
   - Understand the rights and duties of members
   - Understand guidelines regarding how they should act in the boardroom

2. UNDERSTANDING AND USING BYELAWS, POLICIES AND OTHER GOVERNANCE DOCUMENTS

   This course is designed to explain the nature and use of key governance documents, including:
   - The Ordinance Creating the RE Board
   - REB Bye-Laws and Policy Instructions
   - The role and content of PBS Bye-Laws
   - Policy-making in the PBS boardroom
   - The appraisal of the GM and the GM's role in advising and assisting the board

3. THE EFFECTIVE BOARD MEETING

   The Board Meeting is where the board may take official action. The President presides while other directors make, debate, and vote on motions. The objectives of this course are to ensure that directors understand:
   - Legal, quorum and notice requirements for conducting board meetings
   - The role of the President as presiding officer
   - Basics of Parliamentary Procedure
   - The importance of the Minutes

4. UNDERSTANDING ELECTRIC UTILITY OPERATIONS

   This course is designed to teach basic electric utility terms and concepts to PBS directors. Key topics:
   - Electric generation, transmission and distribution
   - Electricity demand and capacity
   - Service Rules and Regulations
   - Performance Targets and Measures of Reliability
   - Electric safety

5. UNDERSTANDING THE FINANCIAL REPORT

   This course teaches directors the origin, components and use of the financial report, along with other financial information that can be used by the board in evaluating the effectiveness of the PBS.

President of the Board Workshop

Potential Location: American Club

Objectives:
- Provide an opportunity for REB to update PBS Presidents
- Explain principles of board governance and the role of the President
- Encourage networking and interaction among Presidents
- Discuss the need for the proposed director curriculum
- Develop a "template" for future President of the Board Workshops

Potential Agenda:
9-10:15 am
- **Welcome and Program Overview.**
- **REB Update**. -- REB Chairman
- **Director Duties and the Role of the Board.**
  - ✓ REB Governing Documents
  - ✓ The Role of the Board
  - ✓ Director Duties and Standards of Conduct
  - ✓ International Lessons about Board Governance
- **Presentation and Audience Q&A in Bangla and English**

TEA 10:15

10:30-12:30

- **The Board Meeting and the Role of the Chair**
  - ✓ Meetings Defined
  - ✓ What Boards Actually Do
  - ✓ Parliamentary Law Fundamentals
  - ✓ How the Chair Keeps Order
  - ✓ Motions and Resolutions
- **Management's Role: Lessons from a PBS Manager**
  - ✓ How I worked with Boards
  - ✓ How your manager should work with you: The Role of the Agenda and How to keep the Board Informed
  - ✓ What Boards Should Know About Their Consumers
- **Presentation and Audience Q&A in Bangla and English**

12:30-2:30 LUNCH

2:30-4:00

- **The Changing World of Technology**
  - ✓ The Internet
  - ✓ "Social Networking" Around the World
  - ✓ The REB Website
  - ✓ How technology may impact the PBS and its consumers
- **Today's Challenges and What Lessons to Take Home.**
  - ✓ Observations about the history and importance of the REB/PBS Program
  - ✓ Key Lessons from today's session
  - ✓ Consumers and the Village Advisor Program
  - ✓ The continuing need for Director Education
- **Audience Q&A in Bangla and English**

4:00 Adjourn

General Managers' Conference

Potential Location: American Club

Objectives:

- Provide an opportunity for REB to update PBS General Managers on current issues
- Discuss Human Resource and Information Technologies
- Encourage GM networking
- Educate GMs on corporate governance and the role of the GM
- Provide an opportunity for GMs to identify issues they want to see in future Conferences and provide a "template" for future conferences

Draft Agenda:

9-10:15 am

- **Welcome and Program Overview.**
- **REB Update**. -- REB Chairman (15)
- **Board Governance Essentials**
  - ✓ The Three Key Duties of Directors
  - ✓ The Role of the Board and the Structure of the Board Meeting
  - ✓ The Statement of Delegation to the GM
  - ✓ The Role of the GM in educating the Board
  - ✓ Presentations and Audience Q&A in Bangla and English
- **Management Success: Lessons from an Experienced Manager**
  - ✓ Know your Board
  - ✓ Know your Employees
  - ✓ Know your Consumers
  - ✓ Know the Key Players in your Community
- Audience Q&A (Bangla and English)

10:15 TEA

10:30-12:30

- **The Changing World of Technology**
  - ✓ The REB Website
  - ✓ GIS: Cost Efficiencies and Improved Reliability
  - ✓ On-Line Billing
- **Managers' Forum on Human Resources Issues and Challenges** (REB, GM, Consultants)
- Audience Q&A (Bangla and English)

12:30-2:30 LUNCH

2:30-4:00

- **Working Toward the REB Bye-Law Goal of helping "develop the resources of each Palli Bidyut Samity to meet its needs, handle its own affairs effectively, and achieve as soon as possible the internal strength and soundness to assure its success as an independent enterprise."**
- **Today's Challenges and What Lessons to Take Home.**
  - ✓ Observations about the history and importance of the REB/PBS Program
  - ✓ Key Lessons from today's session
  - ✓ Consumers and the Village Advisor Program
  - ✓ The continuing need for Director Education
- Audience Q&A (Bangla and English)

4:00 Adjourn

Human Resources:

Initial findings from the HR Exercise at PBS
Human Resource Management and Development
Final Report

Submitted by:
Mohammad Y Malik Sakil, HR Specialist,
REDP
NRECA Bangladesh
January 2011

> Capacity-building programs are intended to strengthen an organization's ability to provide quality and effective services, while being viable as an institution. This means supporting an organization to be programmatically sustainable (providing needed and effective services), as well as organizationally sustainable (with strong leadership and having necessary systems and procedures to manage by), while ensuring that it has sufficient resources (human, financial, and material) that are utilized well. Finally, this support must help the organization understand the external environment (political, economic, and social) it operates in, and to develop a relationship with it that is sufficiently stable and predictable.
>
> New TransCentury Foundation, 1996, p.1 of vol. 3.

This report and my future work for NRECA is dedicated to the rural children whose lives are changed and will continue to change because of rural electrification…

Acronyms

ADB	Asian Development Bank
AGM	Annual General Meeting
AGM	Assistant General Manager
BERC	Bangladesh Energy Regulatory Commission
DGM	Deputy General Managers
GM	General Manager
GOB	Government of Bangladesh
HRD	Human Resource Development
HRM	Human Resource Management
MOE	Ministry of Power, Energy and Mineral Resources
PBS	Palli Bidyut Samity
REB	Rural Electrification Board
REDP	Rural Electrification Development Program

Appointment

NRECA appointed Mohammad Y Malik Sakil to provide consultancy services for an organizational assessment of the REB and the PBS member services.

Overall TOR

The HR Specialist shall be responsible for the design and implementation of an organizational evaluation for the REB along with the PBS member services department under the REDP. The Specialist shall work in close collaboration with the REB, PBS and REDP Project Manager and the NRECA team members assigned to assist in the organizational evaluation and institutional development program.

Background

Human resources development has been a top priority for PBS and REB management and PBS Board members from the beginning of RE program in Bangladesh. The objective was to develop their professional capacity to manage and lead the organizations as pioneers in the Bangladesh RE sector. Currently, 70 PBSs have more than 26,000 employees.

The REB Training Directorate was established to meet the human resources development needs of the REB, PBS board members as well as management and staff. A Training Directorate was mandated to develop demand driven training and a human resources development program as well as the implementation of such program at PBS.

The last Training Needs Assessment (TNA) for REB/PBS Personnel was done in August of 1998. This thorough assessment examined each position at REB and PBS. This was a very highly structured TNA. But studying the current HR situation at the PBSs, it was evident that the many of the suggestions and recommendations of this TNA were not possible to be implemented. It has been 12 years since the last TNA and according to the recent Study "Assess Effectiveness of Current Organizational and Management Structure of REB of Bangladesh," commissioned by Power Cell of MOE/GOB, it was suggested that a "full scale training analysis" is needed but a comprehensive Human Resources analysis was not done. More analysis will only be feasible if there is political will to implement the recommendations of such an analysis. The Asian Development Bank (ADB) is funding the development of a training academy but a long term plan on how to utilize this academy is still under development.

The hiring and promotion in the PBSs are administered by the REB. But as the PBSs are exempt from government hiring rules, the REB administers examinations for all positions and prepares an approved list of candidates. Though the rules permit direct hiring of GMs and DGMs, they are being promoted from the AGM positions for the last ten years. The hiring process and policies and the transfer of personnel from PBSs to other PBSs are completely controlled by the REB, contrary to the PBS by-laws. The over control of these functions has made the PBSs powerless and thus many talented and skilled staff have left the PBSs. Many PBSs have senior staff who do not have the project management or engineering backgrounds necessary. Consulting firms that provide technical consulting to the PBSs are also managed by the REB. As a result, the internal expertise or capacity building that has occurred has been on a very limited scale.

It was clear from the discussions that the PBSs operate under considerable REB control (contrary to the REB Ordinance and By-laws), as opposed to monitoring, supervision and mentoring. The management (GMs and AGMs) of the 70 PBSs do not meet regularly to discuss and decide their future as there is no such scope or forum. But it is important to note that the regional/zonal REB managers meet regularly. Another huge issue concerns the existing human resources at the PBS level. Is staffing sufficient? Are they efficient? This report tries to examine such issues.

This report is developed as the final summary of activity of the HR Specialist over a year working for NRECA Bangladesh. The following sections are described as per the TOR and its

activities. Under each section, the terms of reference, each activity update and recommendations are described.

TOR Activity Description # 1

Development of a work plan to assess the challenging needs within the REB and PBS organizations and develop strategies to address the organizational needs obtaining the necessary approval for implementation

Methodology

Sakil Malik used a modified organizational capacity assessment tool (OCAT) to track and assess internal capacity components of the PBSs to ensure effective cooperative functioning. Capacities are the cooperatives' internal components such as administrative and internal functions, processes, technical functions, organizational structure and culture, and resources. Once a set of capacities are identified, defined and applied to all participating cooperatives, the analysis is done. The following are the capacity areas that are usually identified as being vital for any cooperative:

1. Governance
2. Operations and Management
3. Human Resources Management and Development
4. Financial Management
5. Business Services Delivery
6. External Relations

Within each of these capacity areas, subcomponents are then defined by the program to provide a better description of the characteristics of the capacity. For example, Human Resources Management and Development had the following sub-capacities:

- Staff
- Human Resources Development
- Internal Work Style
- Gender Issues
- Diversity
- Supervision
- Salary and Benefits

The need for improvement of every capacity and subcapacity was assessed through a score of 1, indicating "Needs very urgent attention" to a 6, indicating "No need for improvement." The assessment was done through a participatory approach where General Managers (GMs), Deputy General Managers (DGMs) and Assistant General Managers (AGMs) all participated. The assessment conducted included the following data collection methods:

- Individual interviews using the OCAT Tool;
- Interviews with management committee members;
- Focus group discussions with GMs, DGMs and AGMs
- Document review of reports

- Annual General Meeting records.

Most of the information obtained was qualitative and was then converted into a quantitative index, which was processed and analyzed for report dissemination to the program and cooperative management.

Each subcapacity area was assigned a score from "1" to "6" that represented the relative need of improvement in that specific component/subcomponent; these scores were summed to give the total score for the capacity area. Given the comprehensive nature of the capacity index, it proved a useful tool in determining areas where the cooperative needed more support, extension assistance, and/or resources. (See appendix A for the Score Sheet and OCAT Tool).

Though it was not possible nor was it part of the TOR to assess all the 70 PBS but the total of 12 PBSs assessment was a fair representation of the analysis as per the HR Specialist. Here is a overall glance of the HR Assessment:

Total REDP - PBSs Covered - 9 (Nine): Nilphamari, Kurigram-Lalmonirhat, Rajshahi, Chapai-Nawabgonj, Mymensingh, Brahmanbaria, Faridpur, Jhenaidah, Magura

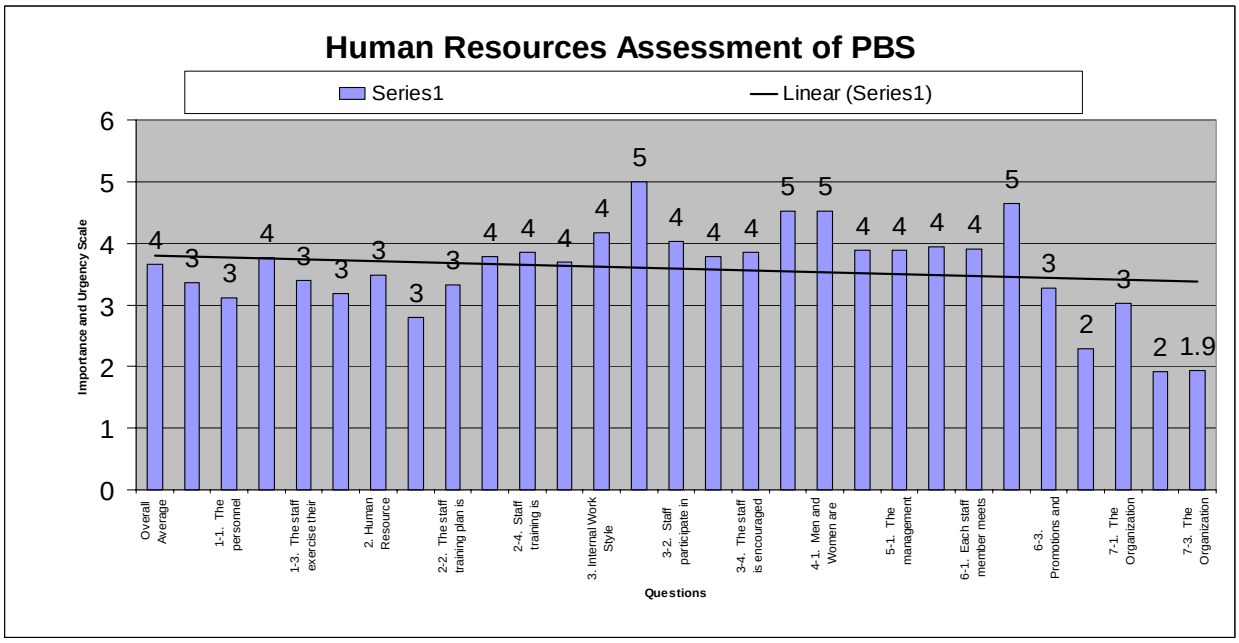
Other Non-REDP PBSs Covered: Manikgonj, Bogra and Rangpur -1

Number of Participants including GMs, and AGMs: 45 (approximately)

Responses Received on the OCAT: 33

Overall Score: 4 (Four)

Chart 1: Analysis of the Assessment



A total number of 45 General Managers, Deputy General Managers and Assistant General Managers participated in this assessment. But actual respondents were 33. The overall score is shown above in Chart 1. The Overall Score is 4. Which means “Needs to improve some aspects, but without urgency.” The most important issue that “needs urgent attention” is “Salary and Benefits.” “Staff” and “Human Resources Development” has a score of 3, which means “needs many improvements but without urgency.” The least urgent issue is Gender Diversity (score of 5).

Organizational Capacity Assessment Tool

(This tool was developed by Pact (http://www.pactworld.org/) in collaboration with other NGOs, with financial support from USAID

Name of Organization: PBS

Date of Assessment: (March 5-25, 2010)

Assessment Facilitated by: Sakil Malik, HR Specialist, REDP, NRECA

Organizational Development Scale

1= Needs very urgent attention	
2= Needs urgent attention	
3= Needs many improvements, but without urgency	
4= Needs to improve some aspects, but without urgency	
5= Needs some minor adjustments, but without urgency	
6= No need for improvements	

	First Eval.		Second Eval.
Overall Average	**4**		**0.0**
1. Staff	**3**		**0.0**
1-1. The personnel recruitment process is clearly defined, competitive, and followed.	3		0.0
1-2. Each staff members has a written job description that clearly defines his/her responsibilities, tasks, and reporting relationships.	4		0.0
1-3. The staff exercise their functions in accordance with their job descriptions.	3		0.0
1-4. The talents, skills and experience of the staff is consistent with the mission and programs of the Organization.	3		0.0
2. Human Resource Development	**3**		**0.0**
2-1. The Organization incorporates staff training as a part of its annual plan.	3		0.0
2-2. The staff training plan is based upon the training needs of the Organization.	3		0.0
2-3. The staff training plan is funded.	4		0.0
2-4. Staff training is considered a priority for the Organization.	4		0.0
2-5. Once trained staff have many opportunities to put into practice the knowledge acquired.	4		0.0
3. Internal Work Style	**4**		**0.0**
3-1. Staff meetings are held on a regular basis.	5		0.0
3-2. Staff participate in executive decisions.	4		0.0
3-3. Group work is promoted.	4		0.0
3-4. The staff is encouraged to take initiative.	4		0.0
4. Gender Issues	**5**		**0.0**
4-1. Men and Women are evenly represented on the staff, within the Executive Team and on the Board and Fiscal Committee.	5		0.0
5. Diversity Issues	**4**		**0.0**
5-1. The management and the staff understand and respect the habits and customs of the beneficiary groups.	4		0.0
6. Supervision	**4**		**0.0**
6-1. Each staff member meets with his or her supervisor at least once a month for orientation and feedback on his/her work.	4		0.0
6-2. Staff receive a formal performance evaluation from their supervisor at least once a year.	5		0.0
6-3. Promotions and raises are based upon the results of the performance evaluations.	3		0.0
7. Salaries and Benefits	**2**		**0.0**
7-1. The Organization has a clearly defined salary scale which determines how much staff are paid.	3		0.0
7-2. Staff salaries are competitive.	2		0.0
7-3. The Organization offers its staff a competitive benefits package.	1.9		0.0

Overall Average	4
1. Staff	3
2. Human Resource Development	3
3. Internal Work Style	4
4. Gender Issues	5
5. Diversity Issues	4
6. Supervision	4
7. Salaries and Benefits	2

Conclusion and Recommendations from the HR Specialist, NRECA

Overall the Human Resources Assessment at PBSs were satisfactory. The Overall Score is 4, which showcases that "**Needs to improve some aspects, but without urgency".** By exercising its authority and control of the 70 PBSs, the REB controls the governance and financial oversight of the PBSs. Hence the PBSs have very limited authority, autonomy and self-governance. The REB Senior Staff perceives PBS boards as incapable of leadership and capacity to make independent decisions. The educational background of the board members at the PBS level is also questionable. Some of the PBS board members may not have the necessary knowledge, skills and attitude to run a complex organization like PBS. The PBS Board members may be also lacking in their knowledge and skills dealing with member rights and responsibilities. A recent study on the economic and social impact of the RE program in three PBSs (Barkat et. al 2002) finds that about 60% of PBS members have no knowledge or understanding regarding the roles of elected directors. As a result there is a clear conflict between the PBS and the REB Management and Board of Directors. The PBS management (GMs, DGMs, and AGMs) are also very frustrated by the political influence and corruption of some of the PBS board members.

It was also clear from the assessment that the current staffing of PBS are adequate in certain PBS but not all. Some of the PBSs need more staffing to handle the demand of the increased customer. Staff is overworked and the quality of work is not at the highest level in some PBSs but not all. So the need to increase the number of staff should be done on a case by case basis. Also more importantly the quality or efficiency of the existing staff is questionable. The dilemma remains, whether it is more important to increase the staff number or to develop the capacity of existing staff.

Unfortunately, the Organizational Assessment for the changing needs of REB HQ was not conducted. REB never approved such process and there was no cooperation from REB on this idea.

TOR Activity Description # 2

Prepare an appropriate succession planning program to address the rapid decline of experienced officers that has been underway and will continue to unfold in the coming two to five year time period. The succession plan will need to consider the pending REB restructuring study that may result in transforming REB into a government corporation similar to other power sector entities. The restructuring program will likely be completed under an existing World Bank project implemented in collaboration with Power Cell that supports ongoing power sector reform.

Report:

This activity was not performed. World Bank did publish the restructuring study which was conducted by SMEC. The donor community is encouraging the GoB and REB to take a close look at the organization and develop a plan to address the organizational needs to advance into the 21st Century. But after discussion with REB and COP, HR Specialist has concluded that REB was not interested in pursuing this at this point of time.

Recommendation:

REB does need to develop a succession plan and organizational realignment very soon. It is vital that a thorough human resource assessment is done in near future which will include the succession plan. This assessment may include the necessity or the lack of, for each position at REB. Based on this assessment it may be feasible to draw some conclusion about the reduction of personnel. A detail work plan may be developed that will help the implementation of the succession plan.

Also depending on the future decision of the GOB, if REB becomes a corporation and complete new set of parameters have to be developed for the successive leadership. Any restructuring implementation as big as REB, needs a lot of preparation, and orientation before actual restructuring starts to begins. Also a lot of technical and management support and advice are necessary during the restructuring and following its completion. See # 3 below for more.

TOR Activity Description # 3

Evaluate the current Staffing and Job Description of the PBS Member Services Department.

Report:

The only activity that was successfully completed under this activity was the translation of all job descriptions of PBS Staff from English to Bangla (Series 314) in collaboration with REB Training and Management Directorate. The need for this translation was assessed through the same OACT that was done in March 2010. Also see # 4 below. From the field discussions at the PBSs it was evident that such translations were necessary and vital. It is recommended that all of the translated job descriptions are requested to be distributed to respective staff in all PBSs. A basic orientation session should be conducted for all levels of staff on the job description. This could be done in each PBS level through REB's intervention.

TOR Activity Description # 4

Evaluate current PBS staffing and available options.

Report:

It was clear from the OCAT assessment that many PBS staff does not understand their job descriptions entirely, nor understood each task and responsibility. Many also have not recently reviewed the job description. One reason for such ignorance was because the basic orientation for new staff only includes a generic description of the RE program in Bangladesh and each staff member never received a thorough orientation about their responsibilities and complete job description. Staff simply learned their jobs by doing, which is good, but they lack the ultimate

knowledge about their actual tasks and responsibilities. Pre-Service training is proven to be a vital part of staff development and success.

- It is recommended that all job descriptions be translated as soon as possible in Bangla and be distributed to all staff at all levels. (See # 3 above)
- Secondly, a short orientation session can be organized at all levels to discuss each staff members' job description. This could be organized as a **cascade model, with the** supervisors being trained first and then they could organize departmental orientations on job descriptions within their departments.
- Also, some simple management techniques could be disseminated by creating learning circles for the staff at the PBS level. These learning circles would work as an ongoing professional development forum.
- It is strongly recommended that the current staff transfers be suspended for a period of time, and all positions in the PBSs should be open to allow a full competitive selection of new members. The local influence of the board members on staff recruitment has to stop. This is creating a new layer of complexity within the PBS system. As per the PBS by-laws, all recruitment of the staff should be implemented at the local level.

Conclusion and Future Search

Many PBSs have up to 600 staff members. In a recent conversation, Member PBS asked the HR Specialist, if the current staffing is adequate or not. HR Specialists view in this regard, based on the HR Assessment was that it is not the case all across the board. Some PBSs need more staff and some do not. But more important issue is the efficiency and skill set of the existing staff to perform their job function at the highest level of quality. Most of the PBS staff who were part of the assessment recognized that they need capacity building at the local level, which can make the PBSs perform better.

For the most part, this report was based on HR Assessment that was conducted in March of 2010. Following the assessment many changes and realignment occurred at REB. A new Executive Director has been installed. In recent discussions, he explained that many of the issues that are discussed in this report have been taken care of. However, we question how much change can be accomplished in 10 months. In most cases an organization of this latitude needs years to reform with realistic measure, strategic planning and reform minded leadership. We hope that such measures will be a priority for the partners in development and the GOB to ensure a better future for Bangladeshi RE sector. It is undoubtedly the desire and the ability of the REB which will determine the future of the RE Sector in Bangladesh. Striking the balance between these two will be the keystone for the RE Reform.

Initial findings from the HR Exercise at PBS
Human Resource Management and Development
March 5-25, 2010

Submitted by:
Mohammad Y Malik Sakil, HR Specialist
REDP Project
NRECA Bangladesh
April, 2010

> Capacity-building programs are intended to strengthen an organization's ability to provide quality and effective services, while being viable as an institution. This means supporting an organization to be programmatically sustainable (providing needed and effective services), as well as organizationally sustainable (with strong leadership and having necessary systems and procedures to manage by), while ensuring that it has sufficient resources (human, financial, and material) that are utilized well. Finally, this support must help the organization understand the external environment (political, economic, and social) it operates in, and to develop a relationship with it that is sufficiently stable and predictable.
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REB	Rural Electrification Board
REDP	Rural Electrification Development Program

Appointment

NRECA appointed Mohammad Y Malik Sakil to provide consultancy services for an organizational assessment of the REB and the PBS member services.

Overall TOR

The HR Specialist shall be responsible for the design and implementation of an organizational evaluation for the REB along with the PBS member services department under the REDP. The Specialist shall work in close collaboration with the REB, PBS and REDP Project Manager and the NRECA team members assigned to assist in the organizational evaluation and institutional development program.

Scope of Work for the Current Trip

The intention of this trip was:
- To collect and assess the Human Resources needs of the PBSs

Disclaimer about the report:

This draft of the report was developed based on interviews, informal discussions with NRECA Staff, PBS Staff and Board members, Ministry of Energy and Power Cell Staff. Much of the information also comes from the literature review of previous reports from the REB, PBS and NRECA. The accuracy of the information furnished is contingent upon further research.

Introduction

Electric cooperatives are a vital partner in the delivery of electric services to improve rural livelihoods. Accordingly, building the organizational capacity of cooperatives is a key activity for many rural electric programs and is essential toward delivering sustainable results. In an effort to identify areas of cooperative strength and weaknesses, and track related changes over time, NRECA Bangladesh assigned Sakil Malik, HR Specialist to assess the Human Resources Capacity of the PBSs in Bangladesh. The Organizational Capacity Assessment Tools (OCAT) was used in the three-week PBS HR assessment mission.

In this paper, the author analyzes one application of the organizational capacity building index for the PBSs in Bangladesh. The paper describes how indices are used to develop a baseline for the Human Resources Management and Development at the PBS level. This tool is intended for use at two different points of the program: from the initial through the follow-up assessments. This was the initial baseline.

Also, preliminary results of a recent survey from nine different PBSs are included to summarize challenges often encountered in implementing these tools at both the program and beneficiary levels. The conclusions of the paper highlight lessons learned to assist in future implementation of Human Resources Management and Development.

Background

Human resources development has been a top priority for PBS and REB management and PBS Board members from the beginning of RE program in Bangladesh. The objective was to develop their professional capacity to manage and lead the organizations as pioneers in the Bangladesh RE sector. Currently, 70 PBSs have more than 26,000 employees.

The REB Training Directorate was established to meet the human resources development needs of the REB, PBS board members as well as management and staff. A Training Directorate was mandated to develop demand driven training and a human resources development program as well as the implementation of such program at PBS.

The last Training Needs Assessment (TNA) for REB/PBS Personnel was done in August of 1998. This thorough assessment examined each position at REB and PBS. This was a very highly structured TNA. But studying the HR situation at the PBSs, it was evident that the suggestions and recommendations of this TNA were not implemented. It has been 12 years since the last TNA and according to the recent Study “Assess Effectiveness of Current Organizational and Management Structure of REB of Bangladesh,” commissioned by Power Cell of MOE/GoB, it was suggested that a “full scale training analysis” is needed. But more analysis will only be feasible if there is political will to implement the recommendations of such an analysis.

The Asian Development Bank (ADB) is funding the development of a training academy but a long term plan on how to utilize this academy is missing or not yet available.

The hiring and promotion in the PBSs are administered by the REB. But as the PBSs are exempt from government hiring rules, the REB administers examinations for all positions and

prepares an approved list of candidates. Though the rules permit direct hiring of GMs and DGMs, they are being promoted from the AGM positions for the last ten years. The hiring process and policies and the transfer of personnel from PBSs to other PBSs are completely controlled by the REB, contrary to the PBS by-laws. The over control of these functions has made the PBSs powerless and thus many talented and skilled staff have left the PBSs. Many PBSs have senior staff who do not have the project management or engineering backgrounds necessary. Consulting firms that provide technical consulting to the PBSs are also managed by the REB. As a result, the internal expertise or capacity building that has happened has been on a very limited scale.

It was clear from the discussions that the PBSs operate under considerable REB control (contrary to the REB Ordinance and By-laws), as opposed to monitoring, supervision and mentoring. The management (GMs and AGMs) of the 70 PBSs do not meet regularly to discuss and decide their future. Politically, the situation is very sensitive because the REB would resist this kind of dialogue. But it is important that the regional/zonal REB managers meet regularly.

Methodology

Sakil Malik used a modified organizational capacity assessment tool (OCAT) to track and assess internal capacity components of the PBSs to ensure effective cooperative functioning. Capacities are the cooperatives' internal components such as administrative and internal functions, processes, technical functions, organizational structure and culture, and resources. Once a set of capacities are identified, defined and applied to all participating cooperatives, the analysis is done. The following are the capacity areas that are usually identified as being vital for any cooperative:

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5. Business Services Delivery
6. External Relations

Within each of these capacity areas, subcomponents are then defined by the program to provide a better description of the characteristics of the capacity. For example, Human Resources Management and Development had the following sub-capacities:

- Staff
- Human Resources Development
- Internal Work Style
- Gender Issues
- Diversity
- Supervision
- Salary and Benefits

The need for improvement of every capacity and subcapacity was assessed through a score of 1, indicating "Needs very urgent attention" to a 6, indicating "No need for improvement." The assessment was done through a participatory approach where General Managers (GMs), Deputy General Managers (DGMs) and Assistant General Managers (AGMs) all participated. The assessment conducted included the following data collection methods:

- Individual interviews using the OCAT Tool;
- Interviews with management committee members;
- Focus group discussions with GMs, DGMs and AGMs;
- Document review of reports;
- Annual General Meeting records.

