

**ENVIRONMENTAL AND SOCIAL SAFEGUARD DUE DILLIGENCE
FOR
SEWERAGE SYSTEM IN BUXER TOWN, BIHAR**

1. INTRODUCTION

Increasing population, haphazard urbanisation and industrial growth in Ganga river basin has resulted in high pollution level in economically and culturally important river Ganga. The Government of India (GoI) has established the National Ganga River Basin Authority (NGRBA) for comprehensive management of the river. The NGRBA program will adopt a river basin approach and has been given multi-sectoral mandate to address both water quantity and quality aspects. The NGRBA is implementing the program with financial assistance from The World Bank in five major states (Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal) along the main stem of Ganga. To ensure effective implementation of the program NGRBA has designed a framework that address the technical, environmental and social aspects of each category of investment in the program.

Recently, GOI has requested the World Bank to consider some of the investments that were approved by MoEF / NGRBA prior to the commencement of Bank funded program for retroactive financing. Since these investments were not prepared in line with the agreed framework of the project, Bank team carried out a due diligence to assess the technical, procurement, environmental and social safeguard aspects of each of these projects and their eligibility for financing. The current document provides the details of environmental and social safeguard due diligence carried out by the Bank Team and the agreed action plan for complying with some of the safeguard issues.

The Environment and Social safeguard due diligence was undertaken by the Bank team¹ with co-ordination from Safeguard Specialists from National Mission for Clean Ganga (NMCG). The due diligence process was accomplished through detailed interactions with implementing agency, contractors, site visits and consultation with communities at site wherever feasible. Available DPR, design, drawings were also reviewed during the process.

2. PROJECT BACKGROUND AND DESCRIPTION OF PROJECT COMPONENTS

Buxar Town is the district head quarter of Buxar District in the State of Bihar. The town is situated in the western region of the State, and is bounded by Balia and Gazipur districts of Uttar Pradesh along its western and northern boundary through which river Ganga flows. The total area of the town is 673 Ha.

As per 2001 census, the project town had a population of 83,168. Town Buxar has no comprehensive sewerage system. The human excreta is disposed through on-site sanitation methods and open defecation is also common. Spent water from kitchen and bath rooms is discharged into surface drains that transport wastewater to local depressions. The effluent from septic tanks is also let into the surface drains.

The proposed project aims effective abatement of pollution of river Ganga by providing comprehensive sewage collection, treatment & disposal system using laterals, branches and trunk mains including sewage treatment plant.

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The project facilities are designed for a population 218,514 (projected for 2041). The overall design includes, reinforced cement concrete non pressure circular pipes for sewers suitably supported with bedding, depending on structural requirements. A minimum pipe size of 150 mm is adopted. Manholes are proposed to be provided at 30 m or more spacing as per prevalent practice and specifications. The project also includes two pumping stations to restrict the depth of excavation to 8.0 m in general.

The design proposes to discharge treated wastewater at an STP in the North Western side. The treated wastewater from treatment plant site will be disposed in the River Ganga. The sewage treatment plant is based on Sequential Batch Reactor technology and is of 16 MLD capacity. The treated effluent is designed to meet the treated sewage standards for discharge to inland waters, as prescribed by Indian Regulations. Flow measurement shall also be done using a Parshall flume with throat width of 18 inches. An additional Ultrasonic flow meter mounted on concrete channel shall also be provided having digital type Indicator, Integrator and Recorder fixed in the control room.

At least 33% of the open area shall be converted to a green belt/garden. Dense plantation shall be used for control of noise around the blower buildings. Plantation of large trees and green belt including creepers shall be used in the campus to ensure that odor, if at all emitted, get diluted and diffused and a visual barrier is created.

