

**Loan No. 3554-BAN-OCR**

**Public-Private Infrastructure Development Facility-3**

**ANNUAL ENVIRONMENTAL AND SOCIAL COMPLIANCE AUDIT REPORT**

**225 MW Power Project at Borhanuddin, Bhola, Bangladesh**

**Nutan Bidyut Bangladesh Limited**

**March, 2019**

**Prepared by**

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## List of Abbreviations

|       |                                            |
|-------|--------------------------------------------|
| ADB   | Asian Development Bank                     |
| DOE   | Department of Environment                  |
| ECR   | Environment Conservation Rules             |
| EHS   | Environment and Health Safety              |
| EMP   | Environmental Management Plan              |
| ERP   | Emergency Response Plan                    |
| FGD   | Focus Group Discussion                     |
| IDCOL | Infrastructure Development Company Limited |
| IEE   | Initial Environmental Examination          |
| NBBL  | Nutan Bidyut Bangladesh Limited            |
| PPE   | Personal Protective Equipment              |
| SPS   | Safeguards Policy Statement                |

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## EXECUTIVE SUMMARY

### Background

Nutan Bidyut (Bangladesh) Limited (NBBL) has been awarded to develop, design, finance, build, own, operate and maintain the 225 MW dual fuel based Combined Cycle Power Plant (CCPP) at Bhola District of Barisal Division. The proposed plant is to be set up adjacent to the existing 225 MW CCPP of Bangladesh Power Development Board (BPDB), referred as Bhola-I. For financial assistance NBBL has approached Infrastructure Development Company Limited (IDCOL), along with other lenders. Considering the importance of the project, IDCOL has provided a term loan facility of USD 70 million in favour of the project. IDCOL has sourced the required financing from the fund allocated as ordinary capital resources (OCR) for large infrastructure projects under Public-Private Infrastructure Development Facility (PPIDF)-3 of Asian Development Bank (ADB).

According to the Environment Conservation Rules (ECR), 1997 of Bangladesh Government, industrial projects have been categorized into four classes—Green, Orange A, Orange B and Red. Considering the magnitude of environmental impacts, power plant project has been classified as Red Category. Hence, NBBL project has fallen into the **Red category**. Given the environmental impacts of the NBBL project are mostly site specific, ADB has categorized the project as **B** as per ADB guidelines. Due to the absence of any indigenous habitat in the project area, the project has been categorised as **C** from indigenous peoples (IP) perspective. In addition, based on available information, there is no issue of involuntary resettlement. So, the project has been categorised as **C** from involuntary resettlement (IR) perspective. In addition, IDCOL has adopted an Environmental and Social Safeguards Framework (ESSF). According to this ESSF, the proposed project of NBBL seems to be a **High Risk** project requiring detail environmental impact assessment.

ERM, India being engaged by NBBL as Environmental Consultant, has conducted the detail environmental impact assessment and prepared the Initial Environmental Examination (IEE) Report based on the guidelines of Department of Environment (DOE), Government of Bangladesh (GOB) and Asian Development Bank's (ADB's) Safeguard Policy Statement (SPS), 2009. In addition, respective IFC EHS guidelines (general and sector specific) have also been consulted. To assess the actual implementation of environmental management plan and social safeguards, respective IDCOL official visited the project site during construction and operation phases. According to the IEE, there is requirement of IDCOL to submit annual Environmental and Social Compliance Audit Report of this project to ADB. Accordingly, this audit report has been prepared by IDCOL.

### Audit overview and findings

The respective IDCOL official has visited the project during the audit period (*January 2018 to December 2018*). He has also reviewed the available relevant documents and clearances. In addition, there was consultation with representatives of adjacent neighborhood. The audit deals with the implementation of environmental and social safeguards during operation phase in light of ADB approved Initial environmental Examination (IEE) report. During audit, the commitment of NBBL to comply with environmental and social safeguards have been found as satisfactory.

## 1.0 INTRODUCTION

### 1.1 PROJECT PROPONENT

The project involves development and operation of a 225 MW gas based power plant at Kutba Union of Borhanuddin Upazilla, Bhola District. Nutan Bidyut Bangladesh Limited (NBBL) is a special purpose vehicle of well-known entrepreneur named Habib Group. The generated electricity from the project will be sold to Bangladesh Power Development Board (BPDB) under a 22-year Power Purchase Agreement. Table 1.1 shows key project information.

**Table 1.1: Key project information**

|                               |                                                                                                                                                            |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project Company               | Nutan Bidyut (Bangladesh) Ltd.                                                                                                                             |
| Date of Incorporation         | 27 March 2016                                                                                                                                              |
| Registration Number           | C-129866/2016                                                                                                                                              |
| Registered Address            | B&B Empire, 7 <sup>th</sup> Floor, Plot No. 116, Road No. 11, Block – E, Banani, Dhaka                                                                     |
| Trade License Number & Issuer | No: 03-094765; Dhaka North City Corporation                                                                                                                |
| TIN Number                    | 431559740389                                                                                                                                               |
| Type of Business              | Power Generation                                                                                                                                           |
| Capacity                      | 220 MW (Gas) / 212 MW (HSD)                                                                                                                                |
| Fuel Type                     | Duel Fuel (Gas/ HSD)                                                                                                                                       |
| Project Location              | Kutba Union, Burhanuddin Upazilla, Bhola District                                                                                                          |
| Land Area                     | 18.78 acres                                                                                                                                                |
| Project Tenure                | 22 Years                                                                                                                                                   |
| Project Type                  | Independent Power Producer                                                                                                                                 |
| LOI Issuance Date             | 18 April 2016                                                                                                                                              |
| Project Agreements            | Power Purchase Agreement (PPA)<br>Implementation Agreement (IA)<br>Gas Supply Agreement (GSA)<br>Fuel Supply Agreement (FSA)<br>Land Lease Agreement (LLA) |
| Gas Turbine                   | General Electric Company (GE)                                                                                                                              |