Most of the information obtained was qualitative and was then converted into a quantitative index, which was processed and analyzed for report dissemination to the program and cooperative management.

Each subcapacity area was assigned a score from "1" to "6" that represented the relative need of improvement in that specific component/subcomponent; these scores were summed to give the total score for the capacity area. Given the comprehensive nature of the capacity index, it proved a useful tool in determining areas where the cooperative needed more support, extension assistance, and/or resources. (See appendix A for the Score Sheet and OCAT Tool).

Analysis of the Assessment

Total REDP - PBSs Covered - 9 (Nine): Nilphamari, Kurigram-Lalmonirhat, Rajshahi, Chapai-Nawabgonj, Mymensingh, Brahmanbaria, Faridpur, Jhenaidah, Magura

Other Non-REDP PBSs Covered: Manikgonj, Bogra and Rangpur-1

Number of Participants including GMs, and AGMs: 45 (approximately)

Responses Received on the OCAT: 33

Overall Score: 4 (Four)

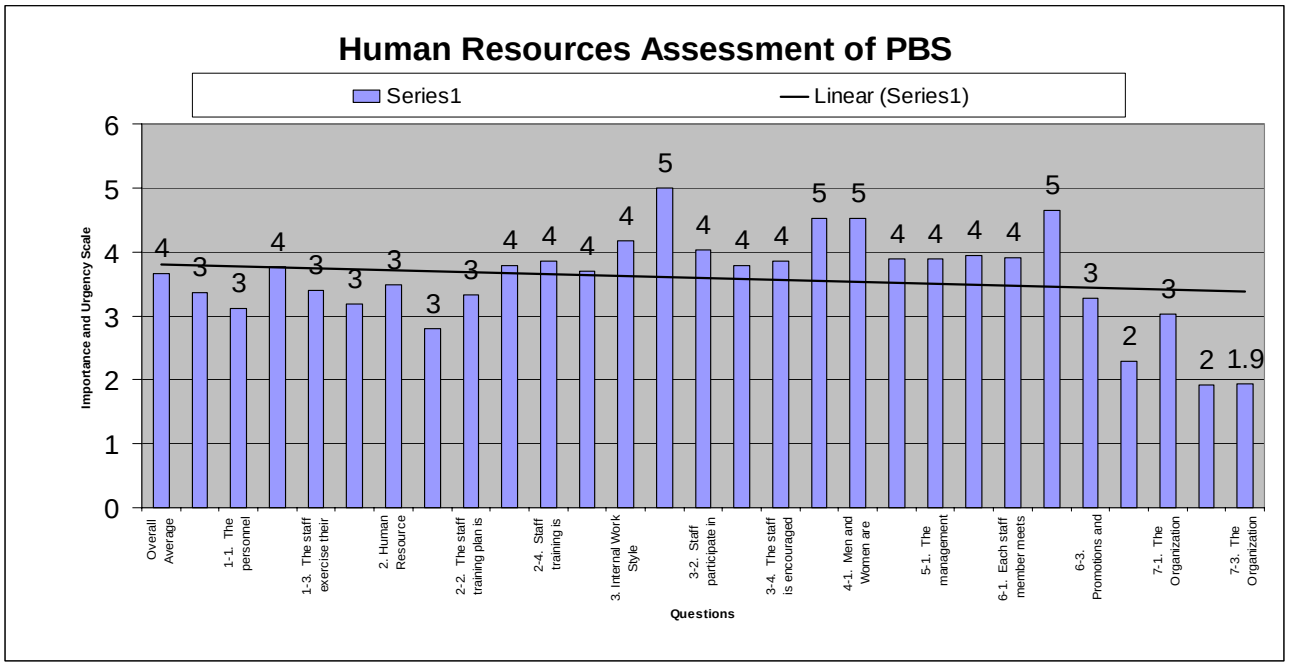


Chart 1

A total number of 45 General Managers, Deputy General Managers and Assistant General Managers participated in this assessment. But actual respondents were 33. The overall score is shown above in Chart 1. The Overall Score is 4. Which means "Needs to improve some aspects, but without urgency." The most important issue that "needs urgent attention" is "Salary and Benefits." "Staff" and "Human Resources Development" has a score of 3, which means "needs many improvements but without urgency." The least urgent issue is Gender Diversity (score of 5).

Organizational Capacity Assessment Tool

(This tool was developed by Pact in collaboration with other NGOs, with financial support from USAID

Name of Organization: PBS

Date of Assessment: (March 5-25, 2010)

Assessment Facilitated by: Sakil Malik, HR Specialist, REDP, NRECA

Organizational Development Scale

1= Needs very urgent attention			
2= Needs urgent attention			
3= Needs many improvements, but without urgency			
4= Needs to improve some aspects, but without urgency			
5= Needs some minor adjustments, but without urgency			
6= No need for improvements			
	First Eval.		**Second Eval.**
Overall Average	**4**		**0.0**
1. Staff	**3**		**0.0**
1-1. The personnel recruitment process is clearly defined, competitive, and followed.	3		0.0
1-2. Each staff members has a written job description that clearly defines his/her responsibilities, tasks, and reporting relationships.	4		0.0
1-3. The staff exercise their functions in accordance with their job descriptions.	3		0.0
1-4. The talents, skills and experience of the staff is consistent with the mission and programs of the Organization.	3		0.0
2. Human Resource Development	**3**		**0.0**
2-1. The Organization incorporates staff training as a part of its annual plan.	3		0.0
2-2. The staff training plan is based upon the training needs of the Organization.	3		0.0
2-3. The staff training plan is funded.	4		0.0
2-4. Staff training is considered a priority for the Organization.	4		0.0
2-5. Once trained staff have many opportunities to put into practice the knowledge acquired.	4		0.0
3. Internal Work Style	**4**		**0.0**
3-1. Staff meetings are held on a regular basis.	5		0.0
3-2. Staff participate in executive decisions.	4		0.0
3-3. Group work is promoted.	4		0.0
3-4. The staff is encouraged to take initiative.	4		0.0
4. Gender Issues	**5**		**0.0**
4-1. Men and Women are evenly represented on the staff, within the Executive Team and on the Board and Fiscal Committee.	5		0.0
5. Diversity Issues	**4**		**0.0**
5-1. The management and the staff understand and respect the habits and customs of the beneficiary groups.	4		0.0
6. Supervision	**4**		**0.0**
6-1. Each staff member meets with his or her supervisor at least once a month for orientation and feedback on his/her work.	4		0.0
6-2. Staff receive a formal performance evaluation from their supervisor at least once a year.	5		0.0
6-3. Promotions and raises are based upon the results of the performance evaluations.	3		0.0
7. Salaries and Benefits	**2**		**0.0**
7-1. The Organization has a clearly defined salary scale which determines how much staff are paid.	3		0.0
7-2. Staff salaries are competitive.	2		0.0
7-3. The Organization offers its staff a competitive benefits package.	1.9		0.0

Overall Average	4
1. Staff	3
2. Human Resource Development	3
3. Internal Work Style	4
4. Gender Issues	5
5. Diversity Issues	4
6. Supervision	4
7. Salaries and Benefits	2

Comments and Suggestions from PBS GMs/DGMs/AGMs

As part of the HR Assessment a total of 33 respondents participated in this exercise. The respondents are GMs, DGMs and AGMs. The following section is actual verbatim of the comments section of the assessments. Bangla comments are translated in English.

Theme: Staff (Please refer to Items in Section 1 of the Assessment Questionnaire)

- Everything is alright but recruitment process should be done by the PBS, now it is being done by REB.
- Staff Development is the duty of AGM (GS) but he/she is overloaded.
- Another officer should be recruited in GS department for staff development.
- When a staff joins the PBS for the first time they should try to know the job description with orientation course.
- The recruitment process should be more specific and well arranged at a time.
- Frequent changes of direct authority create confusion and mistake.
- Have written job description but that should be clear and be followed by all concerned authority.
- Staff should be given more scope and cooperation to show talent and skill.
- Key PBS staff should be recruited by PBS not REB as per the RE ordinance.
- In REB recruitment process for PBS staff, more accountability and transparency needed.
- Eligible and skilled people should be recruited.
- Personnel recruitment process is defined but not followed.
- Avoiding political influence and enforcement is an urgent need to refine the recruitment process at PBS.
- Staff needs to study and understand their job description.
- Employees can not apply their job description properly and also can not exercise their functions.
- Job description should be translated and made available in Bangla.
- Due to additional work beyond the job description staff could not perform their main tasks.

Human Resources Development
(Please refer to Items in Section 2 of the Assessment Questionnaire)

- Training for the PBS Human Resources is not up to the mark.
- Especially training for the PBS technical staff is very much poor.
- There is no scope of foreign training for the PBS engineers.
- To ensure the quality service to customers training is essential to develop career knowledge.
- A department or section should be opened under PBSs.
- Training given by PBSs should be recognized, currently they are not.
- After training completion the trained person should be given opportunity and time to exercise lesson learned.
- Training is very urgent for employee development.
- More funds should be allocated for staff training plan.
- Skill development for management and front line should be ensured.
- Practically it is not possible to follow the policies that are in place.
- A lot of cooperation from REB is needed to follow the policies.
- Practical and needs based training should be developed in cooperation between REB and PBS staff.
- It is not possible to implement the training as per annul plan of PBS because of lack of time and opportunity.
- It might be feasible to organize regional training for some PBS together.
- Some staff should be given preference for training, who needs it most urgently.
- Staff meeting is regularly held. But more practical issues could be discussed in those meetings. Successful meeting techniques should be discussed.
- Many meetings are done over each month but the feedback and result is not satisfactory.
- Practical and needs based training should be developed in cooperation between REB and PBS staff. TNA was never implemented.
- Staff should be trained at the initial stage after recruitment.
- Departmental training should be organized urgently.
- In Annual Plan training should be increased.
- Needs based training should be organized.
- Spoken English training should be given.
- Computer Training should be organized.
- Manpower with technical know how should be increased.

Salaries and Benefits
(Please refer to Items in Section 7 of the Assessment Questionnaire)

- Every task should be target oriented. And there should be reward for achievement.
- 5% salary deduction for housing on campus is justifiable, currently it is very high.
- House rent should be reduced urgently for the staff who are on duty 24 hours on campus.
- There is no clearly defined salary scale.
- Staff Salaries and Benefit package are not competitive
- There are salary scale in the PBS but not clearly defined and there is contradiction
- Low morale of staff because of non competitive salary and benefits.
- It is mandatory for PBS officers to live on campus but the housing allowance (taken out from their salary) is very frustrating. For example, other power companies pay officers 55% housing allowance and it is not mandatory for them to live on campus.
- Staff Salary should be competitive with other government agencies.
- Staff satisfaction would increase if it is competitive.
- Need to give the attention in promotion and posting the PBS employees.
- Salary and benefits of the staff should be increased to satisfactory level.
- Salary pattern of PBS employees should be as like other organizations in power sector of Bangladesh.
- Salary scale and other benefits should be uniform.
- Motivational bonus should be given.
- All staff are always working. Overworked and no motivation, and rest.
- Beyond PTA bonus other incentives should be discussed.
- Financial incentives should be given for overtime and weekend.
- Beyond PTA bonus other incentives should be discussed.
- For promotion honesty should be a criterion.
- Performance evaluation is not 100% fare. It should be based on day to day performance.
- Promotions and salary increase should be based on performance (personnel file).

Diversity Issue

- For serving the beneficiary better more diversified staff should be appointed
- For the social and cultural aspect of rural Bangladesh some posts should not be considered for women.

General Comments

- Delegation of authorities of PBS management needed to increase to show better efficiency.
- Difference between the REB and PBS has to be minimized and eliminated.
- The performance and accountability of the PBS Board Directors must be ensured and the corruption must be eradicated from them and also from PBS Staff.
- The human factor (in PBS) mainly the needs/wants of the staff must be ensured.

- Conflicts are arising and increasing between PBS staff and REB staff
- RE System reform is very urgent.
- REB and PBS should be one organization not two separate entity.
- PBS Board are becoming corrupted, alternate ways should be discussed to make them accountable.
- Delegation of authority to PBS management from REB should be ensured.
- Practically it is not possible to follow the policies that are in place. A lot of cooperation from REB is needed to follow the policies.
- Enabling environment to work, express opinion and establish the best practice should be developed.

Conclusion and Recommendations from the HR Specialist, NRECA

Overall the Human Resources Assessment at PBSs were satisfactory. The Overall Score is 4, which showcases that "**Needs to improve some aspects, but without urgency".** By exercising its authority and control of the 70 PBSs, the REB controls the governance and financial oversight of the PBSs. Hence the PBSs have very limited authority, autonomy and self-governance. The REB Senior Staff perceives PBS boards as incapable of leadership and capacity to make independent decisions. The educational background of the board members at the PBS level is also questionable. Some of the PBS board members may not have the necessary knowledge, skills and attitude to run a complex organization like PBS. The PBS Board members may be also lacking in their knowledge and skills dealing with member rights and responsibilities. A recent study on the economic and social impact of the RE program in three PBSs (Barkat et. al 2002) finds that about 60% of PBS members have no knowledge or understanding regarding the roles of elected directors. As a result there is a clear conflict between the PBS and the REB Management and Board of Directors. The PBS management (GMs, DGMs, and AGMs) are also very frustrated by the political influence and corruption of some of the PBS board members. Here are some specific recommendations based on the assessment:

Salary and Benefits

OCAT Scores show that the Salary and Benefits need urgent attention. The hiring and promotion process in the PBS is administered by the REB. So is the transfer of employees from one PBS to another PBS, contrary to the PBS by-laws. Furthermore, the REB HR control has been extended to salary levels, much to the detriment of the PBSs. Though the PBS is not bound by government hiring, and initially they were free from all the caps, it is now eroded by the REB's control. From this OCAT exercise it was clear that the Salary and Benefits were the most urgent issues that need to be taken into account. The non-competitive salary at the PBSs is de-motivating the existing skilled staff and is causing them to leave the PBSs. It is also attracting only second or third skill level personnel. As a result, the overall quality of the workforce is declining.

- It is recommended by the staff of the PBSs that the Salary Scale of PBSs should be reviewed as soon as possible and be streamlined with the market.

One other severe issue is housing. The mandatory staff that needs to live on campus is obliged to agree with the salary deduction for their housing from their salary. In the rural setting they could find decent housing that is one fourth or even up to one third of the cost that is deducted from their salaries. This is creating a lot of frustration for the staff. This housing issue

- It is recommended that the housing issue should be discussed as soon as possible. This will decrease a lot of frustration among PBSs Staff and will increase the motivation and efficiency.

Human Resources Development

The OCAT Score clearly shows that Human Resources needs many improvements. Also, from the staff comments it is clear that many of these improvements could be done with **"low cost or no cost."** Some of the issues could be resolved by simply realigning the work load and structures.

- It was suggested that a "Training Department" should be introduced at the PBS level. This training is part of the AGM GS responsibilities' as indicated in their job descriptions. Due to the extra workload and imbalanced distribution of work, this training is not possible or currently practiced by the AGM GS. To revitalize a training department, perhaps more professional development and also recruitment of additional staff may be necessary.
- Many training needs were discussed, which include computer literacy, English language training, business communication training, etc. Some of these could be arranged locally without the REB interference at the local level.
- Basic communication training is needed to increase the efficiency of the management at the PBS level which may include the training of trainers, supervision and monitoring, conduction of meetings, reporting and feedback, etc.

There is some funding available at PBS by which PBSs may purchase training from the REB. But the REB training supplied is much less than the actual demand from the PBS. Also, the wait time for any management training is unacceptable. As a result the senior staff is lacking the basic knowledge and skill sets needed for performing their responsibilities.

- Organizing training at the PBS level in a cost effective way by zonal clusters could be a quick and efficient solution. Outsourcing some of the training to good training organizations in Bangladesh would also have a quick impact without being a large expense.
- Limited funding for training is available but should be increased.

Training given at the PBS level is not recognized by the REB for promotion and recruitment. As a result it is a huge waste of resources of time and funding.

- It is recommended that the PBSs should be given full authority to train and certify participants/staff. The REBs could certify the GMs and the AGMs of the 70 PBSs to be the

Certifiers of those trainings. This will significantly reduce the training load from the REB training division and will motivate the PBS level training and professional development. Support from all PBSs will be needed to implement this and a uniform standard has to be created to control the quality.

Staff

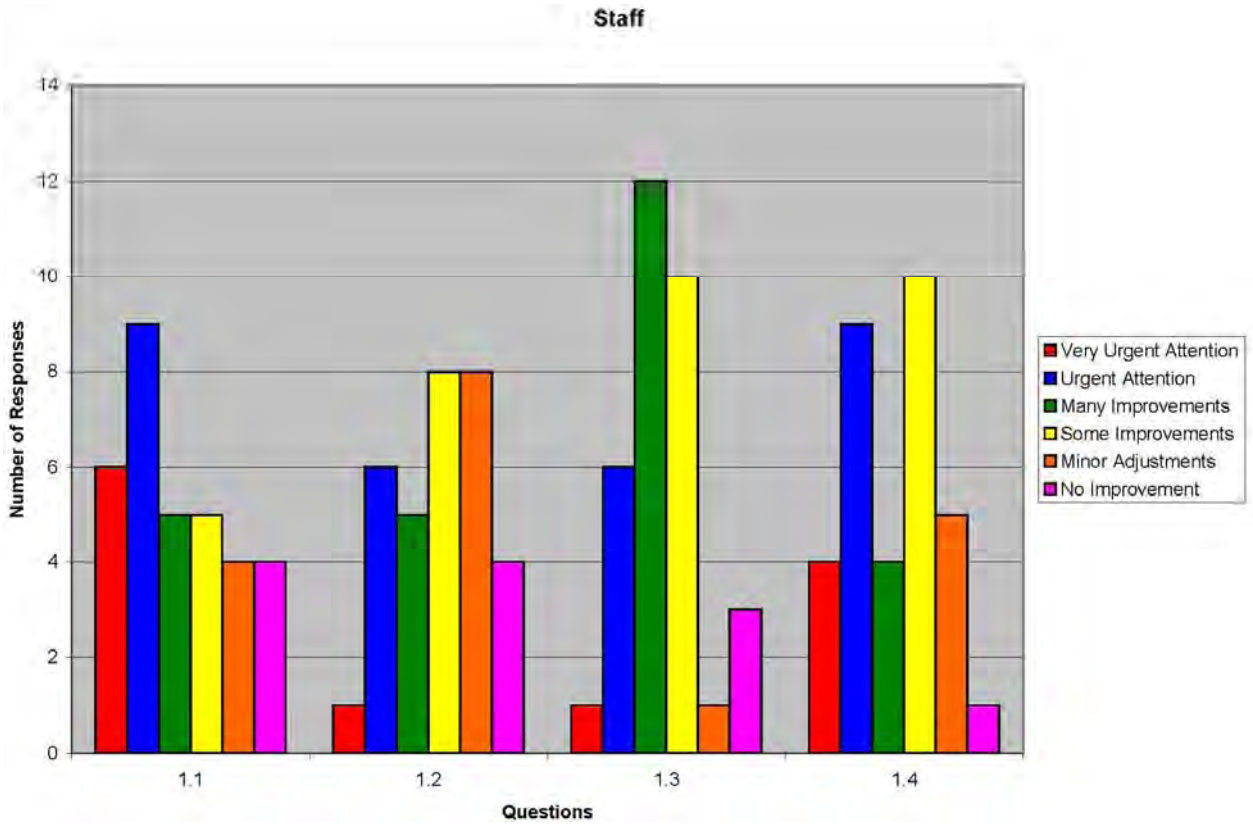
It is clear from the assessment that many PBS staff have never seen their job descriptions, nor understood each task and responsibility that is written in their job description. One reason was the basic orientation for new staff only includes a generic description of the RE program in Bangladesh and each staff never received a thorough orientation about their responsibilities and complete job description. Staff simply learned their jobs by doing, which is great, but they lack the ultimate knowledge about their actual tasks and responsibilities. Pre-Service training is proven to be a vital part of staff development and success.

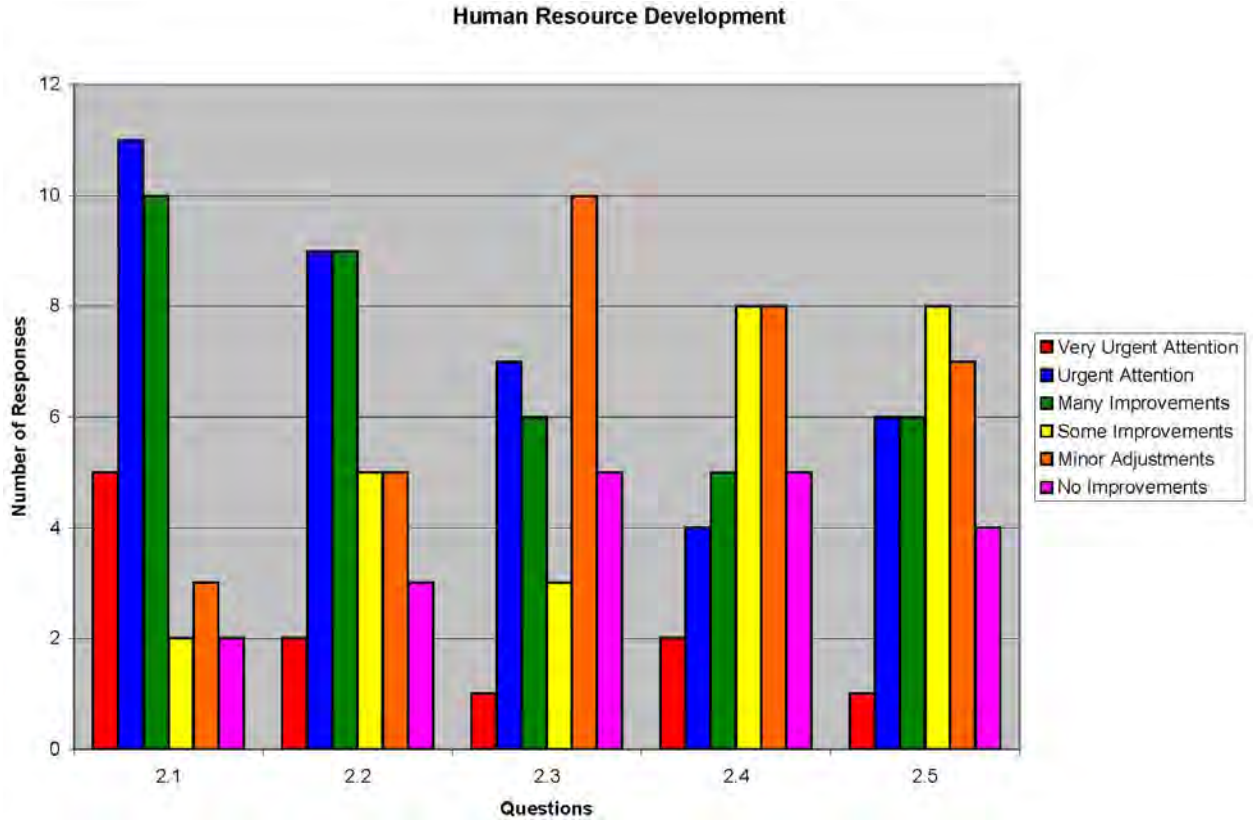
- It is recommended that all job descriptions be translated as soon as possible in Bangla and be distributed to all staff at all levels.
- Secondly, a short orientation session can be organized at all levels to discuss each staff members' job description. This could be organized as a cascade model. The supervisors should be trained first and then they could organize departmental orientations on job descriptions within their departments.
- Also, some simple management techniques could be disseminated by creating learning circles for the staff at the PBS level. These learning circles would work as an ongoing professional development forum.
- It is strongly recommended that the current staff transfers should be suspended for a while, and all positions in the PBSs should be open to allow a full competitive selection of new members. The local influence of the board members on staff recruitment has to stop. This is creating a new layer of complexity within the PBS system. As per the PBS by-laws, all recruitment of the staff should be implemented at the local level.

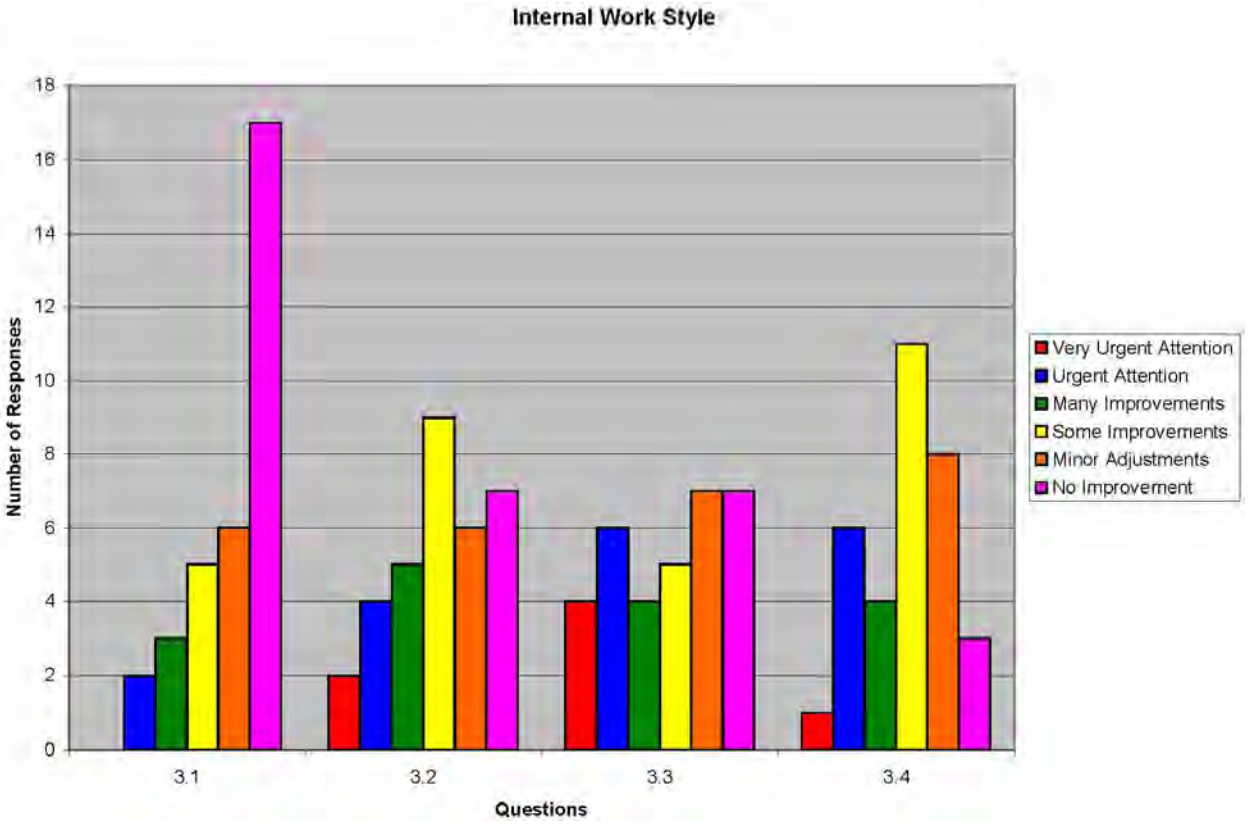
It is worthwhile to reiterate that many of the above changes could be implemented by low cost or no cost methods. Political will and motivation and some resources will be needed to go forward and make the PBS Human Resources more efficient for the 21st century.

