Environmental Monitoring Report

Project No: 42378-017
Loan No-BAN: 3350
July 2018

Power System Expansion and Efficiency Improvement Investment Program - Tranche 3

Output-2: Transmission System expanded and upgraded

January – June 2018

Prepared by: Power Grid Company of Bangladesh Ltd (PGCB) for the Asian Development Bank for People's Republic of Bangladesh.

Semi-annual Environmental Monitoring Report

Reporting Period : January, 2018 to June, 2018
Date : August, 2018

Power System Expansion and Efficiency Improvement Investment Program-Tranche 3

Loan No: 3350-BAN

(400/230/132 kV Grid Network Development Project)

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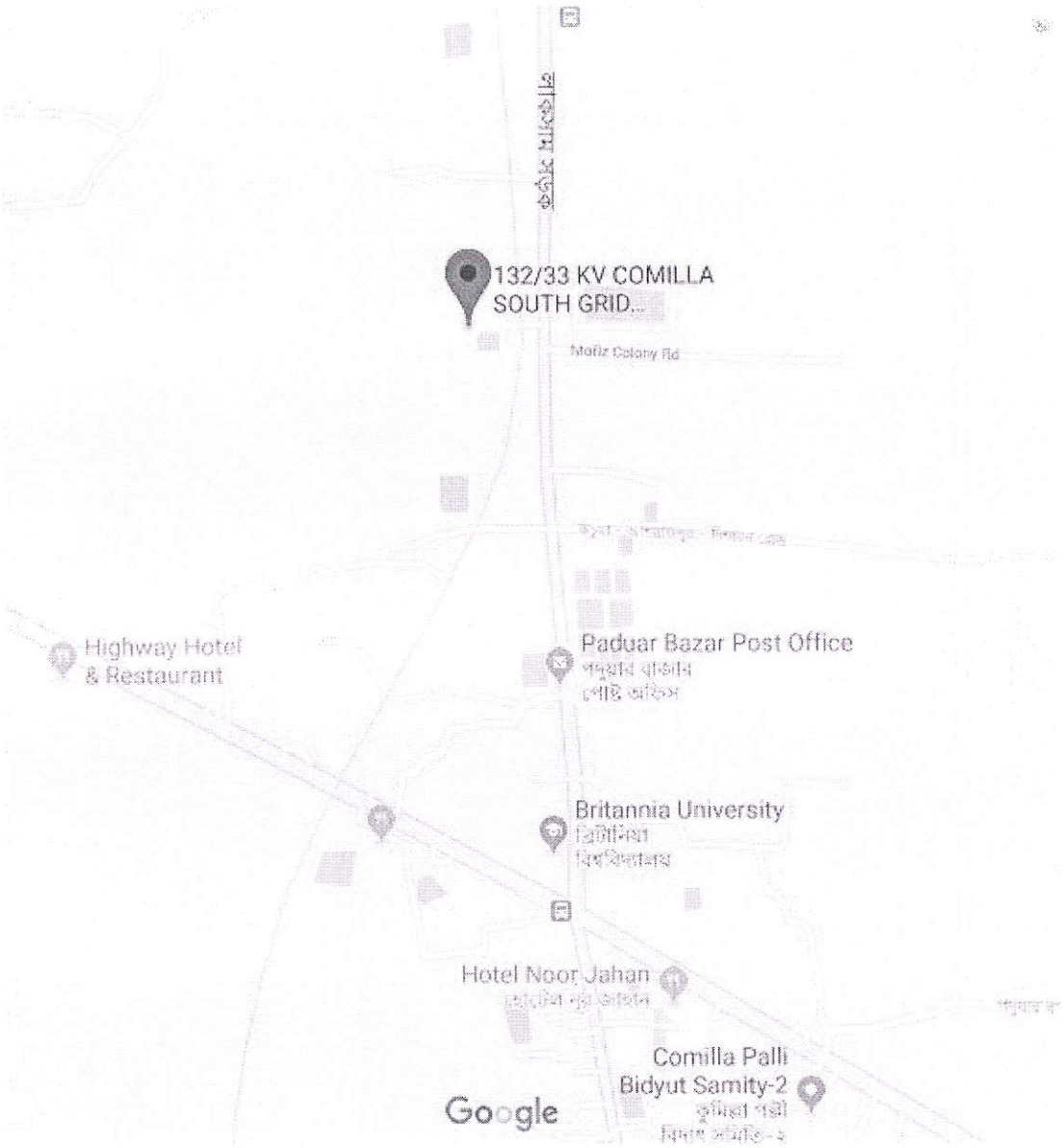

Fig-1: Site Location of 132/33 kV GIS Grid Substation at Comilla (South).