### 1.2 AREA AND LOCATION OF THE PROJECT

The proposed power plant is to be located adjacent to Bhola-I Power Plant at Kutba Union of Borhanuddin Upazilla, Bhola District, Bangladesh. The project is proposed to be situated on the right bank of Dehular Khal and is approachable via Charfassion-Bhola Highway Road (R890). Borhanuddin town is approximately 3 km from the project site and 28 km north of Bhola District Headquarters.

The plot of land is primarily virgin, plain and flat, and the Dehular Khal (canal), originating from Tatulia river, is passing alongside its western boundary. Dehular Khal has sufficient flow to meet the water requirement of the power plant for operation and maintenance throughout the year. No human settlement or houses exist on the land. In the close vicinity (within 2 km from

the centre) of the Project site, small settlements are located eastern, north-eastern and western side. The project site co-ordinates are as follows:

|                     |                              |
|---------------------|------------------------------|
| North corner :      | 22°28'53.72"N, 90°42'32.95"E |
| North-West corner : | 22°28'53.87"N, 90°42'29.39"E |
| South corner :      | 22°28'36.46"N, 90°42'35.78"E |
| South-East corner : | 22°28'37.74"N, 90°42'39.03"E |

### **1.3 BRIEF DESCRIPTION OF THE PROJECT**

The main power block of the Plant will consist of two dual fuel gas turbine ("GT"), one steam turbine ("ST"), two heat recovery steam generators ("HRSG") and bypass and main stacks. Emergency diesel generators will be provided to ensure safe shutdown.

#### **Gas Turbine**

The Gas Turbine models for this CCPP are dual fuel (Natural Gas and HSD) GE make Frame 6F.03, 50 Hz machines with dry low NOx burner assembly coupled with individual two (2) pole cylindrical rotor, closed circuit, air cooled generator that delivers power at a voltage of 11.5 kV. The GT will be installed within an acoustic, ventilated enclosure with fire detection and protection systems.

#### **Heat Recovery Steam Generator**

The HRSG will be of a double pressure, unfired, natural circulation and horizontal type, in accordance with the manufacturer's standard design. The HRSG will be sized to operate over the full range of ambient temperatures specified. The HRSG consists of an economizer, evaporator, and super-heater tube bank section(s) with finned tubing, as appropriate, to maximize heat transfer.

#### **Steam Turbine**

The steam turbine will be 3000 RPM, non-reheat, condensing type, coupled directly to a two (2) pole cylindrical rotor, closed circuit, air cooled generator that delivers power at a voltage of 11 kV. The ST exhaust and condenser configuration will be in accordance to manufacturer's standard design. The ST will be sized to pass the entire quantity of steam generated by the HRSG over the full range of ambient temperatures specified.

#### **Feed Water System**

The feed water system will provide sufficient and reliable feed water to the HRSG. The feed water system will include necessary feed water heaters, de-aerators, feed water pumps, control valves and auxiliaries. One feed water pump will be in service during 100% plant output with another pump on standby.

## **Steam Turbine Condensers**

The steam turbine condenser will be designed and constructed with sufficient margin and spare surface area for the maximum heat rejection duty under both normal operation and turbine bypass operation conditions for the operating regime specified. The condenser will be cooled by the cooling water system.

## **Cooling Water System**

The main cooling water system will provide cooling water to the steam turbine condenser by means of cooling water pumps installed in the cooling tower basin. The warm water from the condenser is returned to the multi-cell induced draft cooling tower, where it is cooled and collected in the cooling tower basin for return to cool the condenser. The induced draft cooling tower will be provided with the capacity for maximum heat rejection duty under all steam turbine operation conditions for the design conditions specified. The cooling tower shall have sufficient cells to allow for one cell to remain in standby under reference operating conditions.

## **Natural Gas System**

Natural Gas at a pressure of about 600 psig will be supplied at the plant terminal, which will be further reduced upto 300 psig by installing regulating and metering station (RMS). The gas will be supplied from Shabajpur gas field of Sundarban Gas Company Limited, which is at distance of 6 km. A pipe line will be laid for this purpose by SGCL. The natural gas system will include backup metering equipment and all necessary compressors, pressure reduction stations, gas filter-separators, isolation and control valves, safety valves, and other equipment.

## **1.4 OBJECTIVES OF THE ENVIRONMENTAL AND SOCIAL COMPLIANCE AUDIT**

The audit has been conducted with the aim to assess the project's compliance with-

- (i) Environment Conservation Rules (ECR)1997 of GOB;
- (ii) Environmental and social safeguards according to the Environmental and Social Safeguards Framework (ESSF) of IDCOL;
- (iii) Environmental and social safeguards according the Safeguards Policy Statement (SPS), 2009 and other relevant standards and guidelines of the ADB;
- (iv) Proposed mitigation measures and monitoring procedures according to the environmental management plan (EMP), resettlement action plan (RAP) as are applicable.