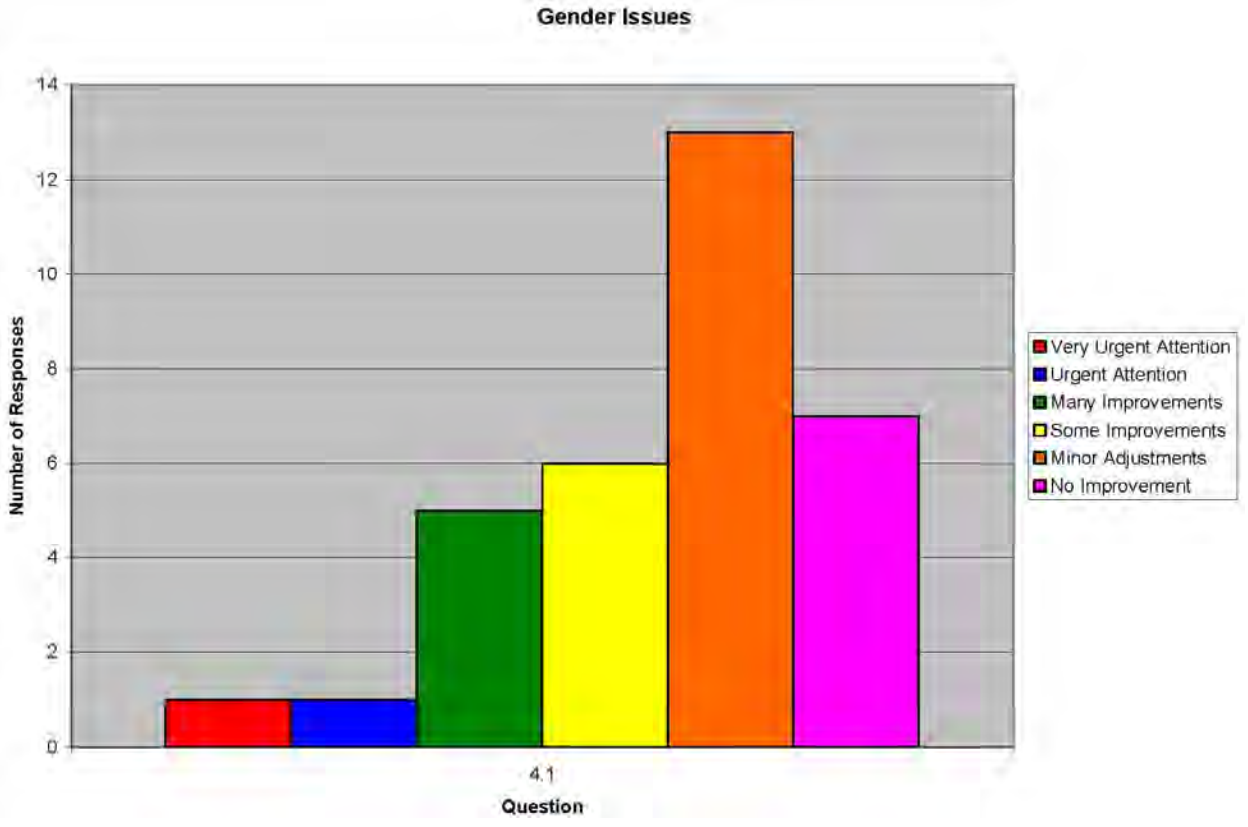
HR Report Appendix

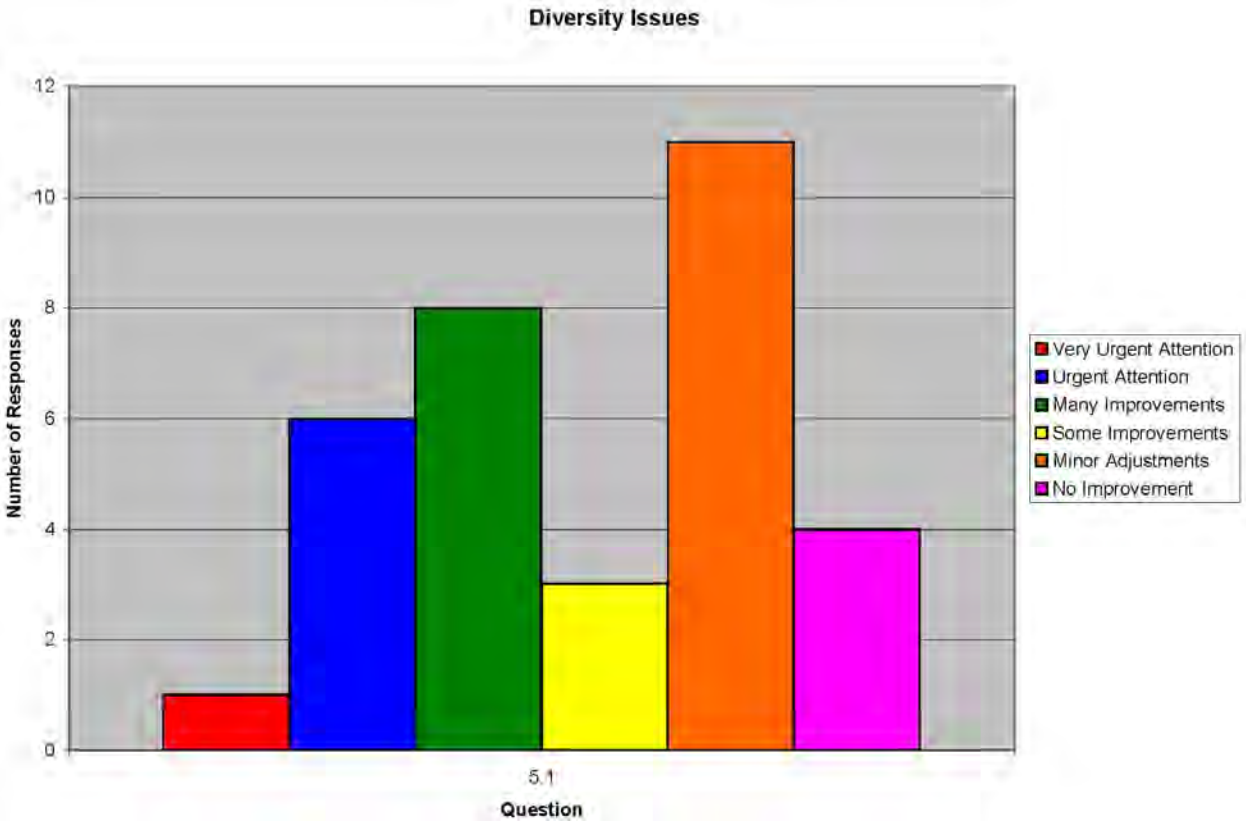
Graphs of Responses
Database of Responses


Staff
Number of Responses
14
12
10
8
6
4
2
0
1.1
1.2
1.3
1.4
Questions
Very Urgent Attention
Urgent Attention
Many Improvements
Some Improvements
Minor Adjustments
No Improvement


Human Resource Development
Number of Responses
12
10
8
6
4
2
0
2.1
2.2
2.3
2.4
2.5
Questions
Very Urgent Attention
Urgent Attention
Many Improvements
Some Improvements
Minor Adjustments
No Improvements


Internal Work Style
Number of Responses
18
16
14
12
10
8
6
4
2
0
3.1
3.2
3.3
3.4
Questions
Very Urgent Attention
Urgent Attention
Many Improvements
Some Improvements
Minor Adjustments
No Improvement


Gender Issues
Number of Responses
14
12
10
8
6
4
2
0
4.1
Question
Very Urgent Attention
Urgent Attention
Many Improvements
Some Improvements
Minor Adjustments
No Improvement


Diversity Issues
Number of Responses
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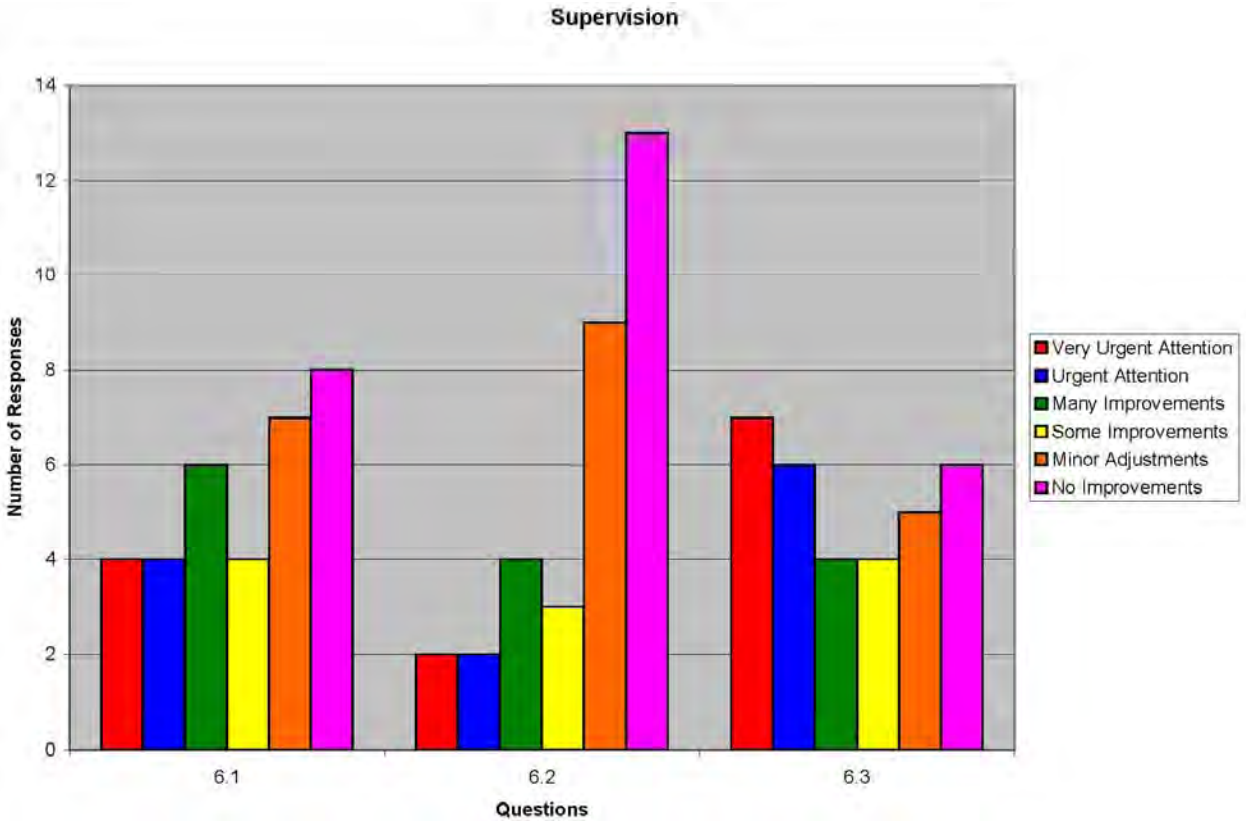
10
12
5.1
Question
Very Urgent Attention
Urgent Attention
Many Improvements
Some Improvements
Minor Adjustments
No Improvement


Supervision
Number of Responses
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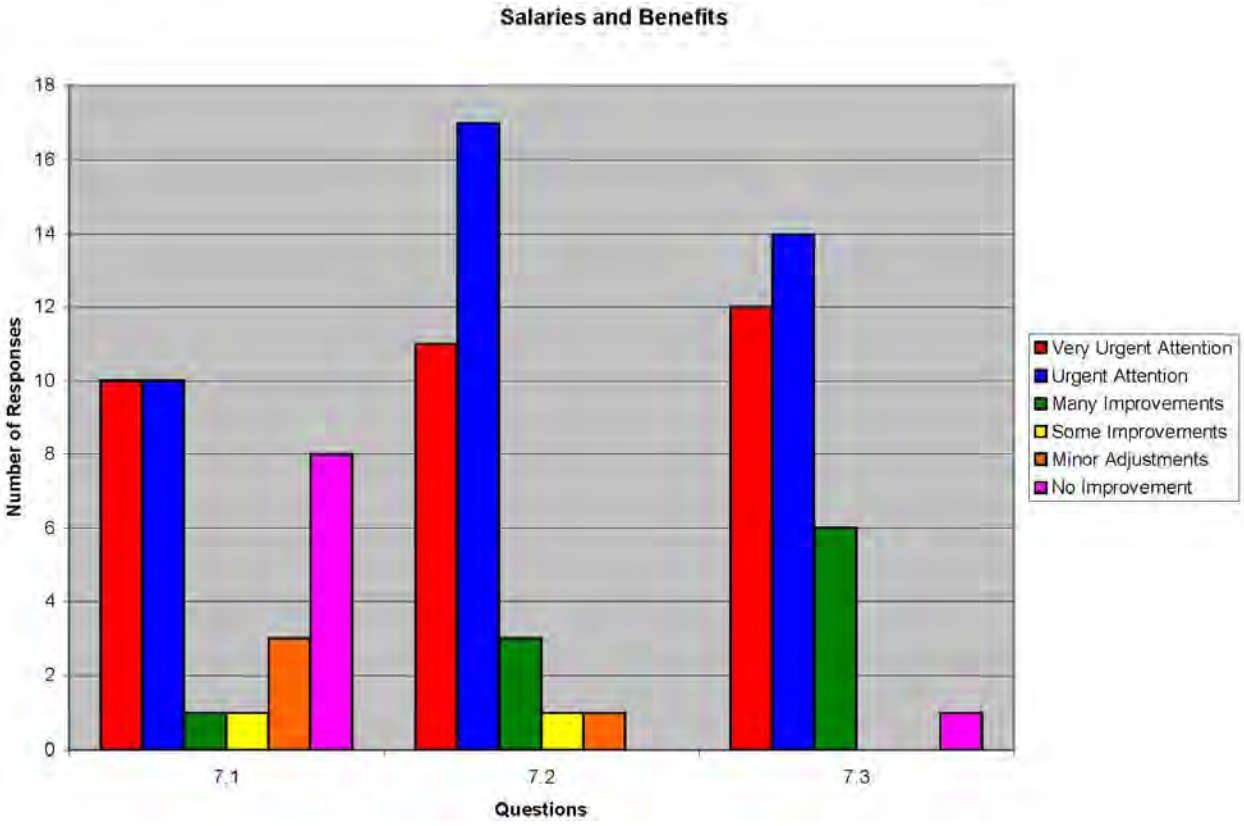
2
4
6
8
10
12
14
6.1
6.2
6.3
Questions
Very Urgent Attention
Urgent Attention
Many Improvements
Some Improvements
Minor Adjustments
No Improvements


Salaries and Benefits
18
16
14
12
10
8
6
4
2
0
Number of Responses
7.1
7.2
7.3
Questions
Very Urgent Attention
Urgent Attention
Many Improvements
Some Improvements
Minor Adjustments
No Improvement

Participant	Q1	1.1	1.2	1.3	1.4	Q2	2.1	2.2	2.3	2.4	2.5	Q3	3.1	3.2
1		2	3	1	2		2	1	2	2	3		6	5
2		2	3	2	2		5	5	4	4	2		4	3
3		3	2	2	2		5	3	2	2	4		6	6
4		4	5	3	2		2	2	2	4	3		5	4
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8		6	6	4	2		2	2	0	0	0		6	6
9		6	6	6	4		2	3	6	6	6		6	6
10		6	6	4	2		2	6	3	4	6		5	6
11		5	0	3	4		3	5	5	4	5		6	5
12		2	6	4	5		3	5	3	3	5		6	3
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30		3	2	3	4		2	2	3	4	1		3	2
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32		1	4	3	5		1	3	3	4	5		2	5
33		6	5	3	2		1	2	3	4	2		3	4
Total		**103**	**124**	**112**	**105**		**92**	**110**	**125**	**127**	**122**		**165**	**133**
Average	***3***	*3.12*	*3.76*	*3.39*	*3.18*	***3***	*2.79*	*3.33*	*3.79*	*3.85*	*3.70*	***4***	*5.00*	*4.03*

Participant	3.3	3.4	Q4	4.1	Q5	5.1	Q6	6.1	6.2	6.3	Q7	7.1	7.2	7.3
1	2	2		2		3		6	6	5		2	1	1
2	2	4		5		2		5	3	2		1	2	2
3	5	6		5		2		5	3	2		1	2	2
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27	4	4		5		5		6	6	5		1	1	1
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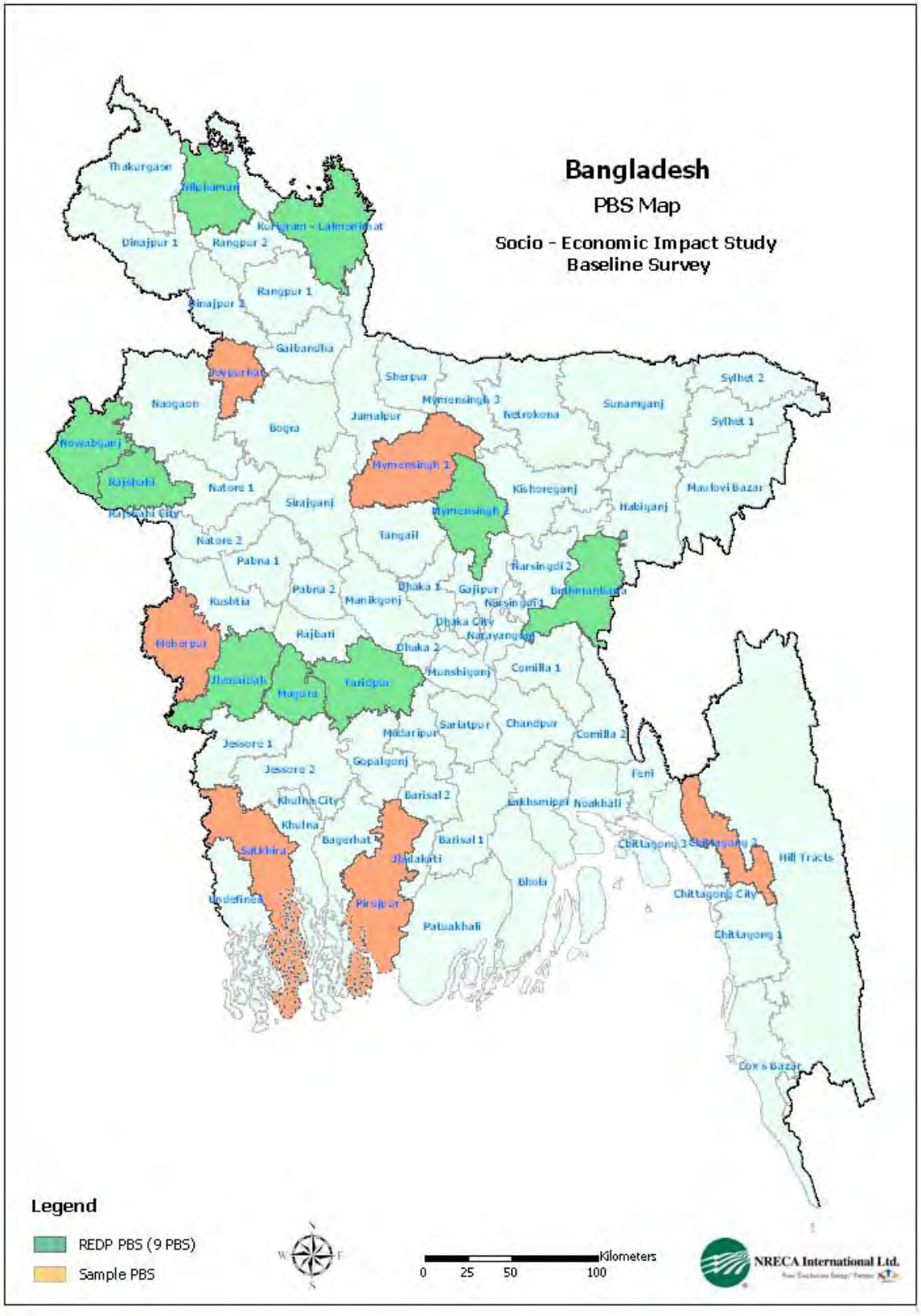
29	4	3		3		5		3	4	1		1	1	1
30	5	2		5		3		5	5	3		2	2	3
31	2	2		3		2		3	6	6		2	2	3
32	1	4		4		3		1	1	1		5	2	2
33	1	4		4		2		1	2	1		6	2	1
Total	**125**	**127**		**149**		**128**		**129**	**153**	**108**		**100**	**63**	**64**
Average	*3.79*	*3.85*	***5***	*4.52*	***4***	*3.88*	***4***	*3.91*	*4.64*	*3.27*	***2***	*3.03*	*1.91*	*1.94*

Annex 5:

Socio-Economic


Bangladesh
PBS Map
Socio - Economic Impact Study
Baseline Survey
Thakurgaon
Nilphamari
Kurigram - Lalmonirhat
Dinajpur 1
Rangpur 2
Rangpur 1
Dinajpur 2
Gaibandha
Joypurhat
Sherpur
Sylhet 2
Naogaon
Mymensingh 3
Netrokona
Sunamganj
Jamalpur
Sylhet 1
Bogra
Nowabganj
Mymensingh 1
Rajshahi
Natore 1
Kishoreganj
Moulovi Bazar
Sirajganj
Mymensingh 2
Habiganj
Rajshahi City
Tangail
Natore 2
Pabna 1
Narsingdi 2
Pabna 2
Dhaka 1
Gajipur
Brahmanbaria
Kushtia
Manikganj
Narsingdi 1
Dhaka City
Rajbari
Narayanganj
Meherpur
Dhaka 2
Munshiganj
Comilla 1
Jhenaidah
Magura
Faridpur
Shariatpur
Chandpur
Madaripur
Comilla 2
Jessore 1
Gopalganj
Jessore 2
Feni
Barisal 2
Khulna City
Lakhsmipur
Noakhali
Khulna
Bagerhat
Barisal 1
Chittagong 3
Chittagong 2
Hill Tracts
Satkhira
Jhalakati
Bhola
Undefined
Pirojpur
Chittagong City
Patuakhali
Chittagong 1
Cox's Bazar
Legend
REDP PBS (9 PBS)
Sample PBS
Kilometers
0
25
50
100
NRECA International Ltd.

SOCIO-ECONOMIC BASELINE SURVEY EXECUTIVE SUMMARY

RURAL ELECTRIFICATION DEVELOPMENT PROJECT: *FROM CONCEPT TO IMPLEMENTATION*

"Rural Electrification" (RE) is not just about light, it entails enlightenment; and at the same time it is one of the most powerful vehicles for reducing disparities between urban and rural areas. The Constitution of Bangladesh has identified the rural electrification as the important means towards accelerating the process of socio-economic and cultural development of the country. Rural Electrification Program (REP) is based on the concept of consumer-owned, Palli Bidyut Samitys (PBSs).The PBSs are organized and registered by the Rural Electrification Board (REB). The development of Rural Electrification in Bangladesh is one of the success stories of rural development in Bangladesh. On this backdrop, DFID of the United Kingdom has committed £50 million to increase the provision of electricity in rural and peri-rural areas of Bangladesh through Rural Electrification Development Project (REDP). The REDP, in its duration of 5 years (2005-2010) is intended to provide 1.35 million new electricity connections to rural households and business, directly and indirectly benefiting up to 10 million people. For implementing REDP, DFID has entered into an agreement with USAID. The National Rural Electricity Cooperative Agency (NRECA) is currently overseeing the execution of these tasks on behalf of DFID. Through covering all the 70 PBSs, REDP provides intensive supports in development of 9 relatively low coverage PBSs along with limited support to rest 61 PBSs.

The main focus of REDP is expansion of electric connections to households, enterprises and others using two approaches: (i) to avail the existing energized electric lines and make connection to those consumers within 100 feet (maximum) distance from the poles/transformers, and (ii) to expand the distribution network with the decisions regarding construction of new lines following REB's established "revenue criteria". REDP intends to have most comprehensive, all encompassing and high precision estimates on socio-economic impact of the project mediated rural electrification using the findings of the (i) Baseline Survey, (ii) Annual Progress Monitoring Review, and (iii) Socio-economic Impact Study for evaluating the socio-economic impact of rural electrification program on development. Here lies the key rational of the accompanying Baseline Survey for REDP.

BASELINE SURVEY: OBJECTIVES

The **overall objective** of the accompanying socio-economic baseline survey is to conduct the survey itself through collecting, collating and analyzing baseline data for all five Observation Measurement Units (OMUs) – Household, Commercial unit, Industrial unit, Irrigation unit, and Social/human development units) – in such a way that all pertinent baseline information will persist for evaluation and measurement of economic and social impact and benefits in later stage.

The **specific objectives** of the survey are:

(1) To assess the pre-electrification livelihood status of the would-be electrified people,

especially the poor people, directly before provisioning of electricity and/or financing, and indirectly prior to availability of pertinent to electricity services in the community;

(2) To assess the access, employment and income-earning opportunities, and assess the state of key human development indicators such as health, education, safety net support; and female empowerment among the poor and female-headed households;

(3) To compare income and livelihoods of the project's future participants against a control group of similar poor people (who will receive no benefits from the project);

(4) To assess the status of non-electrified industrial, irrigation, commercial units, and human development institutions (educational and health).

METHODOLOGY

The baseline survey has been designed with an ultimate aim to serve the relevant purposes of the socio-economic impact assessment study of REDP-mediated rural electrification. Holistically, the accompanying socio-economic baseline survey falls under the true experimental design of operations research. The baseline survey has defined the experimental and control categories as follows: Experimental= Villages with electricity (but sample observation measurement units without electricity) and villages without electricity but to be electrified by 2010; Control = Villages without electricity and not be electrified by 2010. PBS has been considered as the Primary Sampling Unit (PSU). In PBS selection process, all the 9 REDP-thrust PBSs have been included, while 6 PBSs from the remaining 61 non-REDP thrust PBSs have been included.

Five Observation Measurement Units (OMUs) have been incorporated in the accompanying study: Household, Commercial unit, Industrial unit, Irrigation unit, and Social/human development units. The sample PBSs are: Rajshahi, Brahmanbaria, Mymensingh, Magura, Faridpur, Nilphamari, Kurigram, Nawabgonj, Jhenaidah, Meherpur, Joypurhat, Mymensigh-1, Pirojpur, Chittagong-2, and Satkhira.

A total of 6,751 samples from different OMUs were designed to be included in this study for data and information collection. However, the sample size has been changed a bit for some OMUs for some operational reasons- in reality a total of 6,726 samples have been considered. To assess time use and various activities by a household, an additional sampling (not envisaged in the original Technical Proposal) was done where a total of 423 sample survey at household level was conducted.

A total of 9 data collection instruments (DCIs) have been prepared and administered in the survey. These included Interview Schedule for Household (DCI 1), Commercial Unit Questionnaire (DCI 2), Industrial Unit Questionnaire (DCI 3), Irrigation Equipment Questionnaire (DCI 4), Health Facility Questionnaire (DCI 5), Educational Institution Questionnaire (DCI 6), Household Member's Time and Activity Survey (DCI 7), Price Sheet: Food Price at Union Level (DCI 8), and Secondary Data Collection Format: Village Profile (DCI 9).

The team members for data and information collection were grouped into 7 field teams. Each team had 1 Quality Control Officer, 1 Field Supervisor, along with 3 to 6 Field Enumerators.

The field operation (data collection) had been commenced on October 23, 2008 and continued till January 20, 2009. The data were being computerized, using the in-house computer facilities of HDRC. All activities have been closely monitored and supervised by the core-team members in close consultation with members of the Design Team comprising REB, DFID, USAID, NRECA, and HDRC.

Sample Size by Observation Measurement Units		
Observation Measurement Units	**Experimental**	**Control**
Household Survey (covering all indicators)	3,648	1,831
Household Time and Activity Survey	290	133
Irrigation Unit Survey	333	117
Industrial Unit Survey	265	93
Commercial Unit Survey	313	126
Social/ Human Development Institution Survey: Health Service Facility/Provider, Educational Institution/Teacher	25	4
Total	**4,874**	**2,304**

KEY FINDINGS

The key findings based on the analysis of the survey data/information on five Observation Measurement Units namely, Household, Commercial, Industry, Irrigation, Social/Human Development Units are presented below The key findings are presented in the following major areas namely **household** including background characteristics; household's asset ownership; household income; savings and credit; household food consumption; household expenditure; household poverty status; knowledge and awareness on health, hygiene and sanitation; allocation of time of household members; women empowerment and gender issues; migration; access to information, awareness and knowledge; attitude towards household electrification; **irrigation and agriculture; industry; commercial enterprises;** and **social/human development institutions.**

HOUSEHOLD

Household Background Characteristics

Household (HH) is the primary unit of social institution, and almost all the socio-economic activities are being performed around this unit. The average household size is 4.7 in experimental and 4.4 in control households. In both experimental and control, the proportion of male-headed household is 92% and 8% is female-headed. Sex ratio in experimental household is 104.1 and that 100 in control. Sex ratio of 104.1 in experimental implies existence of 'missing women', and 100 in control shows 'no missing women'. The mean age of population is 25.5 years in experimental and 25 years in control household. Slightly over 1% of households

members have been reported as disabled – in both experimental and control.

In the experimental households, the average years of schooling, irrespective of gender, is low at only 2.8 years with no significant variation between male (2.9) and female (2.7). The average year of schooling is 2.6 in control households.

About 21% of total population has been engaged in agriculture related activities (e.g., farming, laborer etc.) in experimental households, which is 16% in control. Day laborer has been pronounced as occupation for around 17% household members in both experimental and control households. A large share of the day laborers is employed in non-agricultural sector (61%) and a relatively less share in agricultural sector (30-40%), in both experimental and control households.

Number of employed person per household in experimental households has been estimated as 2.5 which is 53% of total household members. In control, the estimated number of employed person is 2.4 per household which is 56% of total household members. More than 48% employable persons were full time employed in last year, in both experimental and control households. Partial or seasonal employment has been found among 50% of employable household members in both areas.

In experimental, 8% households have non-resident income earning members which is about 6% in control. Most experimental households (93%) own homestead land, which is 82% in control. However, homestead found dilapidated/broken for about 40% households in experimental and 50% in control. More than half of the total households, regardless of experimental and control do not have any agricultural land. Food security status is relatively better (67.5%) in experimental than that in control households (58%). In terms of almost all the indicators, irrespective of experimental or control, the situation of female-headed households is more deplorable than the male-headed households.

Household's Asset Ownership

A 80% sample households in the experimental electrified villages are landless (owning 0 to 49 decimals). Over two-thirds of the households operational land is owned irrespective of experimental or control households. An experimental households, possess 87 decimals of land of which 70% (61 decimal) is own land and the remaining 30% (26 decimal) is leased in/mortgaged in/rented in land. A control household possess 82.8 decimals of land, of which 71% (58.7 decimals) is own land and the remaining 29% (24 decimal) is leased in/mortgaged in/rented in land. Among experimental households, on average, a household of upper poverty line possesses 122 decimals of land while households of below upper poverty line posses 55 decimals of land. In experimental, a male-headed household possess 89 decimals of land, which is 26 decimals higher than the land possessed by a female-headed household (63 decimals). In control, a male-headed household possess 79 decimals of land, which is 44 decimals higher than the land possessed by a female-headed household (35 decimals).

The average number of dwelling rooms in a household, in both experimental and control is 2 (two). The current market price of a homestead is Tk. 28,302 in experimental and Tk. 19,183 in control. Valuation of movable assets in the households of experimental is higher than that in the

control; an average experimental household possess movable assets worth Tk. 42,629 which is Tk. 8,282 higher than that of the control households (Tk. 34,347). For an experimental household of above upper poverty line, the valuation of household asset is Tk. 57,673 while it is much less among the poor households with Tk. 29,094 for households of below upper poverty line and Tk. 25.798 for household of below poverty line. In experimental, an average male-headed household possess assets worth Tk.43,639 which is Tk. 12,055 higher than the valuation of asset of a female-headed household (Tk. 31,584). This pattern holds true for the control households.

Household Income, Savings and Credit

An average in experimental and control household reported about 4.3 different sources of income. Crop agriculture is the most common source of income, followed by poultry and backyard vegetable production. An average experimental household earns about Tk. 72,000 per annum (last year), while the same for control is about Tk. 60,000.