Fig-1: Site Location of 132/33 kV AIS Grid Substation at Kachua, Chandpur.

Fig-1: Site Location of 132/33 kV GIS Grid Substation at Kalurghat, Chittagong.

Fig-1: Site Location of 132/33 kV GIS Grid Substation at Madunaghat, Chittagong.

1.0 Introduction

Power Grid Company of Bangladesh Ltd. (PGCB) is executing this project (400/230/132 kV GND Project). The project is divided into three Packages (Package-1, Package-2 & Package-3). The discussing project (ADB Loan No.: 3350- BAN) is in Package-3. As per DPP this package (Package-3) divided into two Lots like Lot-1 (Sub-station) & Lot-2 (Transmission Line). This project with Foreign Exchange of 43.46 million USD being financed by Asian Development Bank (ADB) and local currency being financed by Government of Bangladesh (GOB) & PGCB funds. A loan agreement was signed between ADB and GOB in this regard on December 22, 2015. The project includes construction of 04 nos. (new 02 nos. & up-gradation 02 nos.) Grid substations and construction of around 72 km Transmission lines to up gradation transmission network of Dhaka & Chittagong and improve the power supply reliability.

So far as Environmental Assessment (EA) was concerned, PGCB has carried out and obtained IEE and EIA Reports from CEGIS and thus provisional Environmental Clearance Certificate (ECC) from DOE. Accordingly, Health Safety and Environmental (HSE) issues and implementation of EMP were included in the contracts with the contractors to attract compliance with these issues. Simultaneously, EA (PGCB) and its contractors working in the field are regularly monitoring the implementation of EMP, HSE issues, conducting Tool Box Meetings, provided with guidelines for safety and Environmental Parameters. As for now, task need to be considered in priority are to establish an institutional mechanism to manage and monitor the EMP, enhancing awareness programs, identifying the gaps and working out a To-Do list with time bound achievement frame work.

1.1 The objectives of the Project include:

- To increase the power supply reliability of Comilla, Chandpur (Kachua) and Chittagong (Kalurghat & Madunaghat) area.
- To meet the growing demand of Comilla, Chandpur (Kachua) and Chittagong (Kalurghat & Madunaghat) area.
- To strengthen the power evacuation arrangement & increase power supply stability, reliability & Transmission capability in Comilla, Chandpur (Kachua) and Chittagong (Kalurghat & Madunaghat) area.

1.2 Scope of Work of the Project:

- **Lot-1 (Sub-station):**
  a) New 132/33 kV, 2x50/75 MVA AIS Grid Sub-station at Kachua.
  b) New 132/33 kV, 2x50/75 MVA GIS Grid Sub-station at Kalurghat.
  c) Up gradation of 132/33 kV AIS substation to GIS substation at Madunaghat.
  d) Up gradation of 132/33 kV AIS substation to GIS substation at Comilla(S).

- **Lot-2 (Transmission Lines):**
  a) Madunaghat-Kalurghat 132 kV Double Circuit Underground Transmission Line: 7 km

b) Re-conductoring of Existing Comilla(South)-Chandpur 132 kV Double Circuit Overhead Transmission Line: 65 km

The foreign Exchange component of the project cost are being financed from ADB's Power System Expansion and Efficiency Improvement Investment Program (Trance 3) Loan no. 3350-BAN, signed between ADB and Government of Bangladesh (GOB) under Subsidiary Loan Agreement (SLA) with PGCB, whereas the local currency expenses are being financed by GOB and PGCB.

2.0 Project Description

PGCB is the implementing agency of 400/230/132 kV Grid Network Development Project under the Ministry of Power, Energy and Mineral Resources.

The details of the said project are given in Table-1.1.

Table-2.1: Project at a Glance

Project Title	:	400/230/132 kV Grid Network Development Project (Power System Expansion and Efficiency Improvement Investment Program- Tranche 3, Loan No: 3350-BAN)
Ministry/Division	:	Ministry of Power, Energy and Mineral Resources/Power
Executing Agency	:	Power Grid Company of Bangladesh Limited (PGCB)
Location of the Project	:	**District**: Comilla, Chandpur & Chittagong. **Upazilla** : Comilla Sadar, Hajiganj, Hathajari, Chandgaon.