## **1.5 METHODOLOGY**

The audit includes the following steps:

- (i) visit the project site and consult with stakeholders especially local people;
- (ii) review the environmental and social safeguards documents including environmental impact assessment report, EMP and Resettlement Action Plan, Stakeholder Engagement Plan (as are relevant) ;
- (iii) assess actual implementation of the guidelines/action plan of the safeguard related documents.

## **1.6 REPORTING PERIOD**

The reporting period of this Environmental and Social Compliance Audit Report is January 2018 to December 2018.

## **1.7 CHANGES IN PROJECT SCOPE**

There is no change in the technology and operational process as have been declared by the respective government and accepted by NBBL. So, it can be said that the Environmental Management Plan (EMP) of ADB approved Initial Environmental Examination (IEE) is fully applicable during the reporting period as well.

## **1.8 ENVIRONMENTAL MONITORING**

The parameter, frequency and methodology of environmental monitoring are in accordance with EMP of ADB approved IEE, as has been detailed in chapter 3 of this audit report.

## **2.0 REGULATORY REQUIREMENTS**

### **2.1 ENVIRONMENT CONSERVATION RULES, 1997 OF BANGLADESH**

The project has to comply with the Environment Conservation Rules (ECR), 1997. According to the categorization of ECR, 1997, the project has been categorised as **Red**<sup>1</sup> meaning that it has significant adverse environmental impacts, which are to be mitigated with proper mitigation measures.

### **2.2 ENVIRONMENTAL AND SOCIAL COMPLIANCE RELATED STANDARDS AND GUIDELINES OF ASIAN DEVELOPMENT BANK**

The project has to be complied with Safeguards Policy Statement (SPS), 2009 of ADB in regard of environmental and social (E&S) compliances. Considering the adversity of environmental impacts, it has been categorized as **B** from environmental safeguard point of view. Accordingly an IEE has been prepared, which is already approved by the ADB. As no record of any indigenous habitat has been found at Kutba, Borhanuddin the project has been categorised as **C** in respect of Indigenous People (IP). But in consideration of affecting the livelihood of seven share croppers, temporary inconvenience of shop keepers along the road side and landowners along the transmission line, the project has been categorised as **B** from IR perspective.

### **2.3 ENVIRONMENTAL AND SOCIAL SAFEGUARDS FRAMEWORK OF IDCOL**

IDCOL has adopted an Environmental and Social Safeguards Framework (ESSF) in 2011, which is to be complied with all infrastructure projects as are to be funded IDCOL. According to the environmental categorization of ESSF, the project has been categorised as **High Risk**<sup>2</sup> project requiring significant compliance safeguards including comprehensive environmental impact assessment and regular monitoring. In consideration of social categorization, the project has been categorised as **Moderate Risk** in consideration of social safeguards due to the partial change of livelihood of seven share croppers and temporary inconvenience of some local people while installing gas distribution and power transmission line.

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<sup>1</sup> Schedule-1 of ECR (project no. 6 of Red category), 1997

<sup>2</sup> The project risk screening checklist of ESSF, IDCOL is provided in Annex-3

### **3.0 IMPLEMENTATION OF ENVIRONMENTAL SAFEGUARDS**

#### **3.1 COMPLIANCE WITH ENVIRONMENT CONSERVATION RULES, 1997**

NBBL has to comply with the requirement of ECR, 1997 of the DOE. In the following Table 3.1, the compliance status of NBBL, in regard of major milestones of ECR, 1997 is depicted. The renewal copy of Environmental Clearance Certificate is provided in Annex-1.

**Table 3.1: Compliance with the requirement of ECR, 1997**

| <b>Basic Requirement</b>                       | <b>Compliance Status</b> |
|------------------------------------------------|--------------------------|
| Award Site Clearance Certificate               | Fully complied           |
| Award EIA approval                             | Fully complied           |
| Award Environmental Clearance Certificate      | Fully complied           |
| Renewal of Environmental Clearance Certificate | Fully complied           |

#### **3.2 COMPLIANCE WITH ENVIRONMENTAL MANAGEMENT PLAN**

##### ***a. Institutional arrangement***

To ensure satisfactory EHS compliance, NBBL has already appointed Mr. Arif Hossain. Mr. Arif is experienced with technical and EHS issue due to his considerable period of experience in Chevron. He is assisted by a group of engineers and other officials. At the corporate level, the EHS aspect is monitored by Mr. J. Sinhamahapatro Director, NBBL.

##### ***b. Compliance status***

In the IEE, a number of activities having potential adverse environment impacts and occupational health safety aspects during operation phase have been identified. In the following Table 3.2, suitable mitigation measures to address these impacts according to the EMP and actual responses by NBBL has been discussed.