Project Components:

The details of project components are presented below:

- A. **Sewerage Treatment Plant (STP) of 16 MLD at Sarimpur village:** The 16 MLD capacities is proposed based on projected population of 2041. No construction started yet.
- B. **Intermediate Pumping Station (IPS-1) at ITI Ground:** Located at corner of ITI ground. Apparently a clear site and is Govt land. No construction started yet.
- C. **Intermediate Pumping Station (IPS-2) at Dhobi Ghat :** : Located next to Water Body (An abandon canal). No construction started yet.
- D. **Laying Sewage Network 95.214 kilometres:** The construction of sewage network is in progress and it is mostly placed on the existing carriageway of the PWD or Municipality roads

3. STATUS OF ENVIRONMENTAL AND SOCIAL ASSESSMENT

No separate environmental and social assessment specific to the proposed project was carried out by the implementing agency. The detailed project report also does not integrate environmental management aspects into the design. The report primarily deals with the technical details and carries no social information.

4. ENVIRONMENTAL AND SOCIAL PROFILE OF THE AREA AND SCREENING

The Buxar district is situated between 25⁰ 18' to 25⁰ 45' latitudes north and 84⁰ 20' to 84⁰ 40' longitude east. Its geographical area is 1624 Km². Buxar district is a part of the southern Ganga Plain. Physiography of the district is alluvial plain having gentle slope towards north. The plain land is marked by presence of several minor depressions. The elevation of the land surface in the district varies between 55 m above mean sea level (amsl) and 85 m amsl. The topography of the Buxar Town is flat with average elevation level as 65.0 m above MSL.

The total population of Buxar Municipal Corporation as per 2011 census is 102,861 out of which 54,277 (53%) are male and 48,584 (47%) are female. The sex ratio of the city population is 895. The scheduled caste (SC) population is 8619 (8%) and the scheduled tribe (ST) population is only 1800 (2%) within the municipality area.

The literacy status of the Buxar town shows that 74,344 persons (72%) are literate. The literacy rate of male population is 76% and in case of females it is 44%. About 26,652 (26%) of the population constitute the working force and the work force participation among male is 86%, as against only 14% among women.

The climate of the Buxar is moderate. The mean monthly temperature varies from minimum 4°C (January) to maximum 42°C (May). The normal annual rainfall is 792 mm. About 85% of annual rainfall is due to South-west monsoon. The district experiences maximum rain during the months of July and August.

No secondary data is available on ambient air quality of the city, however considering activity and transport level in the city, the ambient air quality of the city is largely expected to be within the prescribed National Ambient Air Quality Standards.

None of the project area involves forest land, or is located close to any ecologically sensitive areas. No archeologically protected monument is located in close proximity. No issue related to indigenous people or involuntary resettlement.

Environmental and social screening carried out as part of this due diligence exercise using the screening matrix of the Environmental and Social Management Framework of NGRBA Project (**Annexure-1**), concludes that the project components have limited impact to environment and can be mitigated with provision adequate mitigative measures and adoption of environmental management plan. The project hence is categorized as 'Low Impact' category.

5. THE DUE DILIGENCE PROCESS

As part of the due diligence, the team visited the project area on October 18-19, 2013 and carried out detailed interactions with implementing agency, contractors, visited project sites, and consultation with communities. A review of the project DPR, design, drawings was also carried out by the team.

6. KEY ENVIRONMENTAL AND SOCIAL FINDINGS

The due diligence findings are given below and the photographs taken during the site visit are provided in the **Annexure-2**.

A. Environmental Regulatory Requirements

1. The subproject need to obtain 'Consent to Establish' the sewage treatment plan from the state pollution control board, which is a mandatory requirement under Water (Prevention and Control of Pollution) Act 1972 of Government of India.
2. It is advisable to undertake tree plantation around the STP, which will help aesthetically as well as to control bad order. Discussions with BUIDCO and the contractors indicated that plantation will be done at the STP. Though the DPR says that 33% of the STP area is proposed to be developed into green belt, there are no provisions in BOQs of the contract

or any plantation efforts at the site. This green belt development will also ensure compliance of compensatory tree plantation against tree cutting.