Agriculture as source contributes highest to the income in both experimental and control households (37% vs. 40%), and is followed by salaries and wage labor (28% vs.33%), and business (23% vs.18%). The foreign remittance is in the fourth position (9% vs. 5%).

Although about 50% of the population is women, the reported contribution of women in household annual net income in experimental and control is 8.7% and 8.4% respectively. About 1.3% (Tk. 1,000) of household annual net income in experimental is being contributed by electricity which is about 0.4% (Tk. 241 only) in the control.

About 86% of experimental and 83% of control households reported to have at least some savings. An average experimental household reportedly have Tk.14, 000 as savings on the day of survey, while the same for control household is about Tk. 9,700.

About 66% and 69% of experimental and control households respectively availed credit during the last two years. An average experimental household received loan/credit of Tk. 16,527 and control household Tk. 14,364.

On average a member in experimental household is living with Tk. 2,173 unadjusted loan burden (equivalent to 48 days of per capita daily net income) while the same in control is equal to Tk. 2,081 (equivalent to 55 days of per capita daily net income).

Household Food Consumption

The average food consumption, irrespective of experimental and control households, is lower compared to the normative bundle of 934 gm per person per day (705 gm and 697 gm respectively.) In terms of absolute quantity of food consumed, rice constitutes 59% in experimental households and 62% in control households. In both the categories of households, vegetables and potatoes with around one-fourth of the total food consumed are in the second position and are distantly followed by fish (6%). The quantity of food consumed by an average woman is about 9% less than that of a man, in both types of households.

Across experimental and control, the average household's daily intake of energy is around 1890

Kcal/person per day, which is 17% less than the recommended by the Bangladesh Nutrition Council normative of 2280 Kcal. Carbohydrate-based energy constitutes around 80% of the energy intake and is followed by vitamin and minerals-based sources (vegetables and fruits).

The low proportion of protein energy intake (around 6%) indicates higher incidences of protein energy malnutrition (PEM) among the members of both experimental and control households.

Household Expenditure

An average experimental household spends annually about Tk. 69,337 as household expenditure, and the same in the control is about Tk.61, 686. Across the categories, the share of food expenditure is about two-thirds of the total annual expenditure of the household.

An average experimental household spends annually about Tk. 44,062 as food expenditure, and the same in control village is about Tk. 39,305. An average person in the experimental and control households spends Tk. 787 and Tk. 734 respectively on food. The food expenditure per women as percentage of male member in an experimental household is about 19 percentage-points less and the same in the control is about 11 percentage points less.

In an average experimental household about 44% (Tk. 361) of monthly food expenditure is spend for rice, 15% for meat/egg, and about 15% for milk, vegetable and puffed rice jointly. Item wise pattern of food expenditure in the control is almost similar to that in the experimental households.

An average experimental household spends about Tk. 26,483 as annual non-food expenditure (Tk. 2,207 monthly and Tk.73 daily), while for the same purpose a control household spends Tk. 22,893 (Tk. 1,908 monthly and Tk.63 daily).

In physical terms, both food and non-food expenditures are low. Among all non-food expenditure heads the spending for fuel constitute the highest proportion, irrespective of categories of observation household (with about 16% and 18% respectively in experimental and control households). For both experimental and control households, the expenses for clothing is about 13% closely followed by health expenses (about 12%), which are about Tk. 265 per month and Tk. 220 per month respectively in experimental and control households. Per household monthly expenses on education in experimental and control are Tk. 137 and 100 respectively.

The basic needs expenses constitute around 81% of the total annual household expenditure across all types of sample households. The share of food expenditure is around 66% and the same for other basic needs is around 15%; and around 19% of total household expenditure is left to meet all the non-basic needs taken together.

An average experimental household, in reality, enjoys about Tk. 44.52 surplus over their daily expenditure and the same for control household is about Tk. 26.31.

Household poverty status household poverty status, due to multidimensional nature of poverty, has been ascertained using the following measures: direct calorie intake (DCI) method, cost of basic needs (CBN) method, international poverty lines, land-poverty or land-poor, poverty based on ownership of other assets, poverty as capability, poverty as access to safety net programs, poverty from view point of self-assessed socio-economic status, and

poverty from view point of crisis coping capability. Poverty rates vary depending on the measurement indicator used.

In terms of **DCI measure** (head count), about 73% of the households – irrespective of experimental and control – fall below the absolute poverty line. Hard core poverty is highly pronounced with 45% experimental households fall below hard core poverty (48.3% among those in the electrified villages and 41.4% in the non-electrified experimental villages). The same is 46.2% in the control households.

Poverty measure using **CBN method** shows that about 53% of all experimental households are situated below the upper poverty line which is 61.4% in case of control households. Estimates for lower poverty line show that about 36% of all households in the experimental and 45% of those in the control fall below this line.

Estimates based on **international poverty line** of US PPP $1 a day per person shows that, 57% of the experimental and 62% of the control households are poor. Poverty rate increases with US PPP $ 2 a day per person threshold – with 88% in the experimental and 91% in the control households.

Land-poverty is highly pronounced among the sample households with 73% in the experimental and 75% in the control households. Also, within the experimental, it is much more pronounced among the non-electrified households in electrified villages (84%) than that among the other category of villages (61%).

Self-assessment of household poverty status has been ascertained using nine broad socio-economic variables: economic, social, housing, health and medicare, education, asset ownership, clothing, food, and women's security. **Self-assessed poverty** status show that overall 29% of the respondents in experimental and about 36% in control households consider themselves to be poor. In the experimental, although the overall poor have been reported by 29% households, the same is higher at about 37% for non-electrified households in electrified villages. Self-assessed poverty was found most pronounced for the variables 'asset ownership' and 'economic', and least pronounced for 'women's security'. Comparison of various poverty measures shows that in terms of "shelter poverty" (housing) is closer to the CBN-based lower poverty line; and that in terms of 'asset ownership' is closer to the CBN-based upper poverty line as well as to the international poverty line of less than US PPP $ 1 a day per person.

Once people are poor and vulnerable they should have **access to safety net programs.** However, 60% of the experimental households and 56% of the control households reported that they have **no access** to safety net programs. Around one-third households reported that at least one member of their household had access to safety net program. Within the overall low coverage scenario, the most pronounced safety net programs reported are "money for education allowance" (reported by 18% in experimental and 16% in control), and "vulnerable group feeding" (VGF). Among safety net programs, access to which are less reported (between 3% and 5%) include 'old-age allowance', 'test relief/gratuitous relief' (TR /GR), and "vulnerable group development" (VGD). The least reported safety net programs (reported by less than 1% household) are "distress women allowance", "freedom fighter allowance", "disability allowance",

"maternity health voucher", "food for work", and "employment for vulnerable women".

During the last two years, 37% households – both experimental and control – reported facing **economic crisis**. Of those who faced such crisis, the most frequently cited crisis reported by over 60% of the households was "high expenditure due to illness", followed by 20% who said crisis due to "loss of crops". Among other crises, which were less reported in terms of frequency but may be much more devastating in terms of cost of crisis include "cyclone/sidr" (reported by 6.3% in experimental and 8.5% in control households), "flood", "land dispute", 'death of livestock'. One of the most devastating for any family is the death of the earning member – this crisis was reported by about 4% households. Among other crisis reported were "loss in business", "theft/robbery", "social injustice", 'river bank erosion', "expenditure for marriage", "funeral costs", "workless", and "loss in fish cultivation".

Around one-fifth of those who faced crisis during the last two years have said that they did nothing to cope with. Among those who faced crisis and did something, 44% in the experimental and 50% in the control households took 'loan' from others to cope the crisis; 28% in the experimental and 31% in the control households mitigated the crisis by "utilizing savings". Among other coping strategies pronounced were "selling of livestock", "mortgaging out land", "selling land", and "selling of durable assets".

Health, Hygiene and Sanitation – Knowledge, Awareness and Practice

Questions related to knowledge and awareness about 20 crucial public health issues pertaining to health-hygiene – sanitation were asked to the adult female respondents. The overall baseline knowledge situation found is bleak. Out of 20 crucial public health issues, knowledge is limited to 5.9 and 5.5 issues, on average per respondent respectively in experimental and control households. Statistical analysis of knowledge of the respondents on public health issues by household poverty status reveals a significant gap in knowledge level between the different stratums. Household wealth is found to have a direct relationship with knowledge level of the respondent.

The sickness pattern is almost identical in experimental and control households. However, some discrepancy is reported in receiving treatment from competent medical providers with 44% in experimental and 37% in control households reported receipts of such treatment. Women/girls are less likely to receive treatment from medically competent providers than male members.

Child delivery (last birth) conducted by medically competent persons is low both in experimental and control households (7% and 5%). As regard to maternal health care in terms of antenatal care (ANC) and postnatal care (PNC) from medically competent providers as well as receipt of tetanus toxoid (TT) vaccine during last pregnancy – all except ANC, are slightly higher in experimental as compared to the control households. In case of ANC, it is equal in both types of households. ANC coverage is higher than national average while PNC and TT vaccine coverage are less than national average.

The full immunization coverage among children aged 12-23 months is modestly higher in control households (77%) as compared to that in experimental (73%). Conversely, vitamin A capsule

(VAC) supplementation to under-5 children is somewhat higher in experimental than in the control households (80% vs 76%). National rural average of full immunization coverage is 80.5%.

The contraceptive prevalence rate (CPR), in both experimental and control households, is almost close to national average. It is slightly higher in experimental than in control (55% vs. 53%). Irrespective of experimental and control, health and family planning workers are the prime contributors to current use of family planning methods.

The mean age at first marriage and age at first pregnancy are 15 and 17 years respectively. More so, average number of pregnancy per woman in experimental households is 3.7 and in control 3.5.

Tube-well is the main source of drinking water. However, use of arsenic- free tube-well is relatively more pronounced in experimental than in control households (60% vs. 55%).

Only a small percentage of experimental and control households currently use sanitary latrine: 14% and 9% respectively – leaving a great challenge of achieving national goal of *Sanitation for All by 2013* (under Vision 2021 of the present government). Statistical analysis for the sanitary latrine user reveals a significant gap between households of different poverty status. Higher the poverty, lesser is the use.

The use of soap after defecation is not a common practice in sample households. Only about 26% households in experimental and 21% in control use soap for washing hands after defecation.

Neonatal, infant, late infant, and child mortality – all rates are higher across the sample households than the comparable national averages. All mortality rates are slightly higher in experimental than in control households. Neonatal mortality in control and experimental households are 54 and 75 per 1000 live births respectively; infant mortality rate is 56 and 80 per 1000 live births respectively. Late infant mortality and child mortality per 1000 live births in experimental households are 25 and 108 respectively, and 22 and 84 respectively in control households.

Education – Literacy, Enrolment, and Quality

Among population aged 7 years and above, the **literacy rate** is 56.6% in experimental and 51% in control households with a gender disparity (disfavoring girls) of about 5 percentage points. Adult literacy rate for the population of 15 years and above is 47% in experimental and 44% in control households with a substantial disparity (9 percentage points) between male and female. Statistical analysis of literacy rate by different household wealth status shows a significant gap in literacy rate between the experimental and control households at different level of poverty status. More so, across the study population, literacy of the males are little higher than the female at all level of poverty status.

By and large, the combined gross **school enrolment ratios** (primary and secondary) are almost equal in experimental and control households with 78% and 77% respectively. Primary gross enrolment ratios in experimental and control households are 93% and 95% respectively.

Secondary gross enrolment ratios are 47% and 43% respectively in experimental and control households.

The **quality of education** has been measured in terms of marks obtained in the last examination, school attendance rate, and school drop-outs. In terms of marks obtained in last final examination, educational attainment across the study households is not high. Nevertheless, high degree (>85%) of school attendance is recorded in both experimental and control households. Although school drop-out across the study households is not remarkable, it is relatively higher in experimental as compared to control households. Moreover, in the experimental households, it is higher among the boys than that among the girls; the opposite is true in control households.

'Kerosene lamp" or "*kupi bati*' is the most widely-used source of light for children's study during after sunset and it is more pronounced in control as compared to experimental households (87% vs. 82%).

Time Allocation of Household Members

The availability and allocation of time is one of the major determinants in shaping the life style for each individual concerned. On average, **an adult male** in experimental households is involved with different type of tasks for a total of 922 minute in a day (15.4 hours in a 24 hour day). In this time span, an adult male is involved for 170 minutes (19% of 922 minutes) as agri and/or non-agri wage labor, followed by agricultural activity (86 minutes; 10% of 922 minutes). If *agricultural activity, agri and/or non-agri labor, rickshaw/van pulling, shop keeping, trading, poultry and animal husbandry, handicrafts and other income generating activities*- all together, termed as 'income generating activities', then it is found that a total of 55% of the time span goes to this category. After sunset (6pm), among the total working time in a day (i.e., 922), a total of 202 minutes (22% of 922 minutes) is used by a male member till sleep. In that 202 minutes 46% time (i.e., 93 minutes) is consumed as leisure, followed by personal task (26% of 202 minutes). It is to note that in that time span 17% time has been used in income generating activities. This trend of time allocation among males in control households is similar to that of male in experimental.

Except for sleeping time at night, on average, **an adult female** gets 917 minutes in a day (1,440 minutes constitute a day where on average an adult female sleeps for 523 minutes; the remaining 917 minutes is used for various activities). That means, on average, a female sleeps for 8.7 hours a day. In her daytime, a female is mostly involved with household works (411 minutes; 45% of her all activities except sleep), followed by leisure (188 minutes) and personal task (174 minutes). From sunset (6pm) till sleep, an adult female in experimental households gets a total of 181 minutes (20% of 917 minutes). This time-span is mostly used for leisure (61 minutes), followed by household work (57 minutes), personal task (39 minutes), and taking care of family members (18 minutes). They, in almost all the cases, do not use a part of this time for any type of income generating activities. This trend of time allocation for female in control households is similar to the female in experimental households.

Excluding sleeping time at night, on average, **a school going child** gets 864 minutes time in a

day (1,440 minutes constitute a day where on average a child sleeps for 576 minutes; the remaining 864 minutes is used for various activities). That means, on average, a child sleeps for 9.6 hours a day. Day time of a school going children in experimental households is mostly consumed by study/attending classes and personal task. On average, a school going child spends a total of 441 minutes for the purpose of study/attending classes. It is interesting to note that children in control villages give a total of 379 minutes for study/attending classes, which is 62 minutes less than that of children in experimental villages. From sunset (6pm) till sleep, a children passes 170 minutes of time (20% of 864 minutes), of which 49% (83 minutes) is used for study, followed by other personal task (27%) and leisure (25%). This pattern of time allocation among children is similar in both experimental and control households.

Women Empowerment and Gender Issues

The empowerment status of women is mixed. Equal distribution of health care and clothing in household among male-female has been reported by majority respondents. However, in almost half of the households male-female are not treated equally in providing education. In around half of the households girls are not encouraged to go to school. In two-thirds of the households dowry is practiced. In only one-third of the households, women take part in decision making process of marriage. Very few women can freely choose occupation and can go outside of *para* for work. Almost no women can participate in local mainstream arbitrations. Getting similar wage irrespective of sex is almost non-existent. The trend of women empowerment on these indicators is similar both in experimental and control households.

The overall status of women's independent decision making practice, irrespective of experimental or control households, is bleak. In most cases women cannot take decision independently or in other words- are not allowed to. The pattern of women's independent decision making status is similar both in experimental and control. Women's mobility situation is mixed. Majority women can go to any part of para/village alone. However, at best half of the women can go to health centre/hospital and children's school unattended. Less than one-third of the women can go for shopping alone; only one-fourth can alone attend CBO/ cooperative/mother's club; almost no women can go to any cultural show (cinema/*jatra*) un-attended.

Almost all women reported that there are cases of verbal abuse towards women in their neighboring households. Around two-thirds reported of battering in their neighboring households, which is indeed very high and matter of serious concern. Dowry related violence is also reported by significant portion of women. *Female child abuse* and *compelling to suicide* has also been reported. Despite low extent of reporting, the presence of abduction, sexual abuse, intimidation at workplace, acid throwing, women trafficking, forced prostitution and homicide in the community is a matter of serious concern. The scenario of violence against women in both experimental and control areas is significantly similar.

Women's overall knowledge status about gender equality issues is not satisfactory. More than one-third women do not know that *dowry taking or giving is a punishable criminal offence*. Around two-thirds of the women are not aware about the *informed choice in use of family*

planning methods. Around half do not know about *women's equal right to vote and participate in election as men*. Over half are not informed that *women have equal access to resources as men*. Two-thirds do not know that *acid throwing, child trafficking, and women trafficking are punishable criminal offence*. Only one-fourth of the women know that *men and women should enjoy equal benefits in terms of employment and wage*. Only about one-fourth women (a 24% in experimental and 21% in control) know the legal age at marriage for boys. Almost all women reported that ideal number of children for a couple is 2 (two). Most women reported that ideal spacing between two child births should be about 5 (five) years. Almost all women believe that proper place for girl's education is school, rather than home. Three-fourths of the women think that unmarried girls should not be allowed to work outside of her village.

Around half of the women respondents (47% in experimental and 44% in control) are member in credit group. On average, a woman respondent from experimental household has taken a credit of Tk. 5,455 in last year. In control, on average a woman respondent has taken credit of Tk. 4,388 in last year, which is Tk. 1,067 less compared to the women in experimental households. In experimental, an woman in male-headed household took Tk. 5,260 as credit in last year, which is Tk. 7,583 for female-headed household. In control, an woman in male-headed household took Tk. 4,680 as credit in last year, which is only Tk. 1,150 for a female-headed household.

A 57% women in the experimental households reported that they have some amount of savings, which is 7 percentage points higher than the women in control households (50%). A 60% woman in experimental households who have some amount of savings can spend the saved money on their own decision. Majority of the women, irrespective of experimental and control, have reported that currently they have savings of less than Tk. 5,000 on average. In experimental an average woman currently has a savings of Tk. 14,107. In experimental, an average woman above upper poverty line (by Cost of Basic Needs Method) currently has savings of Tk. 22,107 which is significantly less among the women in poor households (Tk. 6,933 among women under upper poverty line households and Tk. 5,871 among women under below poverty line households). In control area the trend is almost identical.

Migration

About 11 % experimental households and 8 % control households have reported about out-migration of at-least one member of the household during last two years preceding survey. The average number of members out-migrated is 1 per household among those reported incidence of migration, in both experimental and control households. Respondents reporting in-migration in the household constitute 4% in experimental and 2% in control. In terms of both out migration and in-migration, the incidence is least reported among the poorest households – in both experimental and control households.

"Marriage" is reported as the prime reason for out-migration by 35 % in experimental and 49% in control households; and 67% in experimental and 52% in control households reported the same as the reason for in-migration. Besides marriage, the other reasons for out-migration are – "due to job place", "looking for job", and "education".

Access to Information, Awareness and Knowledge

Access to radio and television is almost similar in low prevalence, both in experimental and control households. Exposure to TV as compared to radio is much more pronounced - in both experimental and control households. About 14 % respondents in experimental and 16% in control households listen to radio. But 30% experimental and 22% control households reported watching TV. In experimental households, 8% respondents listen to radio daily, 3 % at least once a week, and 3% less often. In control, 10% respondents listen to radio daily, 2% at least once a week, and 4% less often. The average time spent per day per household in listening radio is 4 minutes in experimental and 6 minutes in control households. In experimental, about 7% respondents watch TV daily , 4% at least once a week, and 10% less often. In control, 5% watch TV daily, 8% at least once a week, and 8% less often. The average time spent per day per household in watching TV is 4 minutes in experimental and 3 minutes in control.

About 5% households in experimental and 7% in control own radio, while 8% in experimental and 7% in control visit to neighbor's/relative's home for listening radio. About 1% in both experimental and control visit to hat/bazaar for listening radio. About 20% respondents in experimental and 13 % in control households visit to neighbour's/relatives' home, while 3% in both experimental and control visit to hat/bazaar for watching TV.

Regarding the source of news of national and regional importance and important educative information, the majority respondents reported about neighbors/relatives –both in experimental and in control households. Respondents reporting "neighbors/relatives" as the source of news of national importance, news of regional importance, and important educative information constitute 46%, 72% and 34% respectively in experimental, and 48%, 75% and 35% respectively in control households. Respondents reporting TV as the source of news of national importance, news of regional importance, and important educative information constitute 22%, 6%, and 15% respectively in experimental, and 16%, 3%, and 11% respectively in control households. Respondents reporting radio as the source of news of national importance, news of regional importance, and important educative information constitute 9%, 2%, and 6% respectively in experimental, and 12%, 2% , and 6% respectively in control households. About 16% respondents in experimental and 15 % respondents in control households have reported of having no access to news of national importance. About 8% respondents in experimental and 7% of control households reported of having no access to news of local/regional importance. About 36% in experimental and 38% in control households reported of having no access to important educative information.

Attitude towards Household Electrification

A portion of the surveyed households are living in electrified villages and about 91% of these households reported that their neighbors are electrified. The most pronounced reason behind not having electricity in their own household is *financial insolvency* (100%) followed by *delay made by PBS* (58%), afraid of *paying regular electricity bill (11%), and not interested to use electricity (3.1%).*

Almost all the households, regardless of experimental (96%) and control (94%), that they want

electricity reported (demand for electrification). The demand for electricity connection is higher among households above the poverty line than among households below the poverty line, thereby indicating the economic status as an important determinant of demanding electricity connection. The demand for electricity is also higher among male-headed households as compared to female-headed households. *Using electric light* is the most pronounced reason (96%) for taking electricity connection followed by using electric fan (72.5%) in experimental villages; control villages follow similar pattern. *Children get more time with more light for studying* as reason of demanding electricity has been reported by half of experimental households, the same is 42% in control. *Cost effectiveness* has been reported by around 22% of experimental and control households.

Though the major part of the population living in survey area reported their demand for electricity a small section of households ranging between 4% in experimental and 6% in control expressed that they would not be able to take electricity connection at their household. *Financial insolvency* is the mostly reported cause for not taking electricity in both experimental (87%) and control (97%) households.

Only 6% experimental households reported of existence of organizations providing financial support (micro-credit) for getting electricity; the same is known to only 1.4% of control households. Over half of the households surveyed demand *financial support* for getting electricity connection.

IRRIGATION AND AGRICULTURE

The irrigation activities in the sample plots are mostly run by STW and LLP. Majority respondents own STW, with 79% in experimental and 84% in control groups. About 27% respondents in experimental and 16% in control groups own LLP. Only about 3% respondents in experimental and none in control groups own DTW. About 96% of the irrigation units in both experimental and control groups are run in diesel and the rests are run in gas.

The average gross irrigated area is 9 acres per irrigation-unit in experimental and 10 acres per unit in control groups. The average gross irrigated area under DTW is 22 acres in experimental groups. The gross-irrigated area covered by majority of the units ranges between 2.50-7.50 acres (64% in experimental and 57% in control groups). The average net irrigated area per unit is 6 acres in experimental and 5 acres in control groups.

In both experimental and control groups, the average number of breakdowns as reported for last one year preceding the survey is 1.8 per unit. The average number of days lost per unit due to breakdown during last one year preceding the survey is 3.2 days in experimental and 3.1 days in control groups. Total operational cost per irrigation unit per acre of net irrigated area during last one year preceding the survey is estimated to be Tk. 8,140 in experimental and Tk. 9,487 in control groups.

In experimental groups, 90% of the units are used for irrigation of Boro, followed by 58% for Aman, 22% wheat, 18% cornflower, 15% potato, 14% Aus, 13% jute, 13% oilseeds, 13% chili, 10% cauliflower, 9% pulse, 7% sugarcane,6 % guard/pumpkin, 6% radish, 5% brinjal, 5% onion, 4% arum, 3% tobacco, 3% tomato, 2% red amaranth, 2% bean, and 1% cucumber. In the

control group, 94% of the units are used for irrigation of Boro, followed by 66% for Aman, 15% wheat, 13% cornflower, 13% Aus, 8% jute, 7% oilseeds, 7% potato, 7% chili, 6% pulse, 5% cauliflower, 4% guard/pumpkin, 3% .red amaranth, 2% onion, 2% arum, 2% tobacco, 2% tomato, and 2% cucumber, 1% radish, and 1% brinjal.

On average, 1 hired labour and 1 household labour were used per unit on regular basis; and also 1 hired labour and 1 household labour used on irregular basis - in both experimental and control groups during last one year preceding the survey.

In experimental group, the average number of workdays per unit per worker is estimated to be 82 days for hired laourers working in regular basis, 52 days for hired laourers working in irregular basis, 330 days for household labourers working in regular basis, 62 days for household labourers working in irregular basis. In control, the average number of workdays per unit per worker is estimated to be 93 days for hired laourers working in regular basis, 26 days for hired laourers working in irregular basis, 108 days for household labourers working in regular basis, and 67 days for household labourers working in irregular basis. The daily average wage rate per worker per day during last one year preceding the survey is estimated to be Tk. 103 for regular workers and Tk.101 for irregular workers in the experimental group. In the control, those rates are estimated to be Tk. 103 and Tk. 97 respectively.

In experimental group, the yield per acre of land during last one year is estimated at 115 mounds for Boro, followed by 99 mounds for potato, 89 mounds for chilli, 85 mounds for wheat, 80 mounds for Aman, 59 mounds for jute, and 57 mounds for Aus. In control villages, yield per acre of land is estimated at 114 mounds for potato, 85 mounds for chilli, 57 mounds for Boro, 49 mounds for wheat, 43 mounds for Aman, 33 mounds for Aus, and 25 mounds for jute. In experimental group, the Cost Return Ratio (CRR) is estimated to be at 2.4 for Aus, 3.7 for Aman, 2.6 for Boro, 2.3 for wheat, 2.6 for potato, and 1.3 for Jute. In control, the CRR is estimated to be at 1.7 for Aus, 2.2 for Aman, 1.9 for Boro, 2.8 for wheat, 2.1 for potato, and 2.3 for Jute. Cropping intensity of land for all types of unit is estimated to be 187% in experimental and 157% in control groups. The intensity is 431% for DTW (in experimental group). For STW, it is 153% in experimental and 200% in control groups. For LLP, it is 147% in experimental and 135% in control groups.

In experimental groups, the estimated person-days employed per acre of land is 114 in Aus, 99 in Boro, 87 in Chili, 73 in wheat, 58 in Aus, 43 in potato, and 34 in jute. In control, the estimated person-days are 111 in chili, 102 in Boro, 100 in Aman, 70 in jute, 62 in Aus, 38 in wheat, and 37 in potato.

About 95% respondents in experimental and 99% respondents in control groups have reported that they demand electricity. The reasons mentioned for demand for electricity include: cost effectiveness, more land coverage in electricity powered pumps, easy to operate, easy to repair, higher reliability, and better service.

INDUSTRY

Industries, in both the experimental and control groups are mostly owned by male (96% in experimental and 84% in control). Most industries are run usually by family members. Average

number of employees in the industrial units in experimental group is around 4 and that in control 2. Most industries are located far away from the market: 77% in experimental and 92% in control.

No medium and large industries are found in the sample. In experimental group, 66% of the industries are small and the rest 34% are handicrafts. In control, 47% industries are small-scale industries and 53% are handicrafts.

On average, the number of working days and working hours are pretty much similar across experimental and control groups. In experimental, the average working day during last one year is estimated to be 268 and average working hours per day is estimated to be 8. The corresponding figures for control group are 273 days and 8 hours, respectively. Most industries, in both experimental and control, are run manually or by diesel. Two types of laborer are employed in the industries: skilled and unskilled.

About 91% respondents from experimental and about 95% from control groups have expressed their keen interest in taking electricity connection at their industries. Over 90% of the industries currently being non-electrified, irrespective of experimental or control want electricity connection.

In experimental group, total estimated annual income from actual production is Tk. 190,585 per unit with highest possible production at Tk. 266,361. In control, the same is Tk. 82,935 with maximum possible annual production is Tk. 136,276 per unit.

Diesel and rag are the frequently reported fuel used in the industries, in both experimental and control groups. The average expenditure of diesel is 79% of the total average expenditure in experimental, and the same is 88% in control. In experimental, industries spend mostly on wood/trees/khodoi (Tk. 2,608). But in control, industries spend a large part of their money on bamboo/bamboo twig (Tk. 5,152).

Rice-husking, bamboo mats (*"chatai"*), pot, timber, molasses, flour, furniture-making, traditional sweeping brass (*"jharu"*), backery products (*"chanachur"*), spice-processing, loom and embroidery constitute the main products of the industries surveyed. A large majority of the respondents, 78% from both experimental and control groups, reported that they sell their products directly to the wholesale traders.

Around 20 % respondents from experimental group have reported that they have expanded their industries by setting up new plants. At present, the average capital of the industries is Tk. 52,899 in experimental and Tk. 27615 in control groups. Cottage and small industries are reported to be the fastest growing industries in both experimental and control areas. Around 70% respondents from both experimental and control groups have reported that they need credit.

The major problem of the manually-run industries is reported to be the lack of sufficient light at night: 34% respondents in experimental and 37% respondents in control groups. Higher production cost is reported as the major problem for the diesel-run industries in the experimental group (reported by 46% respondents). In control, huge cost on diesel consumption (54%) is the major problem.

Smoke, chemical, and disposal of waste into air are found to be the hazardous elements emitted by the industries.

COMMERCIAL UNITS

Among the commercial units surveyed, 35% in experimental and 26.2% in control groups are located adjacent to the market. The average distance of the commercial units from the market in experimental is 1.2 km and in control 1.7 km.