**Table 3.2: Response of NBBL on project activities and mitigation measures during construction phase**

| <b>Project Activity</b>                                                                | <b>Potential Impacts</b>                                             | <b>Proposed mitigation measures in EMP</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Actual implementation</b>                                                                                                                                                                                                                                     | <b>Compliance status</b> |
|----------------------------------------------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| <b><i>Site Clearing, sand filling and site preparation, laying of gas pipeline</i></b> | Soil erosion and compaction                                          | <ul style="list-style-type: none"> <li>▪ Demarcation of routes for movement of heavy vehicles especially near the temporary jetty;</li> <li>▪ Stripping and placing soils when dry, and not when wet;</li> <li>▪ Building small bunds in areas with slope to prevent soil erosion</li> </ul>                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>▪ Through separate routes pedestrians have been separated from heavy traffic vehicles.</li> </ul>                                                                                                                         | Fully complied           |
| <b><i>Wastewater Discharge from washing of equipment and machinery</i></b>             | Surface water contamination                                          | <ul style="list-style-type: none"> <li>▪ Vehicle servicing areas and wash bays located within roofed and cemented areas. The drainage in these covered areas connected to oil/water separator and channelized properly to the land/inland waters ;</li> <li>▪ Oil leakage or spillage contained and cleaned up immediately. Waste oil to be collected and stored for recycling or disposal;</li> </ul>                                                                                                            | <ul style="list-style-type: none"> <li>▪ Proper arrangement required drainage facility has been observed;</li> <li>▪ There is adequate attention to address oil leakage and spillage.</li> <li>▪ Sanitary facilities have been found as satisfactory.</li> </ul> | Fully complied           |
| <b><i>Leaks and spill of oils, lubricants and fuels</i></b>                            | Ground water contamination                                           | <ul style="list-style-type: none"> <li>▪ Oil and grease separator shall be used for wastewater generated from cleaning activities;</li> <li>▪ Any surplus wastewater from the concrete batching to be treated to comply with discharge standards before it is discharged;</li> <li>▪ Adequate sanitary facilities, i.e. toilets and showers, provided for the construction workforce;</li> <li>▪ Workers trained in the use of designated areas/bins for waste disposal and encouraged to use toilets.</li> </ul> | <ul style="list-style-type: none"> <li>▪ There is arrangement of awareness raising initiative to workers.</li> </ul>                                                                                                                                             | Fully complied           |
| <b><i>Transportation of personnel and use of road network.</i></b>                     | Disturbance to existing road users through increase in road traffic. | <ul style="list-style-type: none"> <li>▪ Avoiding peak hours for heavy vehicles movement where possible;</li> <li>▪ Speed limit within access road shall be less than 20 km/hr;</li> <li>▪ Training and awareness amongst driver's to encourage systematic parking, following traffic rules, preventing unnecessary stoppages and overtaking.</li> </ul>                                                                                                                                                          | <ul style="list-style-type: none"> <li>▪ Speed limit has been found to maintain;</li> <li>▪ Workers have been found to be properly trained about safe traffic rules.</li> </ul>                                                                                  | Fully complied           |

| Project Activity                                                                | Potential Impacts                                                  | Proposed mitigation measures in EMP                                                                                                                                                                                                                                                                                                                             | Actual implementation                                                                                                                                                                                                                                   | Compliance status |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| <b>Heath safety during operation</b>                                            | Risk of human health and property damage                           | <ul style="list-style-type: none"> <li>▪ All necessary safety equipment should be ready at the plant;</li> <li>▪ Regular training on safety needs to provide.</li> </ul>                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>▪ PPE has been found to be adequately practiced.</li> </ul>                                                                                                                                                      | Fully complied    |
| <b>Fires, explosion and other accidents</b>                                     | Risk of human health and property damage                           | <ul style="list-style-type: none"> <li>▪ Use of personal protective equipment during operation and maintenance;</li> <li>▪ Prepare and implement safety and emergency manual;</li> <li>▪ Regular inspection of lines for faults prone to accidents;</li> <li>▪ Provision of fire protection equipment;</li> <li>▪ Provision of Lightening arrestors.</li> </ul> | <ul style="list-style-type: none"> <li>▪ There are various types of fire extinguishers to address different types of fire;</li> <li>▪ Automated firefighting system has been installed;</li> <li>▪ Regular fire drill has been accomplished.</li> </ul> | Fully complied    |
| <b>Domestic wastewater and sewage</b>                                           | BOD, fecal coliform contamination in groundwater and surface water | <ul style="list-style-type: none"> <li>▪ Need to provide septic tank with soak pit for treatment of sewage.</li> </ul>                                                                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>▪ Adequate attention has been given to septic tank with soak pit for treatment of sewage.</li> </ul>                                                                                                             | Fully complied    |
| <b>Wastes oil from plant</b><br>(scrap metal, waste, lube oils, spill oil etc.) | Potential soil and groundwater contamination                       | <ul style="list-style-type: none"> <li>▪ Secure on-site storage, waste sell to the DOE authorized vendor for discharge in a safe place.</li> </ul>                                                                                                                                                                                                              | <ul style="list-style-type: none"> <li>▪ Used lube oil is being sold to DOE designated vendor.</li> </ul>                                                                                                                                               | Fully complied    |

**c. Environmental monitoring**

**i. Technical approach of environmental monitoring**

In the EMP of the IEE, environmental monitoring has been required during operation phase. The air, water and noise quality monitoring schedule are depicted in Table 3.3.

**Table 3.3: Monitoring parameters and frequency of monitoring during operation phase**

| Key parameters to be monitored: (1) Ambient Air Quality      |                                                              |                                                    |
|--------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------|
| location                                                     | frequency                                                    | parameter                                          |
| Four corners of plant boundary and centre point of the plant | Quarterly (routine) analysis                                 | SPM, SPM, PM 10                                    |
| Key parameters to be monitored: (2a) Surface Water           |                                                              |                                                    |
| location                                                     | frequency                                                    | parameter                                          |
| Project site at Kutba                                        | Bi-annual basis in each year (pre-monsoon and post-monsoon)  | pH, Temperature, DO, BOD, COD, TDS, Oil and grease |
| Key parameters to be monitored: (2b) Ground Water            |                                                              |                                                    |
| location                                                     | frequency                                                    | parameter                                          |
| Project site at Kutba                                        | Bi-annual basis in every year (pre-monsoon and post-monsoon) | pH, Temperature, DO, BOD, COD, TDS, Oil and grease |
| Key parameters to be monitored: (3) Noise                    |                                                              |                                                    |
| location                                                     | frequency                                                    | parameter                                          |
| At four corners of Project boundary                          | Quarterly (routine)                                          | Limits in dBA                                      |