B. Project Design/Planning Issues

3. The proposed site for the Sewerage Treatment Plant (STP) with capacity to treat 16 MLD is located at low lying area. Construction of boundary wall has obstructed natural flow of the storm water runoff from neighbouring catchment. Discussions with BUIDCO indicate that arrangement for catchment water flow is already available or will be made by municipalities. This need to be clarified and suitable drainage arrangements shall be made to ensure natural flow of storm water.
4. None of the pumping stations have defined system of appropriate collection and disposal of bio-degradable and non-biodegradable waste screened from the pumping stations. Proper disposal of screened material shall be made at all these Pumping Stations.
5. Most of the proposed pumping states are located close to populated areas. People in close vicinity to these facilities may have issue of bad smell of sewage. Planting trees and landscaping around these facilities is suggested to improve the aesthetics and prevent spread of bad smell.
6. The pumping station at Dhobi Ghat is located next to water body. It is suggested to incorporate suitable measures to avoid contamination of water during construction and operation of the pumping station.
7. Substantial debris and mud is generated during laying of trunk sewers and construction of pumping stations. Top soil with good productivity and debris is also being disposed in low lying areas. The soil and debris may be well managed for planned land filling and landscaping.
8. Digested sludge from STP is good for use as manure. While, it is proposed to be used as manure, there are however no clear plans as to, how it will be stored and disposed.
9. The project design also does not have any provisions for holding of untreated sewage in case of STP breakdown. This needs to be included in the overall design.
10. No environmental management plan has been prepared for the project during detailed project report stage for management and monitoring of environmental impacts and mitigation during construction and operation phase. Since environmental impacts are minimal, this EMP can be easily evolved with certain guidance. This needs to be developed at the earliest and incorporated in the contract, to ensure that contractor implements the environmental management measures.
11. DPR for the project does not provide for any budget for environmental management or mitigation including specific monitoring and corrective actions.

C. Construction / OHS Issues.

12. Occupational health and safety is another area requiring attention. Integration of adequate safety aspects in construction activities and in STP design needs to be incorporated.

² 7-10 trees was cut at STP site in the past apparently with permission from forest department. As per practice and system, money is deposited for compensatory afforestation.

D. Social - Land Acquisition and Details of Compensation and other assistance

13. The DPR for the subproject suggests to ensure active participation of beneficiaries with the project implementation, carry out social awareness campaign for good sanitation and good hygiene practices and to encourage property owners to connect to sewers laid under this project and to encourage the beneficiaries to pay for sanitation services for efficient O&M operations and overall sustainability by engaging an NGO or suitable agency. However, no specific staff is employed or assigned by the implementing agencies to deal with the social safeguard issues in the subproject.
14. Sewerage Treatment Plant (STP) site was earlier a Government plantation site and the IA has cleared it after receiving NOC from Municipality (refer Annexure-3). The Implementing Agency i.e. BUIDCO has constructed boundary wall on proposed land and there is no squatter or encroachers on the land.
15. The site proposed for Intermediate Pumping Station (IPS-2) at Dhobi Ghat was used as Dhobi Ghat (washing area) and is abandoned since last 15 years. The land is now transferred in the name of Municipality and NOC for construction is obtained by BUIDCO.
16. Intermediate Pumping Station (IPS-1) at ITI ground site could not be visited due to inaccessibility. As per the BUIDCO officials, the site is vacant government land and transferred in the name of Municipality. BUIDCO has already obtained the NOC for construction.
17. The construction of sewage network of 95.214 kilometres is in progress and it is placed on the existing carriageway of the PWD or Municipality road. The work is being carried out with required permission/ NOC from the PWD and Municipality.

E. Stake Holder Consultations

18. The local communities are aware of the subproject and public consultations were carried out in the subproject during project implementation through joint interface meeting with ULBs, community meeting, sensitisation meeting at temple with religious leaders/ local community, activity event at school campus.