About 60% of the commercial units surveyed in both experimental and control groups are groceries. The majority of the commercial units with 97 % in experimental and 98 % in control groups are retail shops. In experimental, about 71% of the commercial units use (hurricane) lantern, by 61% use indigenous fan, 39% indigenous lamp, 11% telephone/mobile, 6% radio, 6% battery, 3% TV, and 2% cassette player. Similar pattern is observed in the control in terms of use status of different equipments in their shops.

The average length of business hour is 11hours in – both experimental and control. Regarding whether demands electricity connection at his/her commercial unit, about 94% of the respondents in experimental and 98% in control have reported in affirmative.

Regarding the perceived gains from the electricity connections, respondents mentioned the following: lights will be there; business hours will be extended; electric fan can be used; more customers will come; sales turnover will increase; more profit can be earned; and various new commodities will be sold. Those who have reported not-demanding electricity at his/her commercial units have mentioned the following as the reasons for not demanding electricity: affording electricity is costly; necessity of electricity is not felt; frequent load shedding; and getting electricity connections is troublesome.

On average, the number of off-days per shop per month is 1.8 in experimental and 1.6 in control. About 71% of the units in experimental and 67% in control groups are run by respondents themselves.

The estimated average sales turnover per month per commercial unit is Tk.22,123 in experimental and Tk. 26,344 in control groups. The estimated monthly sales turnover per month per commercial unit after sunset is Tk. 6,217 in experimental and Tk.8, 051 in control, which are 28% and 31% of total monthly sales turnover respectively. The estimated total expenditure for running business per commercial unit per month is Tk. 20,777 in experimental and Tk.22, 916 in control groups (excluding Tax/VAT).

HUMAN DEVELOPMENT INSTITUTIONS – HEALTH AND EDUCATION

Out of 14 **health centres** visited (all without electricity), 13 were from experimental PBS. Health service centres (facilities) covered in the survey include FWCs, UHCs, and NGO Clinics; and health service providers interviewed were Sub-Assistant Community Medical Officer (SACMO), Family Welfare Visitors (FWV), Pharmacists, and Medical Assistants (MA). Three-fourths of the health centres covered were FWCs. Among interviewees around half were SACMOs and one-third FWVs. The interviewee from Control PBS was an FWV.

As for the health services provided currently by services providers, family planning services is provided by almost all, irrespective of experimental and control. In experimental, services to general patients, antenatal care, and postnatal care are available in half of the clinics; maternal and child health services, and normal delivery are available in one-third of the facilities; and EPI services, counseling, supply free medicines and services to under-5 children in others. In control, family planning services, services to general patients, antenatal care, maternal and child health services and postnatal care are available only. The service providers in experimental, on average, provided services to 1,217 patients during last 3 months, and in control it was 3,957. In both the places around two-thirds were general patients followed by family planning clients.

Services which could be provided after electricity connection at the health facilities include normal delivery, IUD, MR and other clinical contraception services through improvement of overall OT services. As there will be light, fan and freeze – the service providers reported of improvement of services to all types of patients and provision of EPI services.

As to the question of who will pay the electricity bill, more than three-fourths of service providers opined that it should be paid by Upazila Family Planning Office (UFPO) and/or Upazila Health Complex.

Out of the 15 **schools** surveyed (all without electricity), the mean number of students in the primary schools and secondary schools are 282 and 325 respectively in experimental schools and 220 and 220 respectively in control schools. The ratio of girls to boys in the primary schools is 101 in experimental and 120 in control schools, and that in the secondary schools is 123 in experimental and 120 in control schools.

As per teacher's statement, the rate of attendance is higher among girls as compared to boys in both primary and secondary schools and in both experimental and control schools. In primary schools, the rates are 85% and 89% respectively in experimental and 85% and 90% respectively in control schools; and in secondary schools, those are 73% and 83% respectively in experimental and 70% and 84% respectively in control schools.

Among those participating at the last year examination at class five in the primary schools, about 78% students in experimental and 88% in control schools appeared successfully. In the secondary schools, those who have appeared successfully at the examination at class eight constitute 88% in experimental and 96% in control schools; and those who have appeared successfully at the SSC examination in last year in the experimental schools constitute 70%.

The average marks obtained by successful candidates at the examination of class five in last

year is 53% in experimental and 60% in control schools. In the secondary schools, the average marks obtained by successful candidates at the examination of class eight are 53% and 44% respectively in experimental and control schools. The average marks obtained by successful candidates at the SSC examination in the last year are 63% in experimental schools.

Out of a total of 15 teachers' respondents, 1 from each of the 15 schools surveyed, all reported that it is not possible to undertake computer course at present due to not having electricity. They opined that the weather is hot during summer season and that if electricity is available, it will be possible to use electric light and fan which can improve students' attendance and attentiveness in learning and also of teachers' attentiveness in class. It is also reported by few that electricity can develop the security status of the educational institution at night and create scope for introducing science education/science laboratory. Some respondents reported that if electric motor is installed it will ensure availability of clean water; cultural programs could be arranged at night; and overhead projector can be used as teaching-learning tool – all these according to most teachers will be instrumental in the overall improvement in the quality of education.

Baseline Survey Summary Statistics

Observation Measurement Unit: Indicators	Experimental	Control
HOUSEHOLD (HH)		
Socio-demographic		
Average HH size	4.7	4.4
Female-headed HH (% total HH)	8	8
Sex Ratio (# male per 100 female)	104.1	100
Mean age of population (yrs)	25.5	25
Disable HH member (% of total members)	1	1
Literacy Rate (among 7 years and above; %)	56.5	51
Adult Literacy Rate (among 15 years and above; %)	47	44
Average years of schooling	2.8	2.6
HH members engaged in agriculture (%)	21	16
HH members engaged in wage-labor (%)	16	17.6
HH employed members (%)	53	56
HH having non-resident income (%)	8	6
Household Asset Ownership		
HH average land possession (decimal)	87	82.8
HH average land ownership (decimal)	61	58.7
HH average valuation of movable assets (Tk.)	42,629	34,347
HH average dwelling space (sq. ft.)	310	269
Household Income, Savings and Credit		
HH average number of source of income	4.3	4.2
HH average yearly income (Tk.)	72,000	60,000
HH average savings (Tk.)	14,000	9,700
HH average credit (Tk.)	16,527	14,364
Household Food Consumption		
HH food intake of energy (Kcal/person/day)	1889	1890
Household Expenditure		
HH annual average expenditure (Tk.)	69,337	61,686
HH annual average expenditure for food (Tk.)	44,602	39,305
HH daily surplus over expenditure (Tk.)	44.5	26.3
Household Poverty Status		
Absolute poor HH: Direct Calorie intake Method (%)	73	73
Hardcore poor HH: Direct Calorie intake Method (%)	45	46.2
HH below upper poverty line: Cost of Basic Needs Method (%)	53	61.4
HH below lower poverty line: Cost of Basic Needs Method (%)	36	45
Poor HH: Using International Poverty Line of <US PPP $ 1/day/person	57	62
Land Poor HH (%)	73	75
HH Self Assessed Poverty (%)	29	36
HH having access to safety net programs (%)	40	44
HH faced economic crisis in last two years (%)	37	37
Health, Hygiene and Sanitation – Knowledge and Awareness		
Treatment received from competent medical providers while sick (%)	44	37
Child delivery (last birth) conducted by medically competent persons (%)	7	5
Full immunization coverage among children aged 12-23 months (%)	77	73
Vitamin A capsule (VAC) supplementation to under-5 children (%)	80	76
Contraceptive prevalence rate (CPR, %)	55	53
Average number of pregnancy per woman	3.6	3.5

Observation Measurement Unit: Indicators	Experimental	Control
HH using arsenic-free tube-well (%)	60	55
Neonatal mortality rate (per 1000 live births)	75	54
Infant mortality rate (per 1000 live births)	80	56
Education – Literacy, Enrolment, and Quality		
Gross school enrolment ratios (%)	72	70
School attendance rate (%)	85	85
Time Allocation of Household Members		
Average work time for an adult male in a day (minutes)	922	898
Average work time for an adult female in a day (minutes)	917	895
Average work time for an school going child in a day (minutes)	864	820
Average time spent by an adult male after sunset (6pm) till sleep (minutes)	202	194
Average time spent by an adult female after sunset (6pm) till sleep (minutes)	181	175
Average time spent by school going child after sunset (6pm) till sleep (minutes)	170	156
Women Empowerment and Gender Issues		
Women empowerment score (out of 100)	47.9	46.7
Women independent decision making status gap (out of 100)	13.7	13
Women mobility score (out of 100)	39.3	37.8
Women knowledge on gender equality issues	47.5	44.4
Women's average amount of credit taken in last year (Tk.)	5,456	4,389
Women having any type of savings (%)	57	50
Women who can use saving independently (%)	60	52
Migration		
Incidence of out-migration during last two years (% HH reported)	11	8
Incidence of in-migration during last two years (% HH reported)	4	2
Access to Information, Awareness and Knowledge		
Respondents reported listening to radio (%)	14	16
Respondents reported watching TV (%)	30	22
HH reported owning radio (%)	5	7
HH reported owning TV (%)	7	5
Average time spent per day in listening radio per respondent (all HH, in minutes)	4.2	5.5
Average time spent per day in watching TV per respondent (all HH, in minutes)	4.2	3.3
Attitude towards Household Electrification		
HH expressed demand for electricity connection	96	94
IRRIGATION UNIT		
Respondents own DTW (%)	3	0
Respondents own STW (%)	79	84
Respondents own LLP (%)	27	16
Average gross irrigated area per irrigation unit (acres)	9	10
Average net irrigated area per irrigation unit (acres)	6	5
Average number of breakdowns per irrigation unit during last one year	1.8	1.8
Average number of days lost per irrigation unit (due to breakdown) during last one year	3.2	3.1
Total operational cost per irrigation unit per acre of net irrigated area during last one year (Tk.)	8,140	9,487
Yield of Aus during last one year (per acre, in maund)	57	33
Yield of Aman during last one year (per acre, in maund)	80	43
Yield of Boro during last one year (per acre, in maund)	115	57

Observation Measurement Unit: Indicators	Experimental	Control
Yield of wheat during last one year (per acre, in maund)	85	49
Yield of Potatoe during last one year (per acre, in maund)	99	114
Yield of Chili during last one year (per acre, in maund)	89	85
Yield of Jute during last one year (per acre, in maund)	59	25
Cost Return Ratio of Aus	2.4	1.7
Cost Return Ratio of Aman	3.7	2.2
Cost Return Ratio of Boro	2.6	1.9
Cost Return Ratio of Wheat	2.3	2.8
Cost Return Ratio of Jute	1.3	2.3
Cost Return Ratio of Potatoe	2.6	2.1
Cropping intensity of land under irrigation per irrigation unit (%)	187	157
INDUSTRIAL UNIT		
Average number of employees per industrial unit	4	2
Average number of working days during last one per industrial unit	268	273
Average working hours per day per industrial unit	8	8
Average expenditure of diesel as percent of total average expenditure	79	88
Average amount of money spent on wood/trees/khodoi (Tk.)	2,608	5,152
Average capital of industries (Tk.)	52,899	27,615
Respondents expressed interest in taking electricity connection (%)	91	95
COMMERCIAL UNIT		
Average distance of commercial units from market (Km)	1.2	1.7
Average length of business hour (in hour)	11	11
Number of off-days per month per unit	1.8	1.6
Average sales turnover per month per unit (Tk.)	22,123	26,344
Average sales turnover per month per unit after sunset (in Tk.)	6,217	8,051
Respondents expressed demand for electricity connection	94	98
SOCIAL/HUMAN DEVELOPMENT INSTITUTIONS – HEALTH AND EDUCATION		
Number of patients received services per health unit during last 3 months	1,217	3,957
Rate of attendance in primary schools (Boys)	85	85
Rate of attendance in primary schools (Girls)	89	90
Rate of attendance in secondary schools (Boys)	73	70
Rate of attendance in secondary schools (Girls)	83	84
Students appeared successfully at the examination of class five in last year (in primary schools, %)	78	88
Students appeared successfully at the examination of class eight in last year (in secondary schools, %)	88	96
Students appeared successfully at the SSC examination in last year (in secondary schools, %)	70	-
Mean numbers obtained by successful candidates at the examination of class five in last year (in primary schools, %)	53	60
Mean numbers obtained by successful candidates at the examination of class eight in last year (in secondary schools, %)	53	44
Mean numbers obtained by successful candidates at the examination of class five in last year (in secondary schools, %)	63	-

MONITORING REPORT
RURAL ELECTRIFICATION DEVELOPMENT PROJECT

1. RURAL ELECTRIFICATION DEVELOPMENT PLAN: BACKGROUND, PURPOSE, STRATEGY AND MODUS OPERENDI

Access to affordable and reliable electricity is a key requirement for both economic development and poverty reduction[5]. About 76% of the population in Bangladesh is residing in rural areas. REB Bangladesh is playing pivotal role for rural electrification through PBS (Palli Bidyut Samity) network. However, over 50% of rural Bangladesh has no access to electricity[6]. At this outset within the Government of Bangladesh's (GoB) Second Rural Electrification Master Plan (2000 – 2020), a multilateral project titled "Rural Electrification Development Project" (REDP) has been undertaken by GOB, UKAID (formerly known as DFID) and USAID to increase the provision of electricity in rural and peri-rural areas of Bangladesh, aiming at financial support for electricity network expansion and intensification. The REDP with its duration of 5 years (2005-2010) is intended to provide 1.35 million new electricity connections available to rural households and businesses, directly and indirectly benefiting up to 10 million people. Through covering all the 70 PBSs, REDP provides intensive supports in development of 9 relatively low coverage PBSs (Rajshahi PBS, Brahmanbaria, Mymensingh PBS-2, Magura PBS, Faridpur PBS, Nilphamari PBS, Kurigram PBS, Nawabgonj PBS, Jhenaidah PBS) along with limited support to rest 61 PBSs.The overall design of REDP reach is shown in Figure 1.

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[5] Abul Barkat, SH Khan, M. Rahman, S. Zaman, A Poddar, S Halim, NN Ratna, M Majid, AKM Maksud, A Karim and S Islam (2002). "Economic and Social Impact Evaluation Study of the Rural Electrification Program in Bangladesh". Human Development Research Centre, prepared for NRECA International Ltd (partners with the REB & USAID for the Rural Power for Poverty Alleviation (RPPR) Program) Dhaka; September 2002.

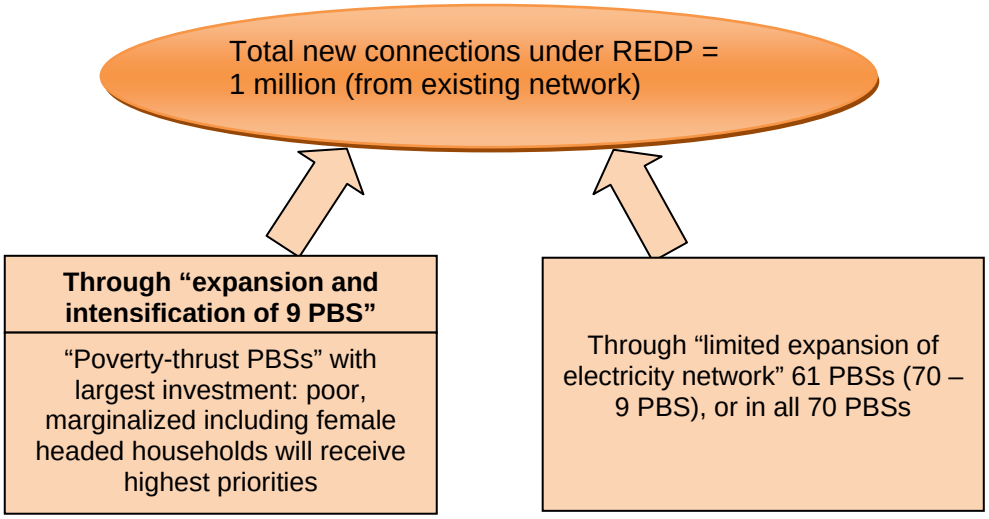
Abul Barkat, SH Khan, B Rahman, R Ara, M Hoque, A Poddar, S Zaman (2003).`Case Study Evaluation of Rural Electrification Project (ACRE IV-C): Catalytic Role of Electrification in Rural Development and Poverty Alleviation', funded by Japan Bank for International Cooperation (JBIC), 2003.

Abul Barkat (2004), Rural Electricity Cooperative's Provisioning of Electricity in Rural Bangladesh: A Case of Multi-stakeholder Partnerships, presented at UNESCAP Expert Group Meeting, Thailand, Chiang-Mai, 24-26 March 2004

Abul Barkat (2005) "Access to Electricity in Rural Bangladesh: Empirical Evidence of Socio-economic Impact" paper presented at Asian Regional Workshop on Electricity and Development, organized by Asian Institute of Technology (AIT), Global Network on Energy for Sustainable Development (ENESD), sponsored by, United Nations Environment Programme (UNEP), UNEP Risoe Centre (URC), United Nations Development Programme (UNDP) and International Energy Agency (IEA).

[6] Abul Barkat, A. Poddar, M.Rahman, A. Osman, S. Khan, S. Zaman, S Halim, G Mahiyuddin, M. Badiuzzaman, M. Majid, (2009). "Socio-economic Baseline Study of the Rural Electrification Development Project (REDP)". Human Development Research Centre, prepared for NRECA International Ltd (partners with the REB DFID & USAID) for the Rural Electrification Development Project (REDP) Dhaka; August 2009.

Figure 1: The overall design of REDP reach



The REDP has planned to fund four main components: (1) an investment component, (2) a microfinance component for the poorer segments[7] (improving the condition of the poor is one of the key objectives of UKAID within Bangladesh), (3) an education and awareness building component, and (4) supervision and monitoring component, including conducting baseline survey, impact study and annual progress review monitoring. As a part of the REDP strategy, 1 million new consumers has been planned to be able to receive electricity from the project in reaching the target, the REDP has set major thrust on the selected 9 "low coverage PBSs".

The REDP focuses on expansion of electric connections using two approaches: (i) to avail the existing energized electric lines and make connection to those consumers within 100 feet (maximum) distance from the poles/transformers, and (ii) to expand the distribution network with the decisions regarding construction of new lines following REB's established "revenue criteria". Therefore, the progress of new connections has been envisaged to depend mostly on providing shorter new lines in the electrified areas as well as the progress in the extension of lines in new areas.

As per the plan, the micro financing activity; providing the poor households with small loans to pay to meet the expenses of wiring of homes (according to REB standard) and to cover the initial fees associated with becoming a PBS member and taking a connection; has been implemented in Brahamanbaria PBS through a Partner Organization (PO) of PKSF: Padakhhep. In addition, loans for income generating activities (IGAs) have also been made available to this target population using the same channel. However, after review in 2008, the microfinance component has been limited to 2000 households only in Brhamhanbaria PBS as a pilot, and in 2009, the component has been disassociated from REDP.

[7] After review in 2008, the microfinance component has been limited to 2000 households only in Brhamhanbaria PBS as a pilot.

2. OBJECTIVES AND METHODOLOGY

The **Objectives** of the interim review is to (a) assess the progress of the project made so far, and (b) identify both negative and positive factors and also the missing elements which are influencing the implementation of the project.

Both quantitative and qualitative approaches have been undertaken to address the objectives of interim review. Four PBSs have been purposively selected as the review locations, which includes three REDP Thrust PBSs (including the micro-finance pilot Brhamhanbaria PBS, Mymansingh 2 PBS, Kurigram PBS and one from 61 REDP Non-thrust PBSs (Joypurhat PBS)[8]. Altogether 120 households have been surveyed using the thumb rule of 30 samples in each of the selected PBSs. The selected households have been chosen from those households who participated in the baseline study as respondents. The household survey sample included both electrified households under REDP and non-electrified but eligible for electrification households situated in both electrified before REDP but selected for intensive expansion and villages electrified under REDP planned as areas for extensive expansion.

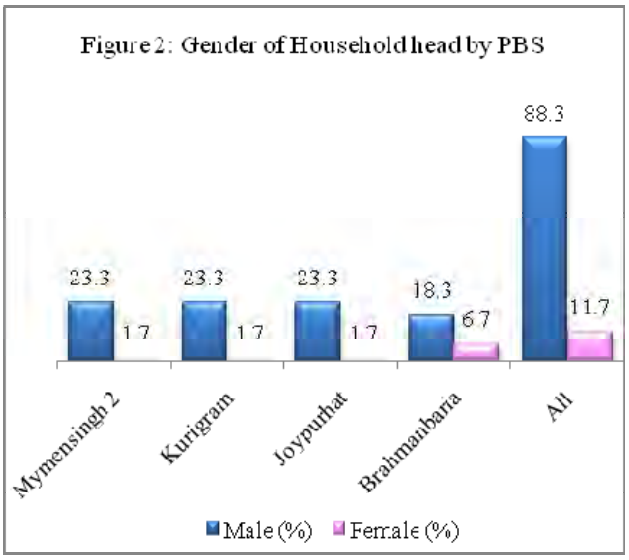
Besides household survey four group discussions (GDs), one in each PBS, have been administered involving PBS managerial and other relevant staff.

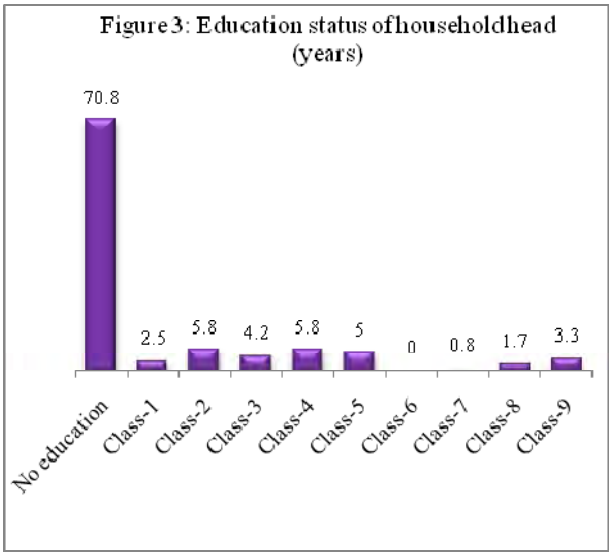
The review has been jointly conducted by NRECA International (NRECA) and Human Development Research Centre (HDRC). The field data collection was held in February – March 2010. The generated quantitative data has been processed using SPSS, while the qualitative information has been analyzed using appropriate procedure for qualitative analysis.

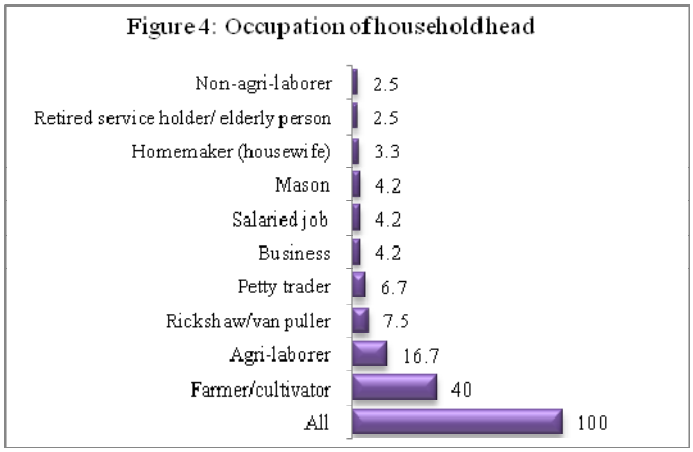
3. CHARACTERISTICS OF HOUSEHOLD SURVEY RESPONDENTS

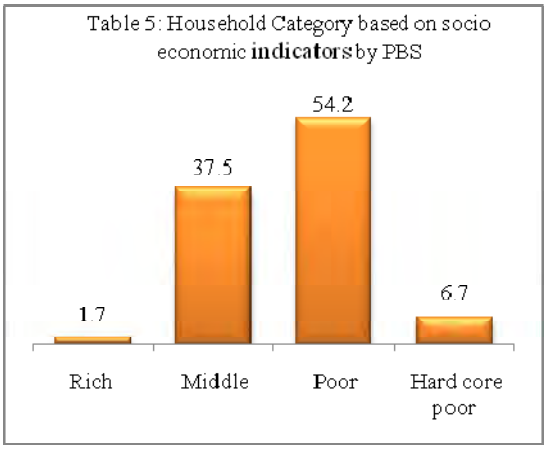
The heads of sample households have been interviewed during the survey. About 88% of the respondents are males while about 12% are females. It is worthwhile to note that in Bramhanbaria, about 7% of the respondents are females, which indicates to footprints of micro-credit mediated electrification approach of the PO (*Padakhhep*). As regard to educational attainment about 71% has never gone to any school, while around 10% has 5 or more years of schooling. By occupation about 40% of the respondents are farmers, 19% labor (including 17% agricultural labor) and about 11% is related with trading (including 7% petty trading). Categorization households' poverty status made using the baseline data shows that overall about 60% of the all the respondents are poor (including 7% hard core poor).

[8] The Baseline study covered 9 REDP thrust PBSs and 6 out of other 61 PBSs. In the monitoring review 3 thrust and 1 from rest of the PBSs have been chosen for data/information collection.



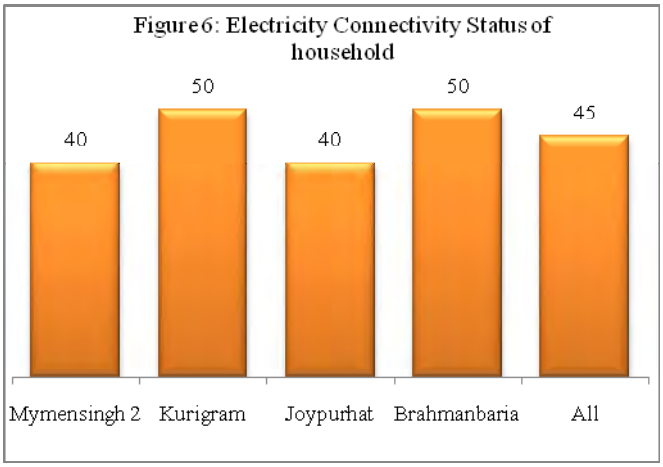






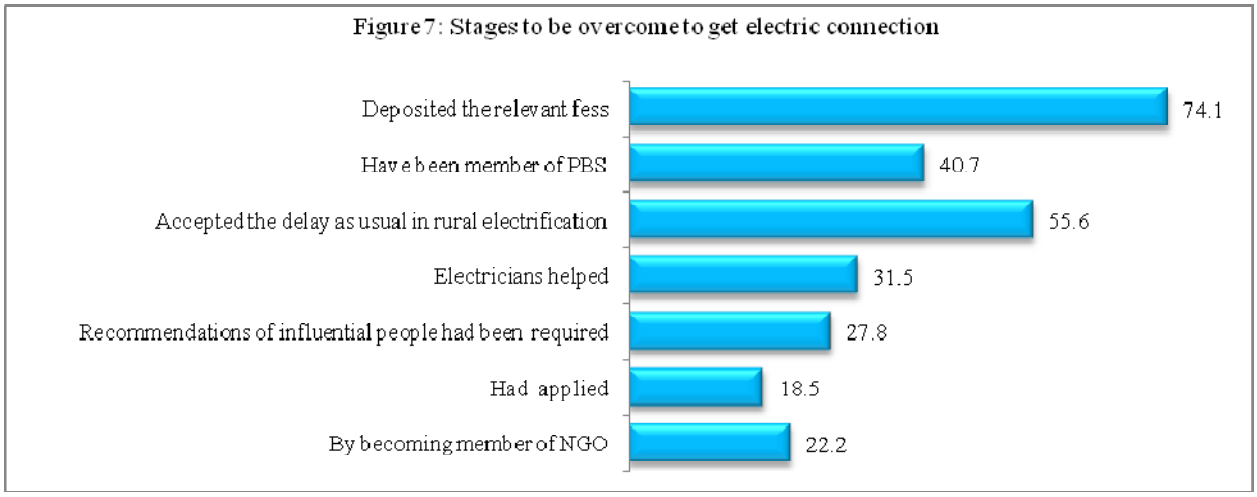
4. INFORMATION ON ELECTRIFICATION

It is worthwhile to mention that the start-up period of REDP has taken much longer time than it was planned. Moreover, the Caretaker Government imposed ban on providing new connections during for about a year, and that in its turn has also delayed the implementation of REDP. However, the ban was with drawn in mid 2008. The interim monitoring has generated data on status of new household connections under REDP in sample PBSs through surveying the eligible household using the list of household visited during the baseline survey. It is revealed that altogether around 45% households surveyed has received connection.