**Table 3.4: Ambient air quality at project site**

|                 | 9 June 2018                 |                               | 22 October 2018             |                               |
|-----------------|-----------------------------|-------------------------------|-----------------------------|-------------------------------|
| Location        | SPM<br>(µg/m <sup>3</sup> ) | SPM10<br>(µg/m <sup>3</sup> ) | SPM<br>(µg/m <sup>3</sup> ) | SPM10<br>(µg/m <sup>3</sup> ) |
| At project site | 193                         | 26                            | 157                         | 42.8                          |
| Standard of DOE | 200                         | 150                           | 200                         | 150                           |

Source : NBBL

**Table 3.5: Ambient noise level at project site on 14 September 2017 <sup>3</sup>**

| Location                     | 9 June 2018              |                            | 22 October 2018          |                            |
|------------------------------|--------------------------|----------------------------|--------------------------|----------------------------|
|                              | Day (6.00 am to 9.00 pm) | Night (9.00 pm to 6.00 am) | Day (6.00 am to 9.00 pm) | Night (9.00 pm to 6.00 am) |
| 200 m from east corner       | 52                       | 44                         | 53.70                    | 50.20                      |
| 200 m from west corner       | 53                       | 45                         | 56.90                    | 52.90                      |
| 200 m from south corner      | 54                       | 43                         | 58.20                    | 54.00                      |
| Within power complex         | 72                       | 67                         | 59.46                    | 54.93                      |
| Standard of DOE <sup>4</sup> | 75                       | 70                         | 75                       | 70                         |

Source : NBBL

**Table 3.6: Surface water quality at project site**

| Parameter      | 9 June 2018 | 22 October 2018 | DOE Standard |
|----------------|-------------|-----------------|--------------|
| pH             | 5.0         | 7.61            | 6-9          |
| DO             | 4.5 mg/l    | 4.8 mg/l        | 4.5-8 mg/l   |
| TDS            | 230mg/l     | 170 mg/l        | 2100 mg/l    |
| Oil and grease | 5 mg/l      | 2 mg/l          | 10 mg/l      |

Source : NBBL

<sup>3</sup> The monitoring data have been provided by REPL

<sup>4</sup> The project area has been considered as Industrial Zone based on landuse

## II. Result of environmental monitoring

During operation phase, the ambient air quality and noise level have been found to comply with the acceptable limit of DOE. In addition, surface and ground water quality have been found to be within the limit of DOE.

## III. Disclosure of environmental monitoring

As disclosure of environmental monitoring, NBBL has kept the copy monitoring result available at project site.

## IV. Monitoring adjustment measure

As the air, water and noise monitoring result have been found to be within the limit, no adjustment measures has been recommended.

### 3.3 COMPLIANCE WITH SAFEGUARDS POLICY STATEMENT, 2009 OF ADB

It is already said that the NBBL project has to comply with the requirement of SPS, 2009 of ADB. Accordingly, the compliance of this project in regard of major EHS related requirement are mentioned in Table 3.7.

**Table 3.7: Compliance with important EHS aspects during operation phase**

| <b>ADB Requirements</b>                                                      | <b>Issue and Description of Observation</b>                                                                                                                                                                                                                                                            | <b>compliance Status</b> |
|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| <i>Environment Assessment requirements for various financing modalities</i>  | ERM India has conducted the environmental impact assessment                                                                                                                                                                                                                                            | Fully complied           |
| <i>Occupational and Community Health and safety</i>                          | NBBL has ensured the satisfactory application of PPE.                                                                                                                                                                                                                                                  | Fully complied           |
|                                                                              | There is satisfactory evidence of fire drill.                                                                                                                                                                                                                                                          | Fully complied           |
| <i>Biodiversity conservation and sustainable natural resource management</i> | The activities in relevant to operation phase seems to be inadequate to adversely affect the biodiversity and natural resource management in the project area to a greater extent. But due to the long term operation of the project, there could be limited/minimal impact to the local biodiversity. | Fully complied           |
| <i>Pollution prevention and abatement</i>                                    | NBBL conducts the air, water and noise monitoring on a regular basis. And the monitoring result has been found to be within the acceptable limit. So, it can be said that there is sufficient preventive measures against the potential pollution                                                      | Fully complied           |
| <i>Physical Cultural resources</i>                                           | Due to the unavailability of physical cultural resources within the range of close distance, the issue of adversely affecting the physical cultural property seems not to be relevant with the project.                                                                                                | Fully complied           |

## **4.0 IMPLEMENTATION OF SOCIAL SAFEGUARDS**

### **4.1 IMPACT ON RESETTLEMENT OF THE PROJECT AFFECTED PEOPLE AND LIVELIHOOD**

As the project site is a purchased land of NBBL from private land-owners through *willing seller-willing buyer* arrangement, there is no issue of resettlement. In addition, as the project site was of a low lying land with dominating water logging trend, there was no significant economic activity. So, the project is not associated with adversely affecting the livelihood of any local household.