Tenders were invited for the implementation of the project by Two lot: Lot-1 for substations and Lot-2 for Transmission lines. After systematic and successful tendering processes Two turnkey contract were signed with the approval of ADB as follows:

- **Lot-1 (Sub-station):**

Construction and Completion of 132/33 kV AIS Substation at Kachua, 132/33 kV GIS Substation at Kalurghat and Upgradation of Existing 132/33 kV Madunaghat and Comilla (S) AIS Substation to GIS Substation on Turnkey Basis (Contract No. PSEEIP (TRANCH-3)/ADB/PGCB/P03/SS) has been signed between PGCB and M/s. ABB India Ltd., India.

- **Lot-2 (Transmission Lines):**

Design, Supply, Erection, Testing & Commissioning of Madunaghat-Kalurghat 132 kV Double Circuit Underground Transmission Line and Re-conductoring of Existing Comilla(S)-Chandpur 132 kV Double Circuit Overhead Transmission Line on Turnkey Basis. (Contract No. PSEEIP (TRANCH-3)/ADB/PGCB/P03/TL) has been signed between PGCB and M/s. CCCE-ETERN-HANBAEK Consortium.

2.1 Project Progress Status and Implementation Schedule:

General Information:

Lot-1 (Substation):

Contract No: PSEEIP (TRANCH-3)/ADB/PGCB/P03/SS

Construction and Completion of 132/33 kV AIS Substation at Kachua, 132/33 kV GIS Substation at Kalurghat and Upgradation of Existing 132/33 kV Madunaghat and Comilla (S) AIS Substation to GIS Substation on Turnkey Basis (Contract No. PSEEIP (TRANCH-3)/ADB/PGCB/P03/SS) has been signed between PGCB and M/s. ABB India Ltd., India on .

Contract Price: USD 21,875,940.38 plus **BDT** 380,569,600.00

Contract Award:
The contract was awarded to M/s. ABB India Ltd. on 07th June, 2017.

Implementation Schedule:

The project completion date is August, 2019 which is 730 days from the effective date of the contract.

Lot-2 (Transmission Lines):

Contract No: PSEEIP (TRANCH-3)/ADB/PGCB/P03/TL.

Design, Supply, Erection, Testing & Commissioning of Madunaghat-Kalurghat 132 kV Double Circuit Underground Transmission Line and Re-conductoring of Existing Comilla(S)-Chandpur 132 kV Double Circuit Overhead Transmission Line on Turnkey Basis

Contract Price: USD 12,290,399.91 plus **BDT** 32,171,049.33

Contract Award:
The contract was awarded to M/s. CCCE-ETERN-HANBAEK Consortium on 09th April, 2017.

Implementation Schedule:

The project completion date is March, 2019 which is 540 days from the effective date of the contract.

Present Status:

Financial Progress:

Lot-1 (Substation):	
Contract Price	USD 21,875,940.38 plus BDT 380,569,600.00
Total Expenditure up to June, 2018 (ADB Fund)	mUSD 2.09 + mBDT 76.64
Lot-2 (Transmission Lines):	
Contract Price	USD 12,290,399.91 plus BDT 32,171,049.33
Total Expenditure up to June, 2018 (ADB Fund)	mUSD 6.27 + mBDT 3.32

Physical Progress:

Lot-1 (Substation):

(i) Land Development work for Kachua & Comilla(S) substation has been completed.
(ii) Land Development work for Madunaghat & Kalurghat is going on.
(iii) Pre-section measurement of Kachua & Comilla(S) substation has been completed.
(iv) Pile & Pile cap casting of CRB has been completed for Comilla(S) substation.
(v) First floor Beam, Column and Roof casting of CRB has been completed for Comilla(S) substation.
(vi) Ansar Barrack foundation and Column casting has been completed for Comilla(S) substation.
(vii) CRB and Dormitory building piling work is going on at Kachua Substation.

Lot-2 (Transmission Lines):

(i) Total 23795 nos. Top Slab Casting & 15463 nos. Inter-locking Block casting has been completed for Madunaghat-Kalurghat 132 kV Underground Transmission line project.
(ii) Required Underground Cable reached at site for Madunaghat-Kalurghat 132 kV Underground Transmission line project.

2.2 Resettlement Plan:

ADB safeguard policy statements 2009 (SPS 2009) has been followed in Land Acquisition and Resettlement process. As the selected locations for substations are basically empty & shallow lands, compensations have been paid to the landowners as per provision of the existing law for the value of land and to meet their losses of crops, trees or any other valuables on the land with mutual discussion with land owners. According to the PGCB resettlement plan (2013) the land acquisition for substations involve 30 APs will be economically displaced due to the project and all of them will be compensated with additional 50% of market price of the land along with the market price.