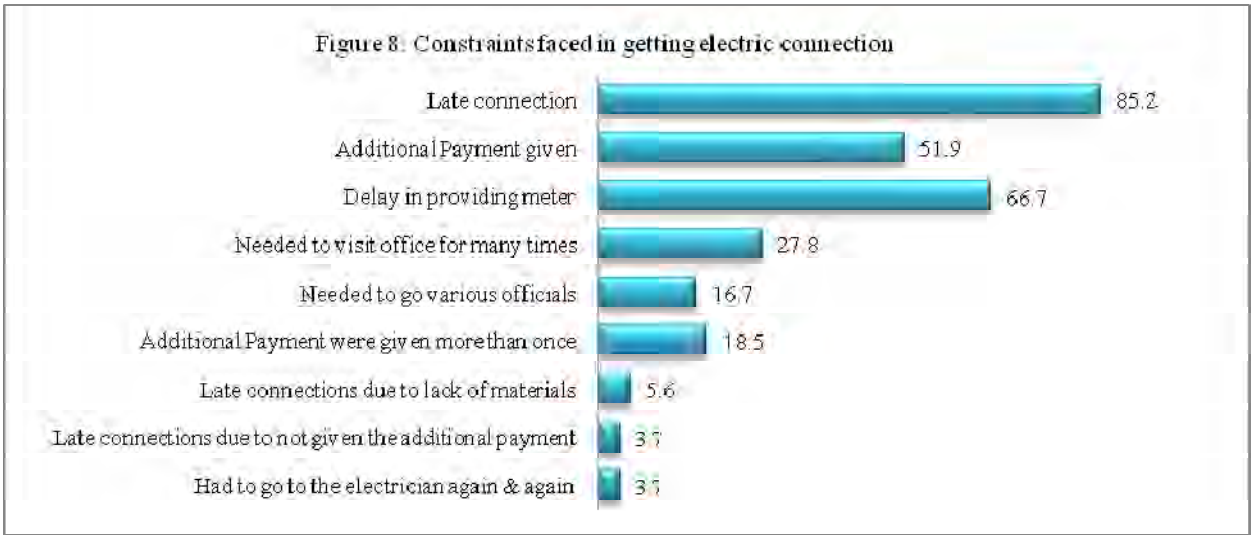


The households have been asked to spontaneously remember the stages that they have to overcome during the process

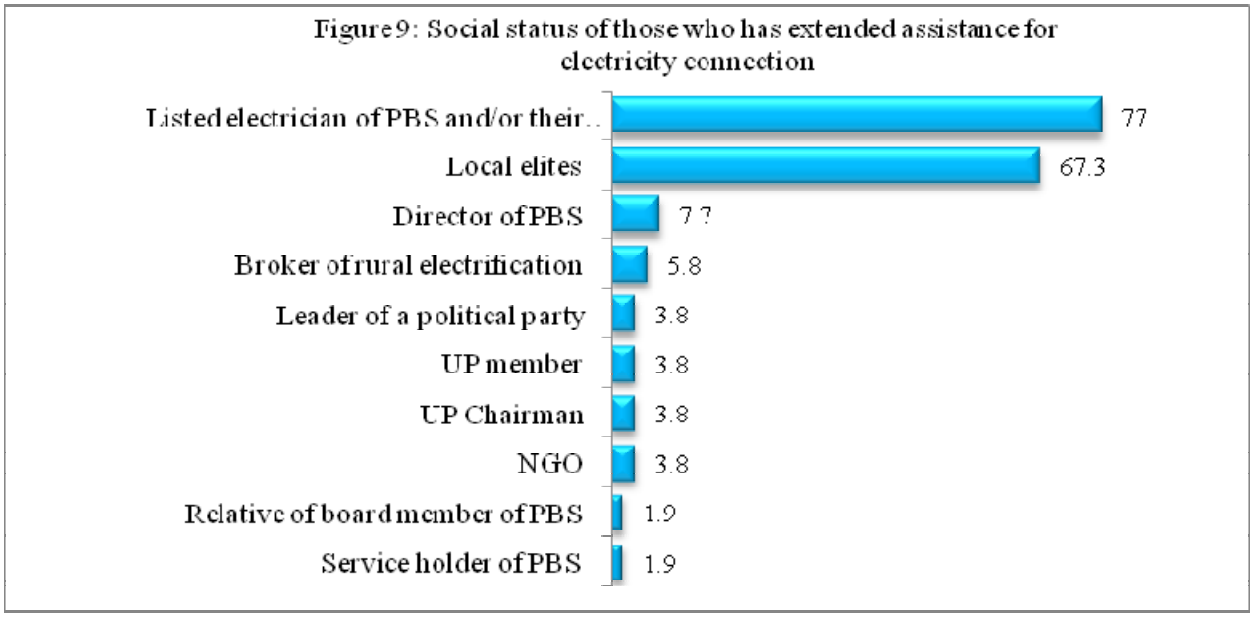
of getting electric connections. About 74% has mentioned about depositing money, 56% has taken the delay as usual part of the process and 41% has said that they became members of PBS. However, it is to note that about 31% has informed that local electricians *'helped'* them in getting the connection, and 28% reported of need for recommendations of influential.



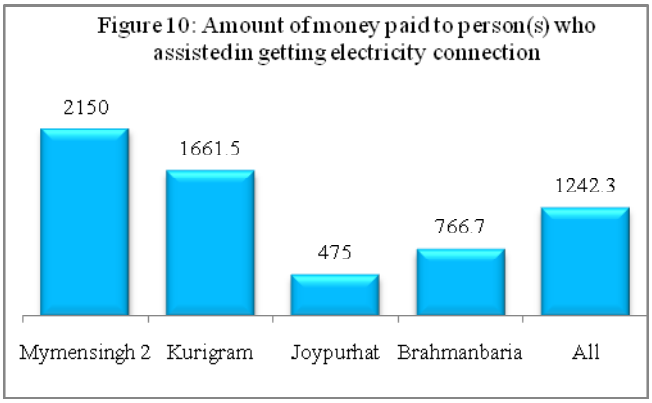
When asked about constrains faced in getting connections, respective households reported of numerous constrains. About 85% has reported of late connections, and 67% has complained about delay in providing meter. It is worth to point out that while about 28% has mentioned about need to visit PBS Office many times, 52% has stated that they had to give additional payment for getting connection. It is to note that respondents from Brahmanbaria and Mymensingh PBSs have more frequently complained about giving additional payment incidences (60% and 58% respectively). About 17% has complained that they need to visit various officials at PBS and 18% mentioned of giving the additional payment more than once. About 4% has got connections late as they did not paid any additional payment and similar proportion has to go to electrician again and again.

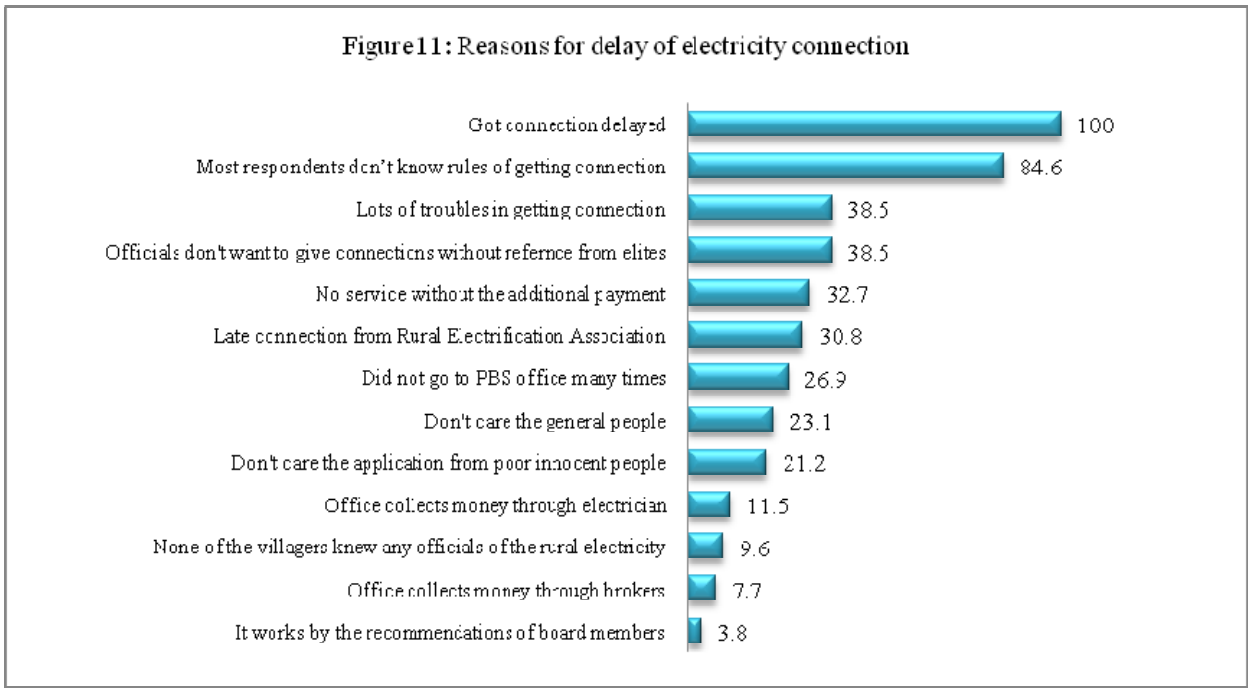


The interim monitoring within its purview has included the issue related to social status of those who have extended assistance to the respondents. Analysis reveals that in about 67% instances, the local elites have extended their assistance, while for about 77 % it is the listed electricians of rural electrification association. The investigation further reveals that the political interference in getting connections in REDP areas is low (less than 4%). About 13% respondents from Brahmanbaria have stated that NGO officials have helped them in getting electricity.



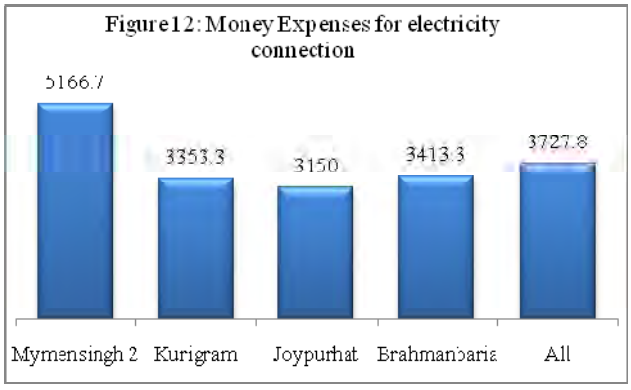
Investigation shows that on average the newly energized households have to pay BDT 1,242 to person(s) who assisted in getting the connections. However, it has been appeared that respondents from different PBSs have reported of different amounts. The respondents from Joypurhat have reportedly paid BDT 475 only, in Brahmanbaria have paid BDT 767, and in Mymensingh-2 the amount is BDT 2,150.





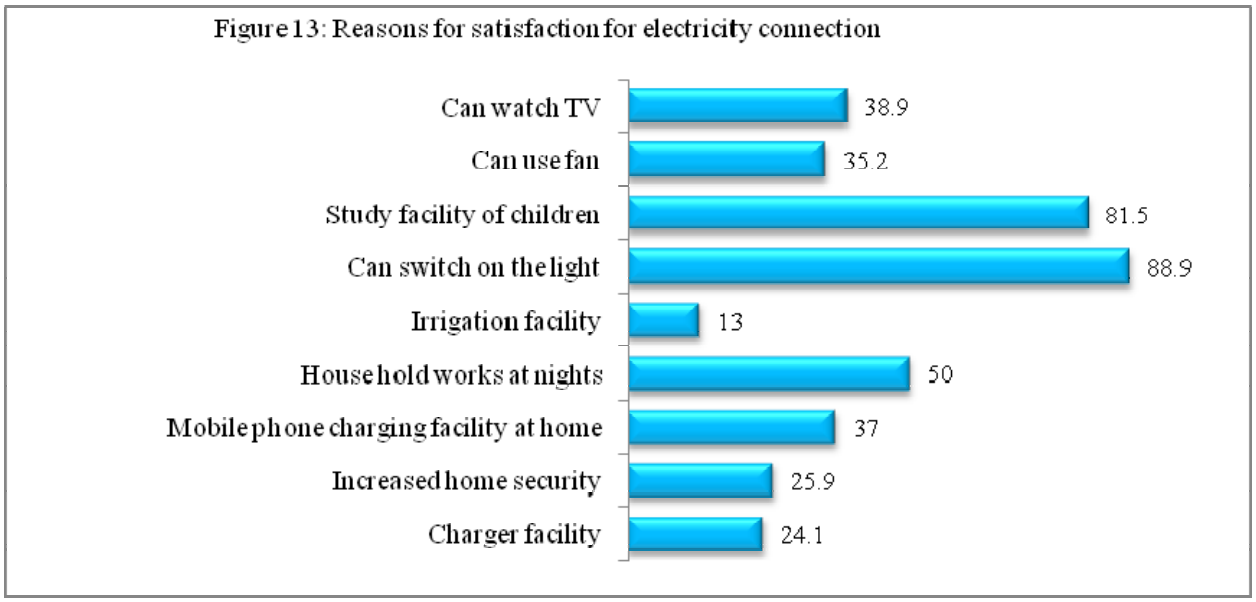
All the households[9] who have been connected under REDP complained of having delayed connection. A very large proportion of those who reported of having connection late have stated they do not know the rules of PBS for getting connection (85%). However, over 52% relates the delay with the additional payment. Again about 83% has mentioned the delay in getting the connections related with the fact that the PBS officials do not care the common/poor people (45%) and/or do not want to give connections without reference from the elites (38%).

The respondents have been asked about total amount of expenses that the household has to incur for getting connection. It reveals that altogether an average household has to spend BDT 3,728 for the purpose of becoming electrified (ranging between BDT 3,150 in Joypurhat and BDT 5,167 in Mymensingh). However opportunity cost is not included in the average spending for household electrification estimation.

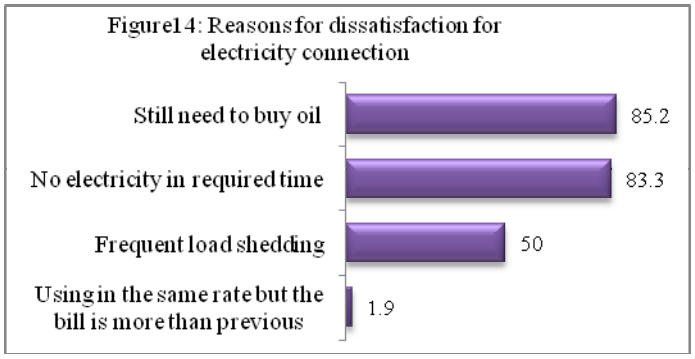


When enquired about reasons for satisfaction of having electricity, about 89% of connected under REDP households have stated that they can switch on light, 81% has said that children study after dark, and 50% has mentioned that they can perform household work at night. Other reasons include: can use fan (35 %), can charge mobile (37%), has increased security (26%), etc.

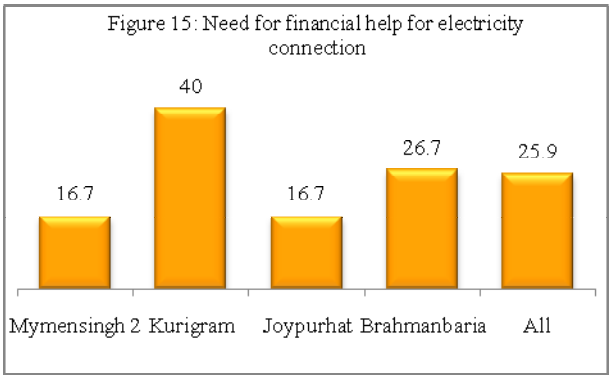
[9] 54 households out of 120 (45%)



However, a large number of the connected under REDP households have expressed their disappointment. About 85% complained that after having electric connection they still need to buy fuel for illumination purpose, moreover, 83% has reported that there is no electricity in required time, and 50% has mentioned about frequent load shading.

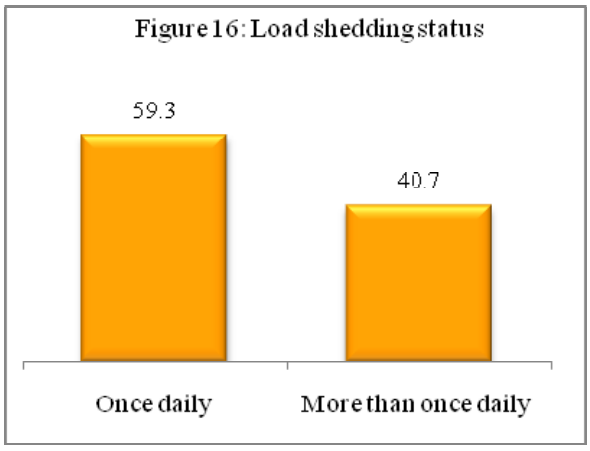


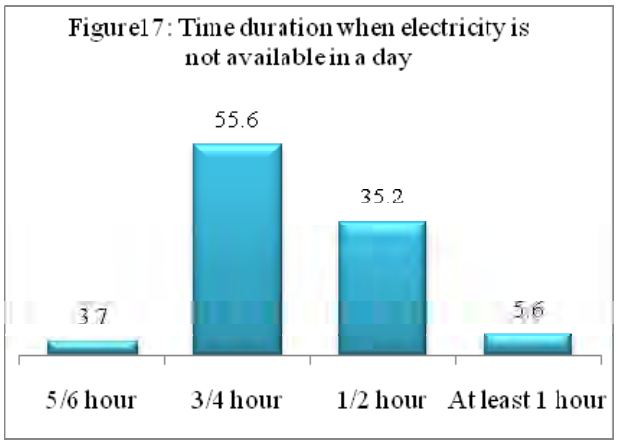
The respondents have been asked to share whether they need to have financial help for getting electricity. About 26% has mentioned about need for financial help. It is to note that about 27% respondents from Brahmanbaria has stated the same.

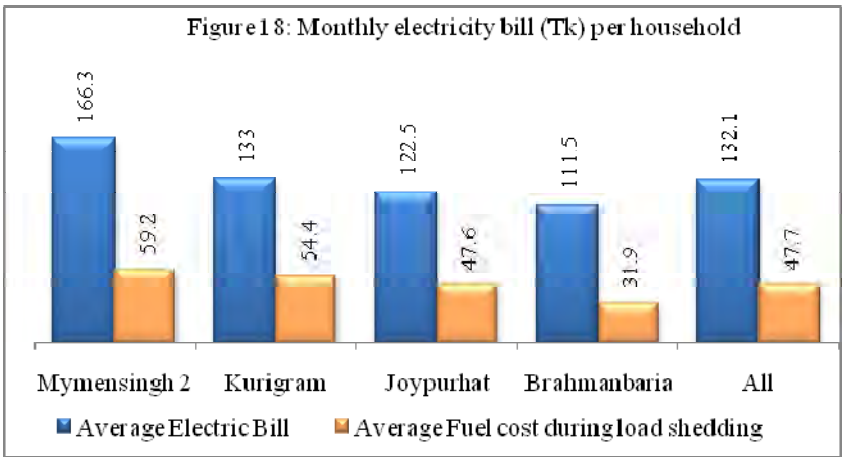


About 59% respondents have reported of having load shading once daily, while about 41% mentioned about suffering from load shading more than once daily.

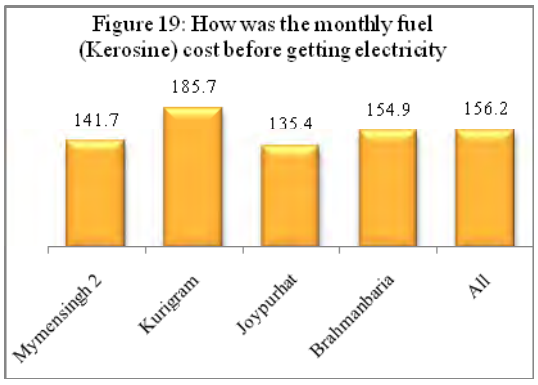
About 56% respondents are reportedly suffering from 3-4 hours load shading daily and 35% has mentioned of load shading between 1 and 2 hours. It is to note that data collection has taken place during peak irrigation period when large amount of electricity has been diverted from urban areas to rural. Thus, the responses may contain some reflection of the privileged period (rural area biased electricity supply for irrigation purpose). If the monitoring study would have been conducted during non-irrigation priority period there is a possibility worse finding both in terms of load shading frequency and duration.

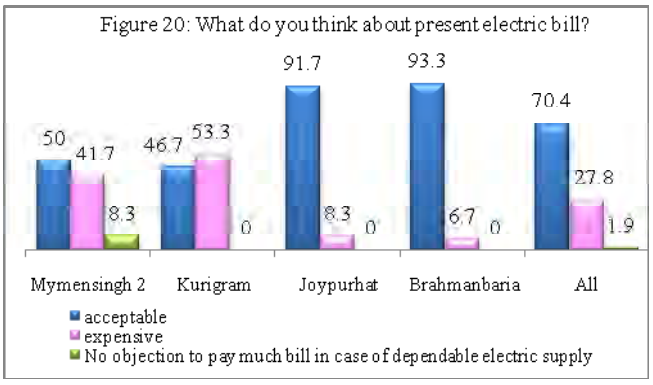






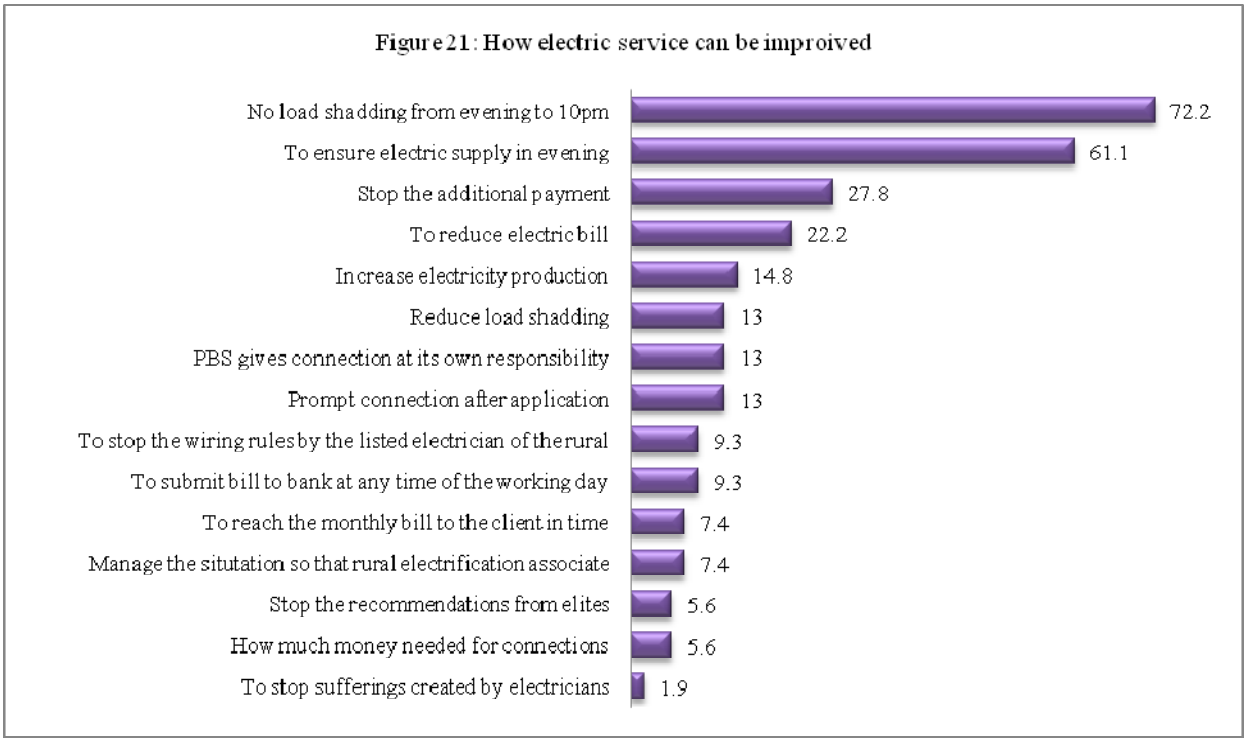
It is revealed that the average monthly electric bill costs a customer BDT 132 and the average additional illumination fuel cost due to load shedding is BDT 47. The highest electricity cost is paid in Mymensigh-2, and the lowest electricity cost is found in Brahman-baria. Total average electricity bill plus illumination fuel cost during load shedding is BDT 179 per month. Before getting electricity connection, the average household fuel cost for illumination purpose was BDT 156. The highest average pre-electrification fuel cost is found in Kurigram (Tk. 186) and the lowest cost is in Joypurhat (Tk. 135). About 70% household reported that the present electricity bill cost is acceptable and 27.8% household reported that the present electricity is expensive.





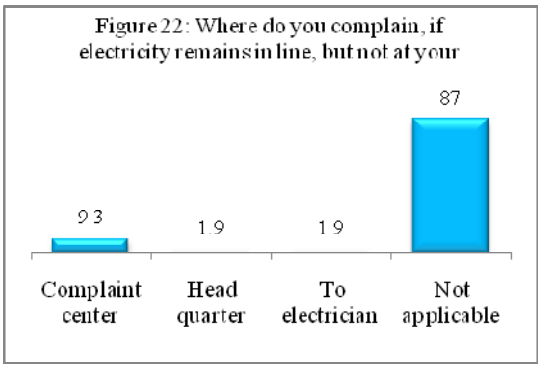
In response to the enquiry on ways of improving electricity service, about 72% of the respondent has shared that they did not want to load shedding during from evening: to 10 pm. Moreover, around 60% respondents have expressed their opinion for ensuring electricity supply in evening. It is to note that about 28% pointed out that additional payment related to utilizing electricity related services needs to be stopped, and 22% argued for reducing bills.

Figure 21: How electric service can be improved



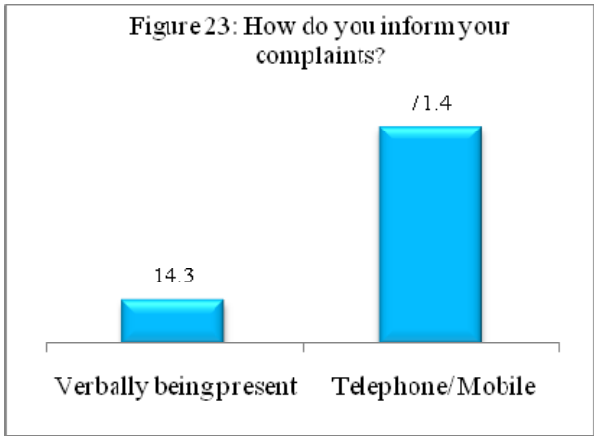
Due to frequent load shedding of electricity, most of customers (87%) have reported that at present do not complain to any body. Only 9% customer complained to complain centre of PBS through telephone/cell phone and 4% verbally by going to the centers. If the complain is not resolved, about 17% of the customers who lodged complain use to give reminder calls to the office again and again; and 33% informed the electricians.

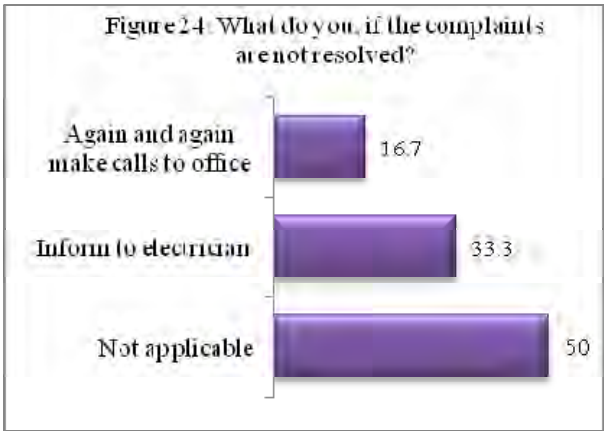
Figure 22: Where do you complain, if electricity remains in line, but not at your

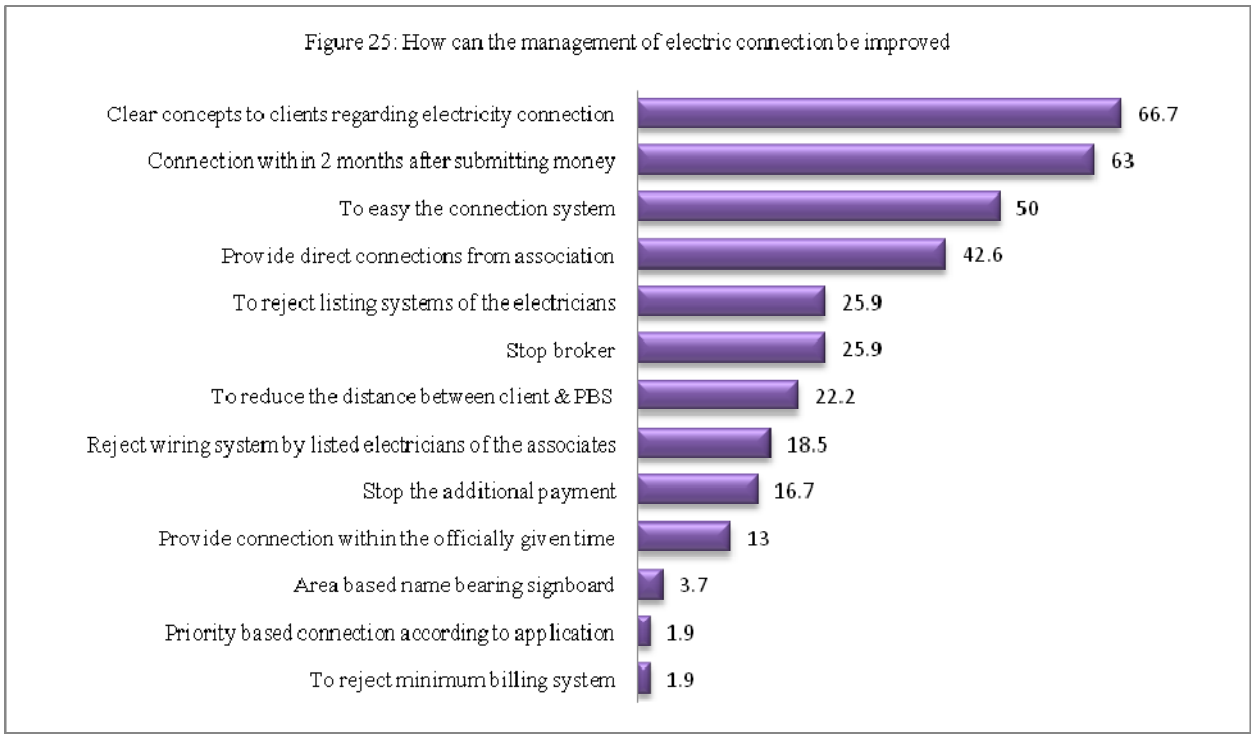


The respondents who have electrified their households under REDP have been asked to respondent on ways improved the management of electric connection issues. Almost two-in-three (63.0%) households have suggested that the connection should be provided within 2 months after submitting required money to office. However, in Joypurhat about 83.3% households' application for electrification along with deposited money has been laid for months together without any positive action. According to some respondents there exists a mental distance between PBS officials (supply siders) and users and potential users (demand siders). About 22% respondents have suggested reducing the mental distance between client and PBS office. The distance in mental/attitudinal makeup is reportedly highest Mymensigh 2 (33%

respondents think so) and the lowest in Brahmanbaria (13%). It is worth mentioning that about 67% respondents suggested introducing a transparent electrification plan for the PBS. Around one-in-four (26%) has expressed their opinion that the system of listed electricians should be abolished.