### **4.2 INSTITUTIONAL ARRANGEMENT ON SOCIAL SAFEGUARD**

#### **Institutional arrangement**

Mr. Fazlur Rahman is also in charge of social safeguard with reporting responsibility to Mr. J. Sinhamahapetro

#### **Grievance Redress Mechanism**

The project site is a purchased land having no involuntary resettlement issue. In addition, there is no habitat of indigenous community in the project area. According to the local community members, during construction phase, NBBL focused on deploying workers coming from local community and they were satisfactorily paid. In addition, NBBL supported the local community in various social infrastructures like widening of existing roads, renovation of mosque etc. So, no grievance was flagged.

For ensuring proper redressal of grievances, NBBL has introduced Grievance Box and Grievance Log Book. While reviewing the Grievance Log Book and consultation with local people, no significant grievance has been observed.

### **4.3 IMPACT ON INDIGENOUS PEOPLE**

Based on the primary observation during site visit and secondary sources, no habitat of any indigenous community has been reported at Char Borhanuddin. So, the project has been categorized as **C** for Indigenous Peoples (IP) safeguards concluding that there is no issue about adversely affecting IP neither in construction phase nor in operation phase.

NBBL has conveyed that they are gender and caste neutral. So, any qualified person coming from the indigenous community will be equally treated during the recruitment process, and will be given the same benefits as like as other personnel.

#### **4.4 CHILD LABOUR**

The Bangladesh Labour Act 2006 (Act XLII of 2006) also defines the “child” and the “adolescent” on the basis of age. As per section 2(8) of the Act, a person who has attained the age of 14 but below the age of 18 is considered to be an „adolescent” and as per section 2(63), a person not attaining the age of 14 is defined as a “child”.

According to The National Child Labour Elimination Policy 2010, following rights are to be complied with, in regard of addressing child labour Issue

- Employing children according to the age determined by the Acts and not to employ children below 14 years as a regular employee;
- Ensuring the children at domestic work not to perform any hazardous work and providing them with proper food and accommodation, education, recreation since they work full time; and
- Refraining child workers from physical, mental, sexual persecution and abuse.

NBBL has been found to be careful about the child labour issue. So, neither in construction phase nor in operation phase, no child has been found to be engaged in the project activities.

## **4.6 PUBLIC CONSULTATION AND DISCLOSURE OF INFORMATION**

### **I. Public Consultation and major findings**

As part of environmental and social compliance, the respective official of IDCOL consulted with local respondents for a number of occasions during the reporting period. Some photographs of consultation have been provided in Annex-12.

The major findings of public consultation are as follows:

- local people do not have specific concern about project-personnel or project activity.
- they are pleased with the measures of NBBL to mitigate noise issue
- they are happy with the social support of NBBL

### **II. Response from NBBL**

NBBL officials have confirmed that they are careful about the convenience of local people. So, they

### **III. Disclosure**

NBBL has confirmed that they are agreed to share environment and social safeguards related information to the relevant stakeholders, if they are asked.

## **4.7 ENHANCEMENT**

NBBL acknowledges the importance of satisfactory relationship to adjacent communities. Accordingly, it has extended various types of cooperation such as:

- monetary support to adjacent religious and academic institutions
- distribution of school bag to children
- distribution of blanket

## **5.0 CORRECTIVE ACTION PLAN**

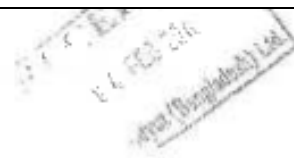
NBBL has been found to properly comply with the EMP. They have been found to maintain the required mitigation measures to address the potential impacts including noise and air pollution. From social safeguard perspective, it has been found that there is no significant grievance neither from any internal stakeholder nor from any external stakeholder. In addition, NBBL has been found to extend various types of social welfare services to the communities.

## **6.0 CONCLUSION**

Based on the findings of environmental and social compliance audit, it can be concluded that NBBL has been found to satisfactorily complying with environmental and social safeguards.

## Annex 1: EIA Approval Certificate

Government of the People's Republic of Bangladesh  
Department of Environment  
Head Office, Paribesh Bhaban  
E-16 Agargaon, Dhaka-1207  
[www.doe.gov.bd](http://www.doe.gov.bd)



Memo No : DoE/Clearance/5748/2017/42

Date: 21/01/2018

**Subject:** Approval of Environmental Impact Assessment (EIA) Report of 225 MW Dual Fuel ( Gas & HSD) based Combined Cycle Power Plant Project (Bhola-II) along with associated Gas Transporting Pipe Line from Shahbajpur Gas Field to Power Plant (Bhola-II) at Burhanuddin Upzila under Bhola District.

**Ref:** Your Application dated 17/01/2018.

With reference to the above, the Department of Environment (DOE) is pleased to approve Environmental Impact Assessment (EIA) Report for 225 MW Dual Fuel ( Gas & HSD) based Combined Cycle Power Plant Project (Bhola-II) along with associated Gas Transporting Pipe Line from Shahbajpur Gas Field to Power Plant (Bhola-II) at Burhanuddin Upzila under Bhola District subject to fulfilling the following terms and conditions.

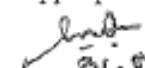
1. This EIA report is approved only for 225 MW Dual Fuel ( Gas & HSD) based Combined Cycle Power Plant Project (Bhola-II) along with associated Gas Transporting Pipe Line from Shahbajpur Gas Field to Power Plant (Bhola-II) at Burhanuddin Upzila under Bhola District. Any expansion or extension of this power plant will be required further/fresh EIA study for the Environmental clearance from the Department of Environment (DOE).
2. Project Proponent may undertake activities for land development and infrastructural development of the project.
3. Project Proponent may open L/C (Letter of Credit) for importing machineries for the project which shall also include machineries relating to waste treatment plant and other pollution control devices.
4. The activity under the Power Plant Construction Project shall not result in the loss of containment of any materials that would affect health or will have damaging impact on the environment or natural resources.
5. Proper and adequate mitigation measures shall be ensured throughout preparation, construction and operation period of the proposed Power Plant Construction Project activities.
6. Any heritage sight, ecological critical area, and other environmentally and/or religious sensitive places shall be avoided during project construction phase.
7. Proper construction and development practices shall be followed that minimize loss of habitats and fish breeding, feeding & nursery sites.