As per Electricity Act 1910 and Telegraph Act 1885, permanent land acquisition will not be required for the transmission line. No permanent structure will be affected as the selected route of the transmission line runs basically through crops field and low land area, no resettlement will be necessary. However,

compensation will have to be paid to the landowners as per provision to meet their losses of crops and trees.

Table-2.2: Compensation for Resettlement Budget

Item of Work		Quantity	Price of the acquired land	Compensation	Remarks
Substation	Kachua 132/33 kV AIS Substation	5.00 acre	mBDT 102.92	mBDT 51.46	Additional 50% of the market price of the land for compensation

3.0 Compliance to National Regulations

3.1 Brief summary of status of compliance with Environmental Conservation Rules 1997:

Bangladesh Environmental Protection Act 1995 and subsequent amendments and relevant Acts including Environmental Conservation Rules (ECR)1997 calls for environment-friendly execution of any Power Sector Development project in its all stages of Pre-Construction, Construction and Post Construction activities.

According to Environment Conservation Act 1995 and Environment Conservation Rules 1997, all projects have been classified into four categories (Green, Orange A, Orange B and Red). The power development projects are allocated to the red category, which triggers an automatic requirement for an Initial Environment Examination (IEE) followed by a full Environmental Impact Assessment (EIA) study. Subject to satisfactory review of the environmental assessment, the Department of Environment (DoE) issues an authorization for the project to proceed. The authorization consists of two parts: a "site clearance", which gives approval to the site proposed for the project and an "environmental clearance", which approves the content of the project.

A key requirement of the IEE/EIA for projects classified in the Red categories is an Environment Management Plan (EMP). The function of the EMP is to enable the project proponent PGCB to show the DoE how it will deliver the environmental performance assessed in the IEE/EIA (for which DoE approval is sought). The EMP must describe in detail organization and management responsibilities, give details of how mitigation measures identified in the IEE/EIA will be implemented and explain how monitoring will be carried out.

The PGCB, as the executing agency, is responsible for carrying out IEE and EIA studies of the project. PGCB has already engage Center for Environment and Geographic Information Services (CEGIS) for conducting IEE and EIA study by splitting the total project between two sections: Section A for TRANCH-2 & Section B for TRANCH-3. IEE and EIA study has been completed for all those sections and based on the assessment; environmental clearance from DoE has been received for all the sections.

EMP has been made by CEGIS as a prerequisite of submitted EIA and getting approval from DOE. The EA (PGCB) has made its contractors concerned about the EMP and site activities are monitored to check the compliance with EMP.

3.2 Compliance to Environmental Covenants from the ADB Loan Agreement:

Civil construction works at different sites are running under the project. DOE's regulations and ADB's Safeguard Policy Statement (2009) are in general being complied with by the EA and its contractors. Provisions of the IEE and EMP updated with Hazard Safety issues to fill in by the working contractors and submitting regularly helped verification of compliance at site and so far did not call for any remedial actions to mitigate and making any specific event reference to ADB.
There has not been any change to the project components.
The contractors will submit report on the implementation of safety issues on regular basis with information that they were conducting awareness program and meeting up the gaps.

Environmental Covenants are being complied with.

4.0 Compliance to Environmental Management Plan:

As EMP is a key requirement for obtaining Environmental Clearance from DOE, PGCB has submitted an EMP with EIA study. The function of EMP is to identify the impacts on environment because of construction work, how to mitigate the impacts and explain how monitoring will be carried out. All personnel related to construction work are made aware of the EMP by regular meetings and currently, compliance of EMP is monitored by PGCB and safety officers of contractor. So far construction works are running with full compliance of EMP.

Table 4.1: Compliance with EMP

Project Size	Parameter/Indicator	Location	Frequency	Compliance Status/Remarks
Pre-Construction	Soil sampling	Substation sites (particularly those with existing structure and equipment dismantled)	Once before construction	Completed
	Local recruitment of workers and staff	Substations, transmission lines	Monthly	On Going.
	Orientation of Contractor(s) and workers on issues like HIV/AIDS, compliance to EMP, etc.	Substations and Transmission line	Once before construction, and as needed	Completed
Construction	Spraying of water to exposed land and before movements of construction vehicles	Substations and road basements when laying of underground cable to connect substations	• Weekly at road basements (or as needed) • Every day at substations sites during dry	On Going