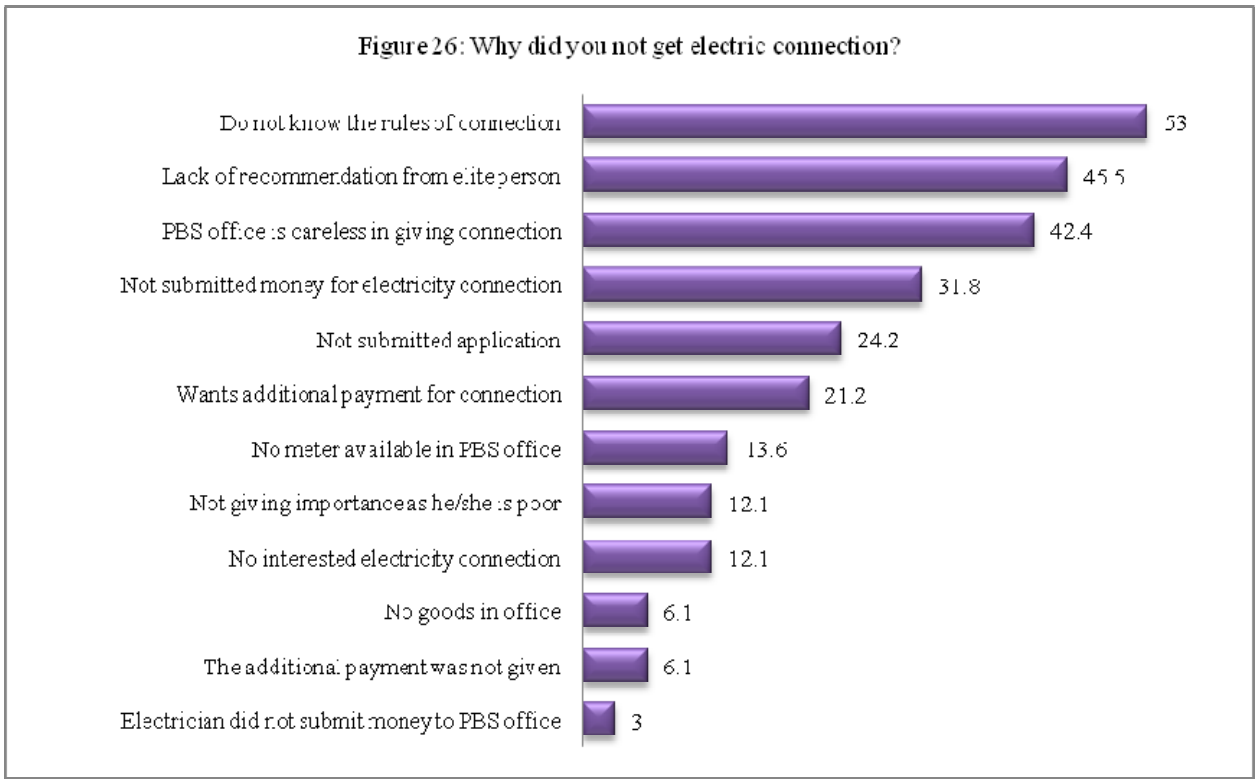




5. INFORMATION ON ELIGIBLE FOR ELECTRIFICATION HOUSEHOLDS, BUT NOT CONNECTED

The accompanying section delineates pertinent information of households who are not yet fortunate to be electrified although they fulfill the criteria of eligibility to be electrified. The investigation reveals that there are 14 reasons for not getting electricity connection. About 53% not connected households reportedly do not know the rules of electricity connection. About 45% households have not been connected because of not having recommendation from elite

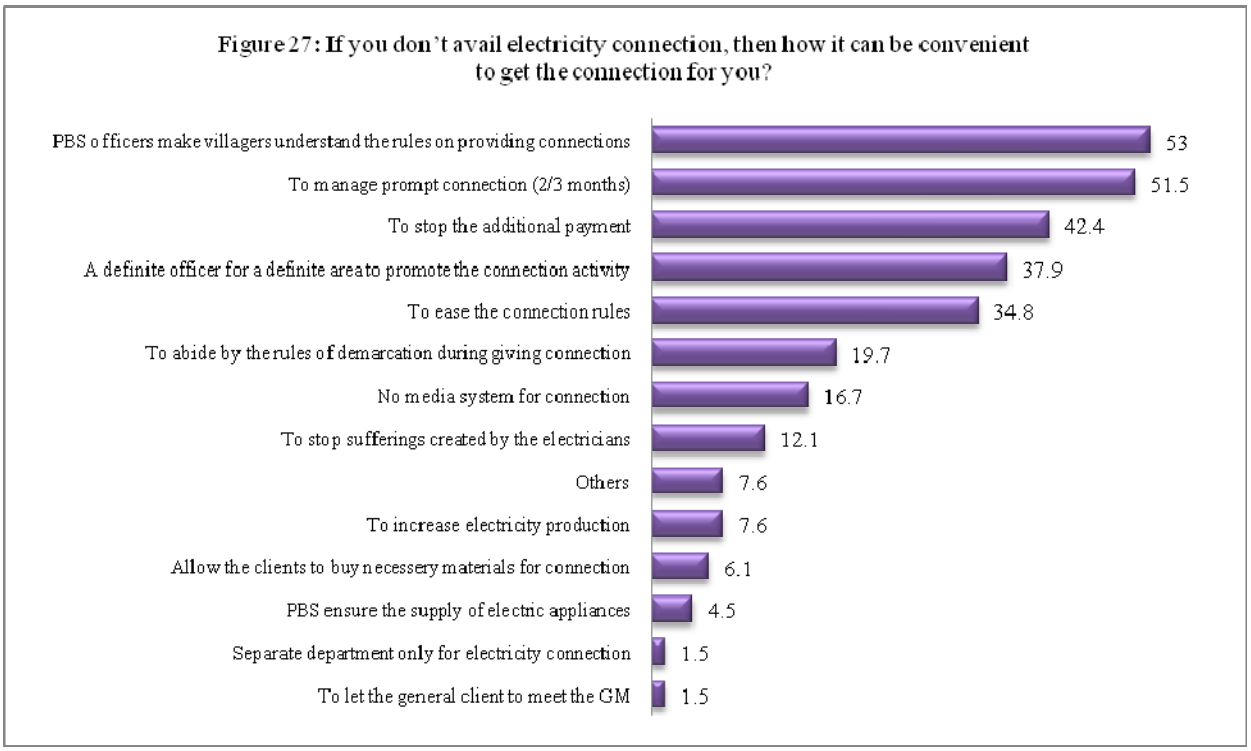
persons. About 42% respondents expressed their opinion that PBS office is careless in providing connection. About 32% respondents for not submitted money to PBS for electricity connection, and 24% have not yet submitted the application to PBS. However, it is alarming to note that over one-in-five (21%) eligible but not electrified households are reportedly not yet connected because they have not given respondents said extra money for connection to PBS staff.



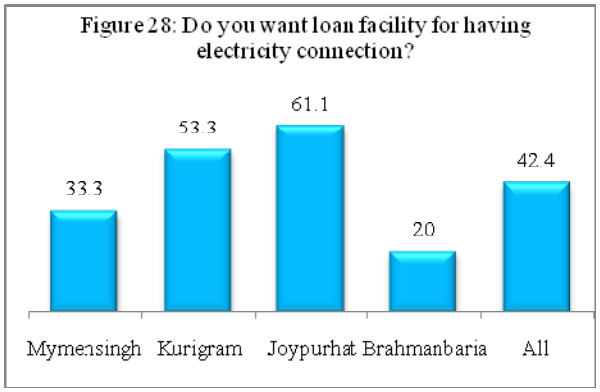
About 14% respondents have said that meters are not sufficiently available in PBS offices, 12% respondents have complained that PBS has not been given importance as he/she is poor. Some respondents have informed that they have given money for connection to electrician but electrician did not submit money to PBS office.

The monitoring study explored the opinions of the eligible for electrification but not connected respondents on how to make their access to electricity (electrification of households) easier than current days. The perceptions of majority of the respondents are delineated below:

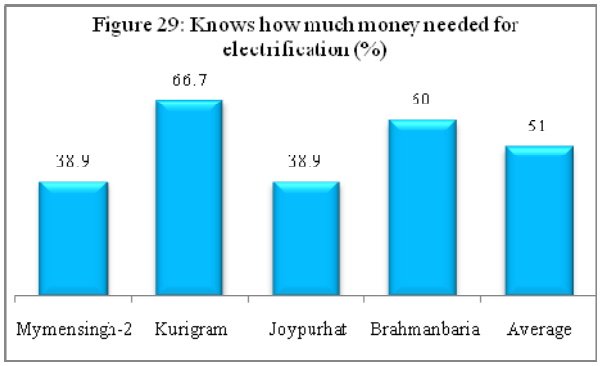
- according to 53% of respondents, rural electrification association (PBS) needs to aware the villagers about the rules on providing connection
- according to 51% households it will be easy to get electricity connection if connection can be provided within 2/3 months
- it will be easy to get electricity if giving the additional payment for additional construction or wiring can be stopped (42%)
- it will be easy to get electricity if a definite officer is assigned for a definite area to promote the connection activity (38%)



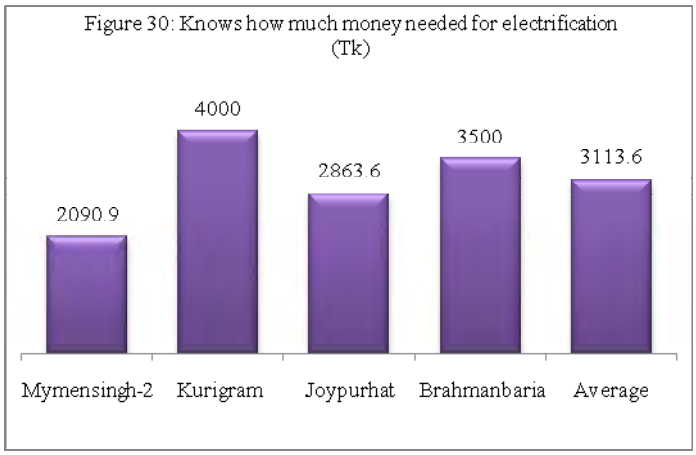
Regarding need for micro-credit for electrification, about 42% eligible but not connected households expressed that they have need for the same. Around three-fifths of the respondents in Joypurhat (61%) and one-in-two in Kurigram (53%) have stated about the need and/or utility of micro-credit. Whereas in Brahmanbaria, only 20% eligible but not electrified respondents have spoken in favor of the same.



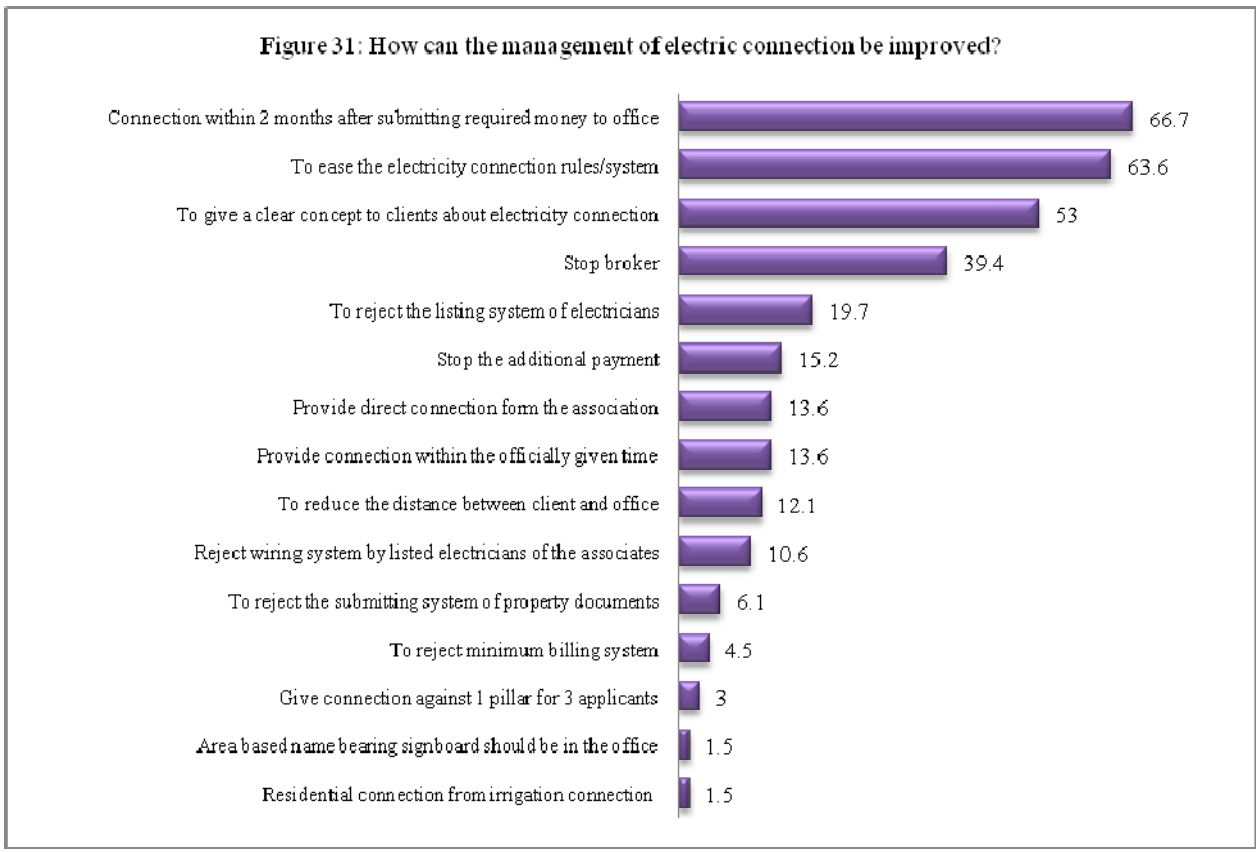
The study findings reveal that over one-in-two (51%) eligible but not eligible households do not know how much money is needed for electricity connection. As reported by the respondents, average non-electrified households have spent Tk.3113 for electricity connection.



The monitoring study has solicited the opinion on how to improve the household electrification process from the respondents whose households are eligible but not yet electrified. The respondents mentioned about 15 different types of actions implementation of which will lead to better management of household electrification process.



About 67% of total households have reported that status of connectivity can be improved if the connection is provided within 2 months after applying and depositing required fees to PBS. Such opinion varied by PBS. For example it was expressed by 83% of respondents from not yet connected category in Mymemnsigh-2, while the same have been mentioned by 47% in Kurigram. About 64% respondents from the same category think that the electricity connection rule/system to be eased, 53% argued to provide more clarity to clients regarding electrification rules, whereas around 40% is of opinion that intermediaries/brokers between PBS and electricity seekers should be abolished. The other suggested steps do not carry reportable proportions and therefore not reported.



SOCIO-ECONOMIC IMPACT STUDY: FOCUSING MICROFINANCE COMPONENT OF REDP IN BRAHMANBARIA PBS

Executive Summary

Background

Electricity is not just light, it entails enlightenment. In this backdrop DFID of the United Kingdom committed up to £50 million to increase the provision of electricity in rural and peri-rural areas of Bangladesh. The Government of Bangladesh committed to contribute £ 122 million through the Annual Development Program. The Program is known as *Rural Electrification Development Project* (REDP). The project accomplished 23,000 km electric line crated 1.3 million electric connections, and provided microcredit for electrification in 2,200 households in Brahmanbaria PBS. A special microfinance component was part of REDP. Microcredit as a tool for poverty reduction mediated through electrification of the poor household is a new concept in the development arena. To evaluate the socio-economic impact of rural electrification and microfinance program on development, it was necessary to have a sound research. Considering the need of such a study, NRECA awarded Human Development Research Centre (HDRC) with the assignment followed by a competency assessment jointly done by NRECA,, REB, DFID and USAID. The assignment which consisted of two Parts: *Baseline Survey* and *Impact Study*. Baseline Survey was conducted by HDRC in 2008 in Brahmanbaria PBS- the only PBS where this unique idea of 'electrification through micro finance' was implemented by a partner organization named 'Padakhep'. In the socio-economic impact phase, in 2010, the same households (interviewed at the baseline phases that were under the microfinance programme under REDP in Brahmanbaria PBS area) have been interviewed to assess the impact of electrification through the microfinance component of REDP. The basis of the findings is primary data for 377 households in impact phase and the time gap between the baseline and impact is two years.

Household Background Characteristics

The demographic characteristics have remained almost unchanged in two time periods: 2008 baseline and 2010 impact. The average household size is 5.6 in baseline and 5.8 in impact study. A 87.5% and 88.1% male-headed households have found in baseline and impact survey respectively. For male members, the literacy rate has been estimated at 58.1% in baseline and 68.3% in impact study and for female 54% in baseline and 61.7% in impact study. No distinct variation has been found for primary occupation; the pattern remained same as baseline survey. In impact study, 16.2% households have non-resident income earning members which is slightly higher than in baseline (14%).

Household's Assets Ownership

After household electrification, addition of new items (mostly electricity-run appliances- electric bulb, electric fan, TV, DVD/VCD, charger light etc.) has been found. Compared to the baseline (2008), the total valuation of household assets (movable) has been increased by 1.46 times (from Tk. 29,711 to Tk. 43,470). The valuation of household assets varies considerably while poverty level is considered- non-poor group's asset with significantly higher valuation (TK 48,334) than that of the poor group (Tk. 38,147). This trend is similar to the baseline situation. Male-headed households possess assets with significantly higher valuation (Tk. 44,726) than that of the female-headed households (Tk.35,297). This pattern is similar to the baseline situation. The landlessness scenario of the households in the impact phase (87.8% landless) has been remained same as that in the baseline (88% landless). The pattern of use of housing materials has been remained unchanged in last two years.

Attitude towards Household Electrification

Major benefits mentioned during impact study (2010) are using light bulbs (90.5%), using electric fans (89.1%), benefit in children's education (59.9%), watching TV (49.3%), charging cell phones at home (36.6%) and doing household chores even at night (35.5%). A 75% of the households are satisfied with the electricity connection (including 6% highly satisfied households) while a 12% are dissatisfied and remaining 13% are neutral. Although 6% are 'very satisfied' with electricity, 13% are 'neither satisfied nor dissatisfied'. The single most reason for dissatisfaction is interruption of electricity supply due to load shading. At present, the average monthly expenditure on energy is TK. 203 (which includes TK 138 as electricity bill and TK 65.3 as other fuel cost). However, in the past when the households did not have electricity they had to spend Tk. 162.1 for this purpose. A household is now spending Tk. 41 per month more than when they did not had electricity. Nearly half (45.4%) of the respondent households consider electricity bill as 'satisfactory'. Almost same percentage (45.9%) regards the current electricity bill as 'expensive'. An 8% of the households opined that they are ready to pay even higher charges if uninterrupted electricity supply could be ensured. Knowledge about the cost and process related to household electrification is still very low among the respondents. The most echoed suggestions for improving the electricity situation were related basically to a single suggestion—addressing the current load shading situation. Other suggestions were lowering electricity bill, enhancing quality of other services and stopping bribe and other anomalies in the process.

Household Income, Savings and Credit

Average household annual gross income has increased by 2.5 percentage points (from Tk. 165,000 to 169,000 at current price), while net annual income has increased by around 24% (currently constitute Tk. 104,000 which was Tk. 84,000 at baseline). In terms of monitory value, about 36% annual net income of an average household is currently produced in business sources (26% during baseline), and no major changes in other major sources (including remittance: 12% at the time of baseline and currently 13%) have been observed. Currently, about 29% households reportedly generate direct income from at least one source related with

electricity, while during baseline the same was about 13%. However, the current average amount of income which can be attributed as direct contribution of electricity in household annual net income is as low as Tk. 2,363 (at baseline Tk. 544). A 2.3% of the annual net household income (and 9.1% of the incremental income) could be directly attributed to electricity; the same was 0.6% in the baseline. An average household reportedly have Tk. 11,873 as savings on the day of survey (which was Tk. 7,521 during baseline). The average amount of loan availed by households from all sources during last two years period is Tk. 36,922, while the same at the time of baseline was Tk. 20,494 (80.16% increased).

Household Food Consumption

In terms of food intake, an average person in respondent household is still consuming low compared to recommended by Bangladesh Nutrition Council, a balanced combination of 934 gm (Baseline 2008: 764 gm and Impact 2010: 815 gm , food per day). About 52% of current consumed food constitutes rice, the same was about 55% at baseline, but the recommended share of cereal is about 42%. Daily food intake of an average female member currently constitutes about 746 gm of food, while the same during the baseline was about 710 gm. The average per person food energy per day consumption at the time of impact study 2010 is 1872 k. cal. which was 1761 k.cal. at baseline.

Household Expenditure

Annual average household expenditure has increased by 25.7% (currently Tk. 113,809 which was TK 90,560 during baseline). Food expenditure constitutes the major part of the expenditure – both at the time of impact and baseline studies (Tk. 78,120 and Tk. 59,832 at current price respectively). Daily per person expenditure is around Tk. 54 at present which was Tk. 44 during baseline (at current price). Currently, the average household annual expenditure for the female members (2.8 persons) is Tk. 54,942 which was Tk. 43,763 (2.7 persons) in baseline. At both the points of observation, the expenditure for females was less compared to male household members.

Household Poverty Status

The poverty situation among the households has been improved significantly in last two years. Using the DCI measure (head count), in the baseline 84.3% of the households were absolute poor which decreased by 11.6 percentage-points in impact reaching 72.7%. The hardcore poverty situation has been improved more sharply. Hardcore poverty has been decreased by 15.8 percentage-points during this period (from 63.3% to 47.5%). These imply that the food-poverty has been decreased among this group of people in Brahmanbaria. The poverty situation among the households has been improved in last two years using the CBN measure. In baseline, about 52% of sample households were situated below the upper poverty line which has been decreased by 6 percentage-points (46%). Estimates for lower poverty line showed that about 38% households fell below this line in baseline which has also been decreased by 2 percentage-points (36%). The poverty situation among the households has been improved in last two years using the international poverty line. Estimates based on international poverty line

of US PPP $1.25 a day per person shows that 78.5% of the households were poor in baseline, which has been decreased by 7.4 percentage-points (71.1%). The poverty rate with US PPP $ 2 a day per person was 94.3% in the baseline which has been decreased by 8.4 percentage-points (85.9%). Land-poverty is highly pronounced among the sample households- 88% of the households are landless (both in impact and baseline). A 38% of the households have reported facing crisis in last two years, which was 24% in baseline. The major loss reported by the households is high loss due to illness, trend being similar to baseline. A 67% household has faced high expenditure due to illness, which was 82% in baseline. The major strategy for crisis coping has been reported as loan in 75% cases, which was 63% in baseline- which shows, somewhat leaning towards loan taking tendency. Electricity indirectly contributes in reducing the household crisis of illness and loss of income mediating through its direct contribution to improved hygiene behavior. Also utilization of savings has been in a decreasing swing since the baseline (from 22% to 10%).

Health, Hygiene and Sanitation: Knowledge and Practice

An overall increase in awareness over the crucial public health issues has been found with the overall knowledge coefficient increases from 0.25 at baseline to 0.40 at impact. On an average 5 out of 20 crucial public health issues were known to the respondents during baseline as opposed to 8 out of 20 at end line. The occurrence of illness among the respondents or someone in their household has been reduced from 24% at baseline to 18% at impact. The most commonly encountered illnesses at impact are fever (69%) and diarrhea (17%). The corresponding figures were 48% and 20% at baseline. Between baseline and impact, practice of ante-natal care (ANC) has increased from 21% at baseline to 33% at impact and post-natal care (PNC) from 19% at baseline to 23% at impact. The full immunization coverage of the children aged 12-23 months is 78% at impact as compared to 75% at baseline. As in baseline, Tube-well is the sole source of drinking water in impact. The proportion of households depend on drinking water from tube wells not tested for arsenic or contaminated with arsenic has decreased from 36% at baseline to 26% at impact and from 9% at baseline to 2% at impact respectively. Currently, some more than 50% household members use soap for washing hand after defecation as compared to only 23% at baseline.

Education: Literacy, Enrolment and Quality

Literacy rate among the population of all ages has been increased by almost 9 percentage points (increased from 47% to 56%). Impact of intervention is higher on the population living below the upper poverty line and below lower poverty line than the population above upper poverty line. After the intervention, the overall primary and secondary gross school enrolment ratio has been increased by 17 percentage points (from 61% to 78%). The impact of intervention on enrolment ratio of girls is higher as compared to their counterpart boys. Intervention has positive impact on the quality of education in terms of the attendance ratio and school dropout rate. After the intervention, overall attendance rate among the children between 6 years and 15 years has been increased by 7.4 percentage points and school dropout rate has been decreased by 0.6 and 2.2 percentage points respectively in primary and secondary school

levels. After the intervention, the most common lighting source for the students for study after sun set has become electric light (89%). Extensive load shedding of electricity has been reported as major dissatisfaction in using electric light for study purpose. Hence, the use of Herican lantern and kerosene lamp for study purpose is still highly pronounced in the intervened area.

Women Empowerment and Gender Issues

The overall women's empowerment status has changed positively compared to the baseline phase. The status of women empowerment in regard to their decision making issues has increased to a high degree. Women's decision making status is significantly higher in female-headed than that in the male-headed households. The observation about women's mobility has come out in greater numbers. The overall mobility status of the women is a bit better in the female-headed than the male-headed households. The condition of domestic and community violence against women has shown positive changes. On a scale of 0-100 (where 100 is worst situation and 0 is the ideal status), the impact score of this issue is obtained as 13.6 (baseline score was 20.3) which signifies that, the situation of violence against women has been improved compare to the baseline phase. The overall state of women's knowledge about gender equality issues has come out with an improved direction. Television is the major source of knowledge on these issues for the women. The trend of having more knowledge about the legal age at marriage (for both boys and girls) has gradually increased. About more than half of the women (58%) took credit in the last year which remained near the same in the baseline (53%).The average amount of credit taken in last year by a woman in a household has been found as Tk. 9,067, which was Tk. 5,217 in the baseline- which shows a significant increment.

Access to Information, Awareness and Knowledge

Percentage of respondent watching Television has been raised dramatically (by almost twice), while popularity of listening radio has declined among the respondents after getting electricity connection. Not only proportion of respondents who watch Television has been increased but also average time spent on watching Television has been increased to almost four times among the respondents who watch Television. However, change in exposure to Television is not the same for male-headed and female-headed household. The impact of electrification in terms of the exposure to Television is higher on male-headed household than that on the female-headed household. Elites and neighbors have been losing their significance as sources of important national and regional news among the respondents after electrification. As a source of important national and regional news Television is taking the place of elites and neighbors. Before the intervention 54.3% respondents were not receiving any important educative information, while after the electrification only 14% respondent are not receiving important educative information. In this regard, Television has played the exclusive role in providing educative information to those people who had no access to educative information prior to the intervention. Television also has become the main source of entertainment among the respondents after the electrification.

Lessons learned

Electricity brings some immediate, mid-term and long term impacts to households who have been able to get the connections. Studies have revealed that even in the electrified villages, the poor are less likely become able to bear the initial cost which is needed to get the access to electricity. Considering the researchers observation and aiming at uplifting livelihood of the non-electrified poor, REDP has devised a provision of micro-credit for enabling poor households' affordability of getting access to connectivity. Brahamanbaria PBS has been selected as pilot. The targeted poor households are provided with Tk.3000 as micro-credit for meeting up one-time expenses related for electrification and electricity bill payment for first 6 months, which, in turn, is repaid to the micro-credit management agency along with Tk.60 as service charge for the entire credit utilization period in 20 equal installments.

Although, the socio-economic impacts of micro-credit mediated electrification study has been conducted within two years of providing connection to targeted poor households in Brahamanbaria reveal that the connectivity within the short period has generated multifarious immediate impacts.

It is observed that it has reduced the dependency on getting national, regional and local information on elites and rich. Currently, about 41% of targeted population has TV in their house (1.5% had the same during the baseline), and average daily TV-watching hour has increased noticeably, which, in turn, acts as a change-agent in increasing community awareness on different issues (including national and international socio-political developments, health-hygiene, newly innovated technology that increases productivity in the agriculture sector, environment related issues, and others).

It is also found that a new category have been included in household asset list (i.e., various electric gadgets) after electrification. In spite of long load-shading hours round the day, people are still getting some comfort due to presence of electric fan when they have the electricity compared to the period when they were not connected. It is worthy to mention that the overall health condition has, especially that of older people and children, comparatively improved to a certain extent.

The study has revealed that despite limited hours of power supply the daily routine of household members, especially those who are related with home making, has changed to a large extent. Many of the house-keeping activities those were previously done in day time has been shifted after the sunset and being performed using the electric light. A new pattern of elongation of study hours has been observed among the school going children. At present, more children study after sunset using the electric bulb instead of kerosene fired lantern or *kupi bati* (traditional kerosene lamps). Moreover, children also enjoy the comfort of electric fan during their study hours in times when power supply is not interrupted.

The overall knowledge, attitude on crucial public health (including primary health, water, sanitation, and hygiene, and others) issues and their practice have meaningfully changed due to increased access to TV mediated world of mass communication. Similarly, the women at present are more aware of their rights in the society and are performing more proactive role in

gender related issues. Their access to TV have played impressive role in attaining changes.