8. Construction works shall be restricted to day time hours so as to avoid/mitigate the disturbance of local lives as well as implementation schedules of the works shall be notified in advance to nearby residents.
9. Proper and adequate sanitation facilities shall be ensured in labor camps throughout the proposed project period.
10. In order to control noise pollution, vehicles & equipment shall be maintained regularly; working during sensitive hours and locating machinery close to sensitive receptor shall be avoided.
11. No solid waste can be burnt in the project area. An environment friendly solid waste management should be in place during the whole period of the project in the field.
12. Proper and adequate on-site precautionary measures and safety measures shall be ensured so that no habitat of any flora and fauna would be demolished or destructed.
13. All the required mitigation measures suggested in the EIA report along with the emergency response plan are to be strictly implemented and kept operative/functioning on a continuous basis.
14. To reduce dust, spraying of water over the earthen materials should be carried out from time to time.
15. Storage area for soils and other construction materials shall be carefully selected to avoid disturbance of the natural drainage.
16. Adequate considerations should be given to facilitate drainage system for run off water from rain.
17. Adequate facilities should be ensured for silt trap to avoid clogging of drain/canal/water bodies.
18. Construction material should be properly disposed off after the construction work is over.
19. The project authority shall submit a detail work plan with time schedule of development activities at least 7 (seven) days ahead of the work commences in the field to the Barisal Divisional Office and Headquarters of the Department of Environment simultaneously.
20. Environmental Monitoring Reports shall be made available simultaneously to DOE Barisal Divisional Office and Headquarters on a monthly basis during the construction period of the project.
21. The following records must be kept in respect of any samples required to be collected for the purposes of environmental monitoring activities :
  - (a) the date(s) on which the sample was taken;
  - (b) the time(s) at which the sample was collected;
  - (c) the point at which the sample was taken; and
  - (d) the name of the person who collected the sample.
22. The results of any monitoring required to be conducted under this EIA report must be recorded.



23. In case of any emergency, the following information shall immediately be reported to Barisal Divisional Office and Headquarters of the Department of Environment (DOE) simultaneously
- a) Nature of incident (land slides, fire, accident, collision, etc.)
  - b) Personnel affected (injured, missing, fatalities, etc.)
  - c) Emergency support available and its location (standby transport, medical facilities, etc.)
  - d) Weather conditions
  - e) Current operations (abandoning the site, fire fighting, etc.)
24. Appropriate permission would require to be obtained from the Forest Department in favor of cutting/felling of any plant/tree/sapling forested by any individual or government before doing such type of activity.
25. The project authority shall extend active cooperation to DOE officials to facilitate their visit to the site as and when necessary.
26. The project authority shall, after land development, infrastructural development and installation of the power plant, apply for Environmental Clearance to the Barisal Divisional Office of DOE with a copy to the Head Office of DOE in Dhaka.
27. Without obtaining Environmental Clearance, the project authority shall not start the operation of the project.
28. Violation of any of the above conditions shall render this approval void.
29. This EIA Approval is valid for one year from the date of issuance and the Project authority shall apply for renewal to the Barisal Divisional Office of DOE with a copy to the Head Office of DOE at least 30 (thirty) days ahead of expiry.
30. This EIA Approval shall render void the earlier approval on 20.04.2017 memo DoE/Clearance/5348/2017/224.

This EIA approval has been issued with the approval of the appropriate authority.

  
31.04.2018  
(Syed Nazmul Ahsan)  
Director (Environmental Clearance)  
Phone # 02-8181673