Project Size	Parameter/Indicator	Location	Frequency	Compliance Status/Remarks
			season and as needed during monsoon season	
	Solid waste management	Substations, transmission lines	Every week	On Going
	Danger and warning signs for safety of workers and the public	Substations and road basements affected by laying of underground cables, transmission lines	Once a month	Completed
	Announcement to the public of works schedule	Along the road basement affected by laying cables and substations	As needed	Completed
	Erosion control measures such as temporary shoring	Substations, transmission lines (if needed)	Once	Completed
	Smoke belching construction vehicles	Sub stations and transmission lines	Weekly	Completed
	Dust and noise level	Substations, transmission lines	Twice a month	Being complied
	Housekeeping	Substations, and transmission lines	Weekly	Being complied

5.0 Safeguards Monitoring Results and Unanticipated Impacts

The pertinent issues with reference to the Environmental Monitoring Plan (EMP) has been identified and correlated with the environmental standards where necessary. Such findings along with any unanticipated impact not included in the EMP have been placed with recommendations in **Table-5.1**. Assistance to EA and its Contractors in taking corrective action/measures and the steps thus taken / to be taken has also been pointed out therein.

In that context, attention has been drawn to take necessary actions particularly in respect of Institutional Requirement and Monitoring Plan for the Post Construction and Operational Phase as per EMP approved by DOE & ADB for the project. This would include assessment of the training and awareness requirement on occupational hazard & safety issues for the operational teams and evaluation of injury and incident reports of the working contractors as well.

Table-5.1: Findings, Recommendations & Assistance to EA & its Contractors in Monitoring EMMP

Sl. No.	Issues & Findings	Actions Taken by
1.	**Monitoring Mechanism:** This was required for implementing the EMMP	Safety officers are already employed by the substation contractor SIEMENS for monitoring issues regarding safety. The TL contractor SIEMENS has been advised to employ safety officers under his jurisdiction which is under process by the site contractor.
2	**Environmental Clearance Certificate (ECC) Renewal**: ECC need to be renewed.	ECC will be renewed.
3.	**Health & Safety Hazard Check List (HSHCL):**	Turnkey contractors are advised to prepare and maintain HSHCL and it is monitored by EA. Regular Tool Box Meetings are held at site for awareness of the workers.
4.	**Environmental & Social Components:** Environmental and Social Components were to be implemented with due diligence as per provision of the EIA.	PGCB is aware about the status of mitigation measures of potential impact on Environmental and social components.
5.	**Environmental Parameters (EPs) Quality Monitoring.**	No effluent from site was falling into the river, negligible amount of Green House Gas are emitted from the construction work. So far, no plantation are destroyed for the sake construction work.
6.	**Sharing of information with Project Affected Persons (PAP) & Stakeholders' Response:**	PGCB will continue keeping PAP informed in advance for remaining works on the ROW.

6.0 Implementation of Grievance Redress Mechanism and Stakeholders' Complaints

About 4.5 Acres of land were acquired for substations and cares are taken while selecting lands for substations and all selected lands are basically infertile and far from densely populated area. Prior consents from the land owners are taken before selecting the land for acquisition. Land acquisition for substations was completed and guided by Draft National Involuntary Resettlement Policy 2010, LAR Ordinance Amended in 1994 and Safeguard Policy Statement 2009. Compensation was paid to owners that were affected on acquisition by account payee Cheque in presence of the local Member of Parliament, local representatives and local Government Officers.

Permanent Land acquisition was not required for the TL as per Electricity Act 1910 and Telegraph Act 1885 but due Compensation will be paid to the land owners to meet their losses of crops and trees. No permanent structure will be affected as TL passed through open field and agricultural land.

Formation of a Grievance Redress Committee is under process for paying the compensation of TL, however compensation of substation land has been already paid to the land owners. So far no complaints were received from the affected people.

7.0 Conclusion and Recommendations

The objective and tools of monitoring and measuring the progress of implementation of the EMMP is basically to fulfill the safeguard requirements of ADB as well as that of DOE. Thus continuous updating of EMMP is required for unanticipated impacts standing currently apparent if any. Further, contract document has adequate coverage of Environmental and Occupational Health & Safety (EOHS) issues.

1. The copies of own policy documents of the contractors and their subcontractors pertaining to EHS & OHS along with Tender & contract provisions will be reviewed and evaluated periodically and followed for due assistance in implementing the EMMP. The gaps, if identified in the field through periodic inspection and verification, will be duly addressed.

2. Due safety training and awareness program will be continued particularly on Fire Hazards & Safety Orientation courses.

3. EMMP is a dynamic mechanism and hence the provisions contained in the available tools like EMP of EIA doc will be revisited from time to time.

4. PGCB will also follow up with DOE regarding renewal of validity of their Environmental Clearance for renewal of ECC.

5. PMU always follow up with the contractors about implementation of the recommendations.

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