Beside the indicated changes in knowledge and comfort factors/front, an increase in income, savings, food consumption and expenditure have been revealed during the study period on a targeted group comprising poor people who received micro-credit mediated connectivity. Net household annual income has increased by around 24%, while the directly attributable to electricity household net income has increased over six folds (from Tk. 544 to Tk. 2,363). Furthermore, near about one-tenth of the total (9.1%) household incremental income is net direct contribution of electrification. On average, the poverty level of the targeted connection holders has started decreasing. Currently, the per capita daily calorie intake has increased from 1,732 k.cal to 1,872 kcal, indicating that on average the households have shifted from below hard core poor level to absolute poor level. The increase in household yearly expenditure has been attained due to increase in food expenditure which is a common phenomenon among the poor in countries having similar to Bangladesh socio-economic parameters.

With all the positive impacts reported above, it is revealed that the micro-credit mediated households are mostly ignorant of various information that a connection holder should know, like membership fee, connection fee, wiring charges, tariff of a unit of electricity consumed by domestic connection holders. It is learnt that neither the micro-credit management agency nor PBS has taken adequate initiatives for making the connection holders aware about the issues as well as roles and responsibilities of the consumers.

Considering the positive and negative learning of micro-credit mediated electrification of the poor, it appears that hence indication of greater impacts have been observed, the pilot may be recommended for wide replication coupled with provisioning of IGA training and IGA micro-credit at similar and/or at flexible terms.

The shorter duration of intervention (household connectivity) has not provided the opportunity to capture many other impacts, which would be visible after a longer period of time. It is therefore, recommended to undertake another panel study (involving the same households, methodology and instruments) on impacts of micro-credit mediated electrification after at least five years after electric connectivity.

Socio-Economic Impact of REDP
Executive Summary

Background and Objectives

Electricity is not just light, it entails enlightenment. In this backdrop DFID of the United Kingdom committed up to £50 million to increase the provision of electricity in rural and peri-rural areas of Bangladesh. The Government of Bangladesh committed to contribute £ 122 million through the Annual Development Program. The Program is known as *Rural Electrification Development Project* (REDP). The project accomplished 23,000 km electric line crated 1.3 million electric connections, and provided microcredit for electrification to 2,200 households. To evaluate the socio-economic impacts of rural electrification through REDP, it was necessary to have a sound research. Considering the need of such a study, NRECA awarded Human Development Research Centre (HDRC) with the assignment followed by a competency assessment jointly done by NRECA, REB, DFID and USAID. The assignment consisted of two Parts: *Baseline Survey* and *Impact Study*. Baseline Survey was conducted by HDRC in 2008. The overall objective of the assignment was to examine the social and economic impact of the REDP with emphasis on poor and women being top priority. It must be noted that although the micro-credit mediated electrification component was initially intended to cover all 9 REDP poverty thrust PBSs; it was only implemented in Brahmanbaria PBS.

Methodology

In socio-economic impact phase, same households and other units of observation (not electrified at baseline) have been interviewed to assess impact of electrification through REDP- in a framework of a catch-up panel analysis. The observation measurement units are: 1) Household; 2) Commercial units; 3) Industrial units; 4) Irrigation units, and 5) Social/human development units (i.e., school and health centre). In the socio-economic impact phase, in 2010, the same households (interviewed at the baseline phase) have been interviewed to assess the impact of electrification through REDP. The data and information has been collected from 15 sample PBSs (from 9 REDP Poverty Reduction Thrust PBSs and 6 REDP non-thrust PBSs). Baseline data has been used as archive data to estimate the changes. The gross and net impacts of REDP have also been estimated in applicable cases. For measuring gross impact of REDP, baseline data of a specific indicator has deducted from electrified unit (of impact). To get the net impact of REDP, gross changes in control (from 2008 to 2010) has been deducted from the gross impact of REDP. The data and information has been disaggregated for the poor and female headed households - in applicable areas of analysis. Among the total sample households (i.e., 4,975) - 3,385 are experimental and 1,509 are control. Among the experimental 1,288 are currently electrified (38% of experimental). The survey has been administered in 134 villages (112 experimental villages and 22control villages).

Household Background Characteristics

It has been found that no significant changes have been found while comparing the impact phase data with baseline data regarding the household background characteristics. Household size has been increased a bit among the electrified households compared to the baseline status without electricity at households (from 4.7 to 5.0). Among the experimental households, currently 91.3% household heads are male, which was 91.7% in baseline. This pattern is similar in both experimental and control households. A 63% of the electrified households has been found as educated which means they passed minimum one year of schooling whereas about 53% population of the non-electrified households in the experimental category have education. The baseline figure was 56% against this indicator. This is an indication of impact of REDP on attainment of education. No major changes have been found in the occupational pattern among the sample households irrespective of experimental and control in last two years. Homemaker, student and children have been reported as major primary occupation in both the phases of the assignments (i.e., baseline and impact). Only around 10% of the household members have reported farming/cultivation as their primary occupation. Agri and non-agri labor constitutes around 9% population, which was 12% in baseline. The dependency ratio for the population of experimental households is estimated at 71.2 while for population of control households, it is 74.8 which is considerably lower than the population of experimental households.

Household's Assets Ownership

The landlessness scenario has been improved in last two years. In the baseline 72.4% experimental households were landless, which has been decreased to 62.5% in the currently electrified households. The gross impact of REDP in this regard is -9.9 percentage-points and net impact is -6.3 percentage-points. While land ownership status is disaggregated by poverty status (using CBN method) then major variations is observed in both the phases of the assignments (i.e., baseline and impact) among the experimental households. While land ownership data is disaggregated by sex of household head then it has been found that like baseline female-headed household own less land than the male-headed households. Average space of dwelling room in a sample household has been increased by around 162 sq.ft. in last two years among the experimental households (Baseline: 310 sq. ft.; Impact: 471.8 sq. ft.). The gross impact of REDP is 161.8 sq. ft. and the net impact is 94.2 sq. ft. In last two years the tendency of using better quality housing material has been increased. If this trend is compared with the control households- then, it is indicative that REDP has a positive financial impact over the experimental household which has led to go for better housing material. After household electrification, addition of new items has been evident in experimental households. Mostly, the items which run by electricity have been added to the *household asset possession basket* within this time period between baseline (2008) and impact (2010). Among the experimental households, currently 371 % household possesses TV which was only 6.4 % at baseline. Currently 748 % households have their own electric fan, where no households had that at baseline in 2008. Almost all of households now possess electric bulb which was nil at baseline. A 36 % households do possess charger light, which was nil at baseline. In some households- though not frequently- camera, refrigerator, rice-cooker, iron etc.- has been added within this time period. It has been also been found that currently 67 % household own cell phone, which

was 28 % at baseline. Compared to the baseline (2008), the total valuation of household assets (movable) among the experimental households has been increased by 1.63 times (from Tk. 81,134.2 to Tk. 49,748.4). In the impact phase, among the experimental households, male-headed household possess assets worth Tk. 83,230 which is 1.46 times higher than the valuation of households assets in a female-headed household (Tk.56,727). In the impact phase, for an average experimental household of above upper poverty line, the valuation of household assets is TK 93,225 (which is 2.04 times higher than the household of below lower poverty line) while it is much less among the poor households with Tk. 45,564 for households in below upper poverty line and Tk. 54,923 for a household of below lower poverty line.

Attitude towards Household Electrification

As 61% of the surveyed households have not been electrified, 88% of them want electricity connections with 10 percentage point gap between the poor and non-poor households. Financial incapability is still the prime reason for the households for not having electricity. Still 41% households do not have electricity for this reason. The other reasons are relate to REDP's procedural and bureaucratic limitations. Those who do not have electricity opined that making the connection procedure easy would be of help for them to avail connection. A 36% of the households in the experimental group and 38% in the control group reported that they require financial support (e.g., microcredit) to avail electricity connection. Knowledge level of the households about the key installation and utility charges and fees has increased appreciably since the baseline situation among the experimental group. As benefit of electricity 84%of the households replied they can use light bulbs, 68% use electric fans, 43% households charge their cell phones at home and 38% households can watch TV. Besides, 56% of the households reported that their children can study well in electric light. Nearly three-fourths (73.4%) of the households are satisfied with the electricity service followed by an 11% of them who are found dissatisfied with the service. Frequent power cuts, intolerable load shadings and consequently additional costs on other fuels have been mentioned as the major dissatisfaction factors with the service. On average the households spend Tk. 133.80 on electricity bill and Tk. 51.5 for other fuels consumed during load-shading. The average energy expenditure in the households has increased by Tk. 60 and there are some variations among the increases depending on the sex of the head of the households as well as their poverty status. Still 52.7% of the subscribers view electricity price as satisfactory while 36% view it as expensive. However, more than 7% of the respondents replied that they would like to pay even a higher price if reliable supply of electricity could be ensured. The most voiced suggestion for improving the electricity service was lowering the current load-shading rate

Household Income, Savings, and Credits

Gross impact of electrification on REDP mediated household's annual net income is 63% (nearly two-thirds), while the net impact is 8%. At present average annual net income of electrified by REDP household is around Tk. 133,000, and the same at the time of baseline was Tk. 81, 000. For control households the average annual net income at present is Tk.105,000. Average gross impact electricity directly attributable to annual net income generation of electrified households is about Tk. 1,275 and net impact is Tk. 1,195. Income disparity among electrified and

controlled households shows a moderate trend. The Gini's concentration ratio of net annual income for electrified households is 0.41 and for control is 0.38, which during the baseline was 0.39. In terms of household annual net income, the net increase among those living below upper poverty line is 27% and for those living below lower poverty line it is 19%, the same for the who are above upper poverty line net increase is negative (-12%). Average household annual net income of both male and female headed households is close at both the study points. The share of income from agriculture related sources is declining, wage, business and remittance is gradually increasing. The amount savings of average electrified household increased substantially to Tk. 22,000 form Tk. 16,000 and for control household it is currently Tk. 14,000. The amount of availed credit during 2 years period from the study for electrified households increased to Tk. 31,000 from Tk.19,000 and for the control household the current amount is Tk. 16,000.

Household Food Consumption

Although an increase in daily per person total food intake among electrified (785 gm at the time of impact vs. 705 gm during baseline) and control households (766 gm at the time of impact vs. 697 gm during baseline) have been observed during the impact study compared to their respective baseline, it is still well below 934 gm (the recommended level). A gross food intake increase of 80 gm has taken place, while the net increase is 11 gm. An increase in daily per person food energy intake has taken place both in REDP electrified households (1960 kcal against 1872 kcal) and control households compared to their baseline (1,955 kcal against 1,910 kcal). However it is below the absolute poverty level. The estimated gross increase in per person daily food-energy intake is about 88 kacl, while the net increase is 43 kcl. Per person calorie intake of households living below poverty lines (lower and upper) line has notably increased compared to those who live above upper poverty line compared to their baseline. Food-energy intake pattern among both the categories of households (male and female headed households) across experimental and control households are almost similar.

Household Expenditure

For electrified households, annual average expenditure is Tk. 95,000 (Tk. 94,000 during the baseline at current price). Food expenditure, for electrified households constitutes the major part of the expenditure both at the time of impact and baseline studies (Tk. 58,943 and Tk. 64,422at current price respectively). Households living below upper poverty line relatively more capable of spending compared to those who are above upper poverty line. Likewise the baseline, the male headed households are in a position to spend more compared to female headed households. The pattern is similar irrespective of electrified and control households.

Household Poverty Status

In terms of Direct Calorie Intake (DCI) measure (head count) the poverty situation among the households has been improved in last two years. Hardcore poverty of the experimental has been deceased by 14.5 percentage-points, while among the control households the hardcore poverty has been decreased by 15.9 percentage-points. Thus, regarding the hardcore poverty situation- significant improvement has been found, while the extent of betterment is bit higher

among the control households (Gross impact: -14.5 percentage-points; Net impact: 1.4 percentage-points). The poverty situation among the households has been improved significantly in last two years using the CBN measure. The status of below lower poverty line has been improved remarkably. The Gross impact of REDP regarding below lower poverty line is -24.8 percentage-points and the net impact of it is 0.3 percentage-points (which indicates poverty situation improvement rate is slightly higher in the control households). It is also very interesting to observe that the poverty reduction rate using CBN method is remarkably high among the electrified households than the non-electrified households in the experimental villages- which is an indication of positive impact of electrification through REDP. In terms of international poverty line, the poverty situation among the households has been improved slightly in last two years. Estimates based on international poverty line of US PPP $1.25 a day per person shows that 56.9% of the experimental households were poor in baseline, which has been decreased by 3.5 percentage-points (53.4%); the poverty rate with US PPP $ 2 a day per person was 88.2% in the baseline which has been decreased by 10.2 percentage-points (78%). The gross impact of REDP on the poverty line of US PPP $1.25 a day per person is estimated to -3.5 percentage-points and net impact is -1.4 percentage-points. It is interesting to observe that poverty status (using both the international poverty line) has been improved in a better extent among the experimental households than the control households- which is an indication of positive impact of electrification through REDP. A 26.6% of the experimental households have reported facing crisis in last two years, which was 37.2% in baseline- which indicates around 10 percentage-points reduction of crisis. A 17.8% household has faced loss due to loss of crops, which was 20.3% in baseline. The major strategy for crisis coping has been reported as loan in 44% cases, in both the phases of the assignments (i.e., baseline and impact) among the experimental households, somewhat indicates towards loan taking tendency. The second mostly used strategy for crisis coping is utilization of savings (among the experimental, it is 26.9% in impact which was 28.4% in baseline). This trend is similar in control households. The pattern is similar in control households. It has been found that among the female-headed households in the experimental, the use of utilizing savings for coping of crisis is on an increasing swing (from 31% to 42%); loan has been found as decreasing in this case (from 40% to 32%).

Health, Hygiene, and Sanitation: Knowledge and Practice

Compare to baseline, notable improvement of awareness has been observed in 9 out of 20 crucial public health issues. Improvement is more pronounced in electrified households than the households without electricity. Compared to baseline (44%), currently health seeking behavior with medically competent persons (MCP) has been increased (48%) in electrified households. Gross improvement of health seeking behavior with medically competent persons is 4% however net improvement is 3%. Current practice of assistance at child delivery (last birth) by medically competent persons (MCP) is 11% in electrified and 7% in non-electrified households Compared to baseline, the gross change towards assistance by medically competent persons is 3.48% points and so by trained persons is 12.3% points in electrified households. The corresponding net changes are 1.4% and 3.3% respectively and can be attributed to household electricity. ANC checkup is higher in electrified that do in non-electrified households by 12%

points. The Gross and net rise of ANC checkup that can be attributed to household electricity are 11% and 6.5% respectively. The current practice of PNC checkup at last delivery has been increased in both electrified (22%) and non-electrified (15%) households against baseline practices of 15% in experimental and 12% in control households. Where, estimated gross and net impacts of electricity are 7% points and 4% points in order. The tetanus toxoid (TT) coverage of the pregnant women in last delivery is higher in electrified (67%) and non-electrified (64%) households as compared to the coverage in experimental (63%) and control (62%) households at baseline. Gross benefit in TT coverage that can be attributed to household electricity is 4% points and that of net benefit is 2% points. The current contraceptive prevalence rates in electrified and non-electrified households are 63.7% and 62.4% and higher as compared to baseline status in experimental (55.2%) and control (52.8%) households. Full immunization coverage of the children aged 12-23 months for all basic vaccinations is 84.8 in electrified and 83.9% in non-electrified households. Corresponding baseline coverage were 73.4% and 76.9%. Regardless of baseline and impact study, tube-well is the foremost (99%) source of drinking water in electrified as well as non-electrified households. Currently 70% in electrified and 65% in non-electrified households use tube-wells that are free from arsenic as compared to 60% and 55% at baseline. Impact study shows that as compared baseline, current use of hygienic latrine has increased both in electrified (14% to 46%) and non-electrified (9% to 30%) households. Possible gross impact of electricity for increasing use of hygienic latrine is 32% points, where net impact is 11% points.

Education: Literacy, enrolment, and Quality

It has been found that literacy rate for population of all ages has been increased by 3.6 percentage-points due to the net impact of REDP. The net impact of REDP on enrolment ratio (primary and secondary combined) is not identical between boys and girls (0.7 percentage-points vs. 3.9 percentage-points). Because of the net impact of REDP intervention (among experimental households) while average score obtained by boys has been increased by 5.7 percentage-points, average score obtained by girls has been reduced by 1.8 percentage-points. Among the experimental households, the net impact of REDP is almost none on the school attendance rate of boys; while the net impact on girls' school attendance rate is 1.6 percentage-points. The net impact of electrification on experimental household in terms of fall in drop-out rate is quite noteworthy for boys (in primary level 2.3 percentage-points and in secondary level 2.7 percentage-points). Net impact of REDP on the use of electric bulb for study purpose after sunset is 90.7.

Household Time Allocation

The pattern of activities in day time for members in the experimental households has been changed in last two years. It has been found that while in the baseline, an average adult male had 921 minutes in a day (from waking up to sleep), now, the figure has been increased by 98 minutes; the net impact of REDP in this regard is 44 minutes. Except for sleeping-time at night, on average, an adult female gets 947 minutes in a day (around 16 hours in 24 hour day) , which was 917 minutes in baseline. A child (school going) in experimental households is involved with various activities in his/her everyday life. On average, a child sleeps for around 9 hours a day

(which was around 10 hours a day). The main reason for this expanded day-time is delayed period for going to sleep. The time spent for leisure and personal task has been increased among the adult male and female household members. This in indeed an indicator of development, where people will enjoy more time for leisure compared to before. It has been reported that most of the household work is done by female. It is very important to observe that the time period allotted for study and school has been increased noticeably among the school going children in the experimental households. Before electrification, the school going children spent 441 minutes in a day for study and school- which has been increased to 511 minutes in the impact phase. The gross impact of REDP in this regards is 47 minutes and net impact is 36 minutes.

Women Empowerment and Gender Issues

The overall scenario of women empowerment in Bangladesh due to REDP at present has been observed with a positive change in the electrified households than the baseline state without electricity at households. The Net impact of REDP at present is around 0.6 meaning – the overall situation of women empowerment has slightly changed in the experimental households due to REDP in Bangladesh. While the data has been disaggregated by 'poverty issue' it was found that, most of the women from the households above the poverty line are having the opportunities of the women empowerment issues. When the data has been disaggregated by 'head of households' issue, it was observed that, the women from the female-headed households are capable enough in dealing with all the issues of women empowerment than the male-headed households. The entire portrayal of women's independent decision making issues in Bangladesh due to REDP at present has been observed with a slightly positive change in the experimental households than the baseline situation without electricity. The total representation of women's mobility issues due to REDP in Bangladesh has been observed as having a bit of positive change at present in the experimental households than the baseline period without electricity. The situation of the 'domestic violence against women' issues due to REDP in Bangladesh has been observed with a visible change in the experimental households at present. This time, the change is negative because of the scoring scale (where 100 is the worst situation and 0 is the ideal status). The whole image of 'women's knowledge about gender equality' issues in the experimental households due to REDP has been observed with a positive change at present than the baseline situation. The Net impact of REDP is 4.5; which denotes that, there is a positive change in the experimental households and thus the Net impact is higher than the Gross impact. There is an upward tendency in the state of women's credit taking status. The average amount of credit taken in last year by the women shows a visible increment that is Tk. 17170.5, which was Tk. 5454.8 in the baseline. About 30.1% of the women took credit in the range between Tk. 5,001 and Tk. 10,001 of which, most were observed to have taken this range of amount from the households below the upper poverty line and from the male-headed households.

Migration

Incidence of out-migration among electrified households has not been changed (increased) considerably in last two years. The net impact of REDP intervention is only 0.2 percentage-

points among the electrified households. Because of the REDP intervention (net impact) while out-migration among the electrified households living below upper poverty line has been increased by 1.3 percentage-points, out-migration among the households living above upper poverty line has been decreased by 1 percentage-point. Out-migration due to search of job and education has been reduced significantly (by 13.3 percentage-points and 3.5 percentage-points respectively) in REDP intervened households in comparing with that of non-electrified control households. In comparing with the in-migration scenario of control households, the net impact of REDP on the incidence of in-migration among electrified households is not notable. Considering non-electrified households (control) the net impact of REDP intervention is quite noteworthy on job placement related in-migration (7.8 percentage-points).

Access to Information, Awareness and Knowledge

The exposure to TV as compared to radio is much more pronounced in experimental electrified household than that of control household (non-electrified). After the electrification, not only that more people watch TV but also their frequency of watching TV and average time spent (in minute/day) on watching TV have been increased noticeably. After the REDP intervention, TV has became the major source of news of national importance among electrified households. Because of the REDP intervention significance of elites and Hat/bazaar in providing regional news has been decreased and TV has taken places that position of elites and Hat/bazaar. REDP intervention has noteworthy net impact on reducing percentage of respondents not having access to educative information (13 percentage-points).

Key findings from other Observation Measurement units

In socio-economic impact phase, in-addition to households other four units of observation (not have been interviewed to assess impact of electrification through REDP. These are: 1) Commercial units; 2) Industrial units; 3) Irrigation units, and 4) Social/human development units (i.e., school and health centre). In Baseline, a total of 439 commercial units were surveyed with 313 in experimental and 126 in control. Among the 305 commercial units surveyed in Impact, 218 were in experimental and 87 in control. Out of the 218 units surveyed in experimental in the Impact study, only 63 units were electrified (29%). The average distances of the sample units are estimated as 1.2 km in Baseline and 1.9 km in Impact among the experimental group; these are estimated as 1.7 km in Baseline and 1.6 km in Impact, among control group. Grocery constitutes the bulk of the units, in both experimental and control group, and in both Baseline and Impact - 60% in Baseline and 65% in Impact among experimental group; and 60% in Baseline and 52% in Impact among control. The other types of the units surveyed are – variety store, tea stall, pharmacy, ready made garments, saloon, furniture shop, jewelry shop, cloth store, hotel/restaurant, pan-biri shop, tailoring, petrol/diesel shop, shoe store, bicycle mechanics, etc. The majority of the sample units are retail shops – among experimental group, 98% and 97% respectively in Baseline and Impact; and among control group, 100% and 98% respectively in Baseline and Impact. While about 33% respondents in experimental noticed some sort of changes in their respective business units during 2008-2010, about 32% noticed that the changes were due to electricity. Experimental units show more use of electrical equipments (electric bulb, TV, telephone/mobile, and electric fan) than control units and in

Impact than in Baseline. Among the experimental group, the net increase in the use of electric bulb is 79 percentage points, which can directly be attributable to the Project. The net increase due to the Project is 28 percentage points in the use of TV and are10 percentage points each in the use of telephone/mobile and electric fan. The study also revealed a net increase of 0.6 hour in the length of business hour per unit per day in the experimental group as opposed to the control group. About 52% of the respondents in experimental group reported about increased sales of any goods while another 13% reported sale of new commodities due to electricity connection. The net increase in the sales turnover due to the Project is Tk. 18,725 per unit per month. The net increase in the sales turnover after sunset is Tk. 11,700 per month per unit. As regards the respondents' perceived benefits due to electricity connection, 100% reported about use of light, 56% reporting about increased business hour, 57% reporting increased sales, 47% reporting about use of electric fans, 40% reporting about more customers, and 18% reporting increased profit. About 67% expressed that they were satisfied with electricity connection in their business units .While about 12% were very much satisfied, another 12% were neither satisfied nor dissatisfied. About 8% were not satisfied and 2% were very dissatisfied. It is to note that in other observation measurement units- the rate of electrification is extremely low, thus the changes been found are minimal. Out of the 265 units surveyed in the experimental group, only 13 units were electrified (5%). Considering such a low level of electrification, no statistically valid conclusion can be drawn about the impact of the Project on agriculture. Out of the 13 respondents-cum-owner of the irrigation units, all respondents (100%) mentioned that electricity is less costly than diesel and gas. About 77% reported that the machine can be operated easily, 69 % reported about less cost of irrigation, 62% reported more reliability of electricity run-units, 46% reported about more productivity under electricity operated irrigation units, and 31 % reported its more longevity. However, 23% respondents mentioned about not receiving any extra benefits from the electricity run units. About 31 % respondents reported of being very satisfied and 31% reported satisfied with electricity connection. About 23% reported that they were neither satisfied nor dissatisfied. Another 8% reported that they were not satisfied. Our field survey revealed a very low level of electrification in the experimental units - out of 186 units in the experimental group only 10 units were electrified (5%). Therefore, no statistically valid conclusion can be drawn with regard to the impact of the Project on promotion and development of industry in the survey areas. In case of social and human development institutions- out of 13 health service provider institutions only one institution has been found electrified. In this regard, the health services scenario has not been changed a great deal among those institutions over the last two years due to non-availability of electricity. Non-electrified health service providers reported that they could operate their services for longer period of time of a day and patients would stay longer time in clinic, if the institutions had electricity and fan. In this context, electrification in the respective health service provider has brought some significant changes as patients are now feeling more comfortable at staying clinic for longer period of time. After the electrification, educational institutions are now capable of offering courses like computer education. Among the three newly electrified institutions, one institution already has initiated computer courses successfully. It has been reported that in educational institutions, students' attendance rate and attentiveness in class has been increased quite remarkable because of the availability of fan and electric light. The same sort of impact of electrification is also visible on

the performance of teachers. Because of the electrification, the electrified schools are now capable of organizing cultural activities at night. Authority of one of the electrified schools reported that provision of electrification had created opportunity for them to arrange special coaching for the examinee at night.

Lessons Learned

Electricity brings some immediate, mid-term and long term impacts to households. In last two years, an overall development took place both in the electrified and non-electrified group of people, but the extent of positive changes in number of socio-economic indicators are significantly higher among the electrified group compared to their non-electrified counterparts.

It has also been revealed that electrification through the REDP has played a noteworthy role in the lives of the households in many spheres. The study reveals that the poorer section of the society has been benefitted through REDP disproportionately higher than the non-poor group.

It has also been identified that though in most cases female-headed households are still in a relatively backward position than the male-headed households, in number of cases, the changes overtime among the female-headed household is somewhat higher than the male-headed households- which is particularly evident in electrified households.

An increase in income, savings, food consumption and expenditure has been observed during the study period on a targeted group where the major portions of people are poor. The net household annual income has increased, while the directly attributable to electricity household net income has also been increased.

The poverty situation has improved in last two years. It is also very interesting to observe that the poverty reduction rate is remarkably high among the electrified households than the non-electrified households.

After household electrification, addition of new items has been evident in experimental households. Mostly, the items which run by electricity have been added to the household asset possession basket within this time period between baseline and impact.

The landlessness scenario has also been improved in last two years to a higher extent among the electrified households than their non-electrified counterparts.

Currently, a major portion of targeted population has TV in their house, and average daily TV-watching hour has increased noticeably, which, in turn, acts as a change-agent in increasing community awareness on different issues such as national and international socio-political developments, health-hygiene, newly innovated technology that increases productivity in the agriculture sector, environment related issues etc. It is observed that the depending tendency on the elites and rich people for getting national, regional and local information has reduced. Access to information, thus, has increased significantly because REDP.

In spite of long load-shading hours by the day, people are still getting some comfort due to presence of electric fans when they availed electricity compared to the period when they were not connected. It is worthy to mention that the overall health condition, especially that of elderly people and children, has improved to a certain extent.

The study has revealed that despite limited hours of power supply, the daily routine of household members, especially those who are related with home making, has changed to a large extent. Many of the house-keeping activities those were previously done in day time has been shifted after the sunset and being performed using the electric light. A new pattern of elongation of study hours has been observed among the school going children. At present, more children study after sunset using the electric bulb instead of kerosene fired lantern or *kupi bati* (traditional kerosene lamps). Moreover, children also enjoy the comfort of electric fans during their study hours in times when power supply is not interrupted.

The overall knowledge, attitude on crucial public health (including primary healthcare, water, sanitation, and hygiene, and others) issues and their practice have meaningfully changed due to increased access to TV mediated world of mass communication.

Similarly, the women at present are more aware of their rights in the society and are performing more proactive role in gender related issues. Their access to TV has played impressive role in attaining changes.

With all the positive impacts reported above, it is revealed that major portion of the targeted households are still ignorant of basic fees and utility charges of electricity such as membership fee, connection fee, wiring charges, tariff of per unit electricity price for residential subscribers etc that a subscriber is supposed to know. It is learnt that PBSs have taken inadequate initiatives for making the connection holders aware about the issues as well as roles and responsibilities of the consumers.

It has also been reported that an increase of support and cooperation from PBSs could be very useful in scaling up the impacts of electrification through REDP.

A large number of households in the rural areas cannot avail electricity connection because of their financial incapability. This fact was evident as the prime hurdle for not taking electricity connection during the baseline as well as the impact study. This finding clearly put forward the issue of providing such poor households with financial support in any form. At this backdrop, the microfinance component of REDP could be instrumental for the extreme poor households. There are also some supply side hurdles which are mainly procedural or bureaucratic limitations of the PBSs in providing electricity connections. Therefore, to get best output from the microfinance component, the PBSs would also need to increase their efficiency or ease the existing complicated procedure. However, the microfinance component should also address the livelihood vulnerabilities of the extreme poor population. If it focuses only on the financial requirement to avail electricity connection and keeps the issue of livelihood vulnerability aside, the real goal of REDP, i.e., development through electrification, cannot be achieved.

It has been reported by a major portion of the households that the shorter duration of intervention has not provided the opportunity to capture many other impacts, which would be visible after a longer period of time. It is therefore, recommended to undertake another panel study (involving the same households, methodology and instruments) on impacts of REDP mediated electrification after providing the service at least for five years.

Annex 6:
Photos

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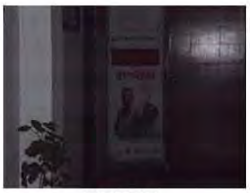
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P-6-Teacher at Board


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P-10-Student on_class


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