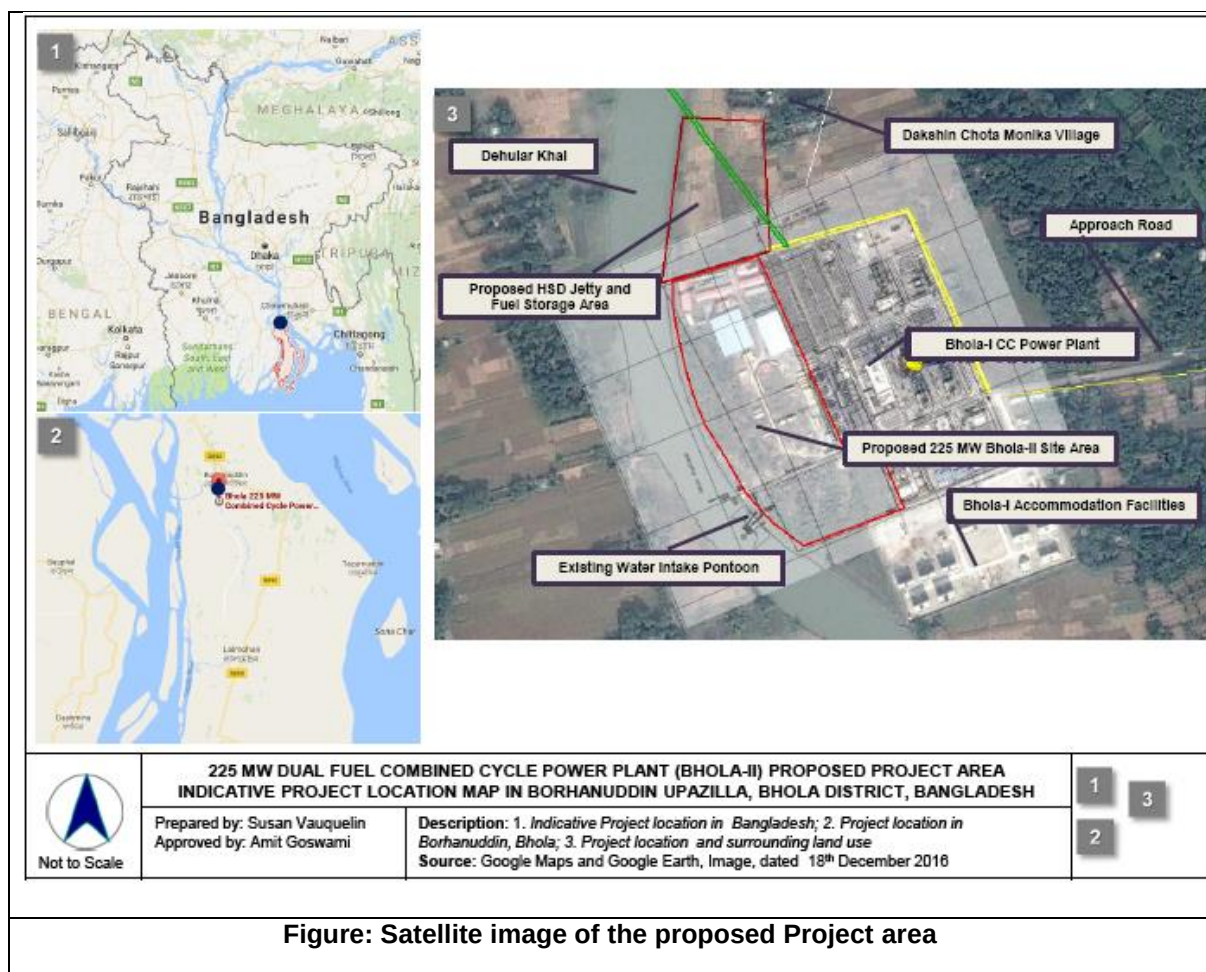
**Director**

Nutan Bidyut (Bangladesh) Ltd.  
225 MW Dual Fuel ( Gas & HSD) based Combined Cycle Power Plant Project (Bhola-II)  
B & B Empire (7<sup>th</sup> Floor), Road-11, Block-E, Plot No. 116  
Banani, Dhaka-1213.

**Copy Forwarded to :**

- 1) PS to Secretary, Ministry of Environment and Forests, Bangladesh Secretariat, Dhaka.
- 2) Director, Department of Environment, Barisal Divisional Office, Barisal.
- 3) Assistant Director, Office of the Director General, Department of Environment, Head Office, Dhaka.

## Annex 2: Location of the project site



### Annex 3: Project risk screening checklist of ESSF, IDCOL

| Sl. no | Environmental and social risks rating criteria                                                                                                                                                          | Response |    | Remarks |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----|---------|
|        |                                                                                                                                                                                                         | Yes      | No |         |
| 01     | For new projects, does the project have any pending compliance such as Location and Environmental Clearance based on its category (Red, Orange-A, Orange-B and Green), from the DOE?                    |          |    |         |
| 02     | Is the project located in the immediate vicinity (likely to adverse impact) of environmentally critical areas (national wetlands, wildlife habitats, important bird areas, and protected areas)         |          |    |         |
| 03     | Does the project construction and/or operation lead to environmental impacts that are diverse, irreversible and/or unprecedented in nature?                                                             |          |    |         |
| 04     | Does the project require involuntary resettlement that results in loss of land or livelihoods or physically displaces more than 200 persons?                                                            |          |    |         |
| 05     | Is the project site on or in immediate vicinity of socially vulnerable or Indigenous People (IP) owned or occupied land and has the potential to cause an adverse impact on their culture and identity? |          |    |         |
| 06     | Is the project vulnerable to climate change related impacts?                                                                                                                                            |          |    |         |
| 07     | Does the Borrower have a documented Policy on E&S Performance?                                                                                                                                          |          |    |         |
| 08     | Does the Borrower have dedicated human resources to address E&S performance?                                                                                                                            |          |    |         |
| 09     | Has the Borrower established and implemented Environmental, Health & Safety Management Systems and Social Accountability Systems for the Project SPV or in the parent company?                          |          |    |         |

#### Annex 4: PPE arrangement



**Photograph: Safety dress arrangement**

## Annex 5: Fire-fighting arrangement



Photograph: Fire-fighting arrangement

## Annex 6: Mock fire drill



Photograph: Mock drill and first aid care with focus to fire hazard

## Annex 7: Safety Assembly



## Annex 8: Application of signage



Photographs: Signage and illustrations to raise awareness on EHS

## Annex 9: Current status of project



Photographs: Construction activities at project site

## **Annex 10: Workers' shed with sanitary facilities**



**Photograph: Workers' shed**



**Photograph: Toilet and cleaning facilities**

## Annex 11: Grievance Redress Mechanism



Photograph: Arrangement of Grievance Log Book and Grievance Box

## **Annex 12: Stakeholder consultation by IDCOL official**



**Photograph: Consultation with female respondents**



**Photograph: Consultation with male respondents**