F. Grievance Redressal Arrangements

19. Though no formal grievances have been recorded, project has not established any project specific grievance redressal mechanism. The only mechanism available is the District Grievance Cell through District Magistrate's office. Bihar Jal Nigam officials also informally handle grievances if any. BUIDCO is designating Dy. Project Director and Project Manager (CS & QC) as grievance redressal officer who address the grievances with district administration as per the guidelines of World Bank.

G. Summary Gap Analysis

The summary gap analysis matrix from social safeguard planning and implementation point of view based on the due diligence study is presented in the table below:

| Key Principles and Attributes | Gap | Remarks |
|--------------------------------------|-----------------|---|
| Assessment of environmental Impacts | Not Carried out | The due diligence indicates no significant impact (except during the construction phase) due to the project |

| Key Principles and Attributes | Gap | Remarks |
|--|---|---|
| Implementation of Mitigation and Management Measures | Measures To mitigate construction Stage impacts being implemented through standard construction contract provisions | Need specific mitigation measures to avoid and manage the construction stage environment and safety issues. |
| Principle of Avoidance | Analysis of alternative not carried out | All the sites are owned by Govt |
| Linkages with other projects | Not applicable | This sub project is not linked to any other project |
| Involuntary restriction of access to legally designated parks and protected areas | Not applicable | Does not apply to this project |
| Recognition of untitled persons such as squatters and encroachers including customary rights | Not applicable | No non-titleholder affected by this sub project |
| Avoiding displacement of Indigenous People | Not applicable | No indigenous person in the project area |
| Planning | | |
| Threshold for Resettlement Plan (RP) | No RAP prepared | |
| Need to replace / restore CPRs | Not applicable | CPRs not affected |
| Consultation and participation of PAPs during project planning | No consultations carried out | Awareness programme carried out during implementation |
| Participation of NGOs in project planning | No NGO involved | |
| Cut-off date | Not applicable | Not Applicable |
| Definition of a family for R&R assistance | Not applicable | ESMF defines family. Not required in this sub project |
| Need and scope of census and socio-economic surveys | Not applicable | |
| Compensation | Not applicable | |
| Primary Authority for Land Acquisition | | |
| Principle to restore/improve living standards | Not applicable | No loss of livelihood |
| Compensation for land at replacement value | | |
| Treatment of depreciation and Salvage | Not applicable | No loss of structure |
| Transaction & transition fee | Not applicable | |
| Land for Land as an option for compensation | Not applicable | |
| Resettlement Assistance | | |
| Cash assistance over and above compensation | Not applicable | Not required in this sub project |
| Assistance to poorest of the poor or vulnerable category of people | Not applicable | Not required in this sub project |

| Key Principles and Attributes | Gap | Remarks |
|--|--|----------------------------------|
| Provision of infrastructure and public services at resettlement sites | Not applicable | Not required in this sub project |
| Implementation | | |
| Implementation of RP | Not applicable | Not required in this sub project |
| Participation of civil society in implementation of RP | Not applicable | Not required in this sub project |
| Opportunity for PAPs to participate in planning, design and implementation | Not applicable | Not required in this sub project |
| Disclosure of Resettlement Plan | Not applicable | Not required in this sub project |
| Grievance Redressal Mechanism | | |
| Procedure for dispute resolution and appeals | | BUIDCo |
| Composition of Grievance Redress Committee | NO project specific GRC established | |
| Participation of representative of PAPs and civil society | No public consultation carried out during project implementation | |
| Monitoring | | |
| Independent monitoring | No monitoring mechanism | |
| Periodic evaluation and monitoring | No evaluation process | |

7. RECOMMENDED ACTION PLAN

Regulatory Permissions

1. Consent to Establish under Water (Prevention and Control of Pollution) Act 1972 shall be obtained immediately for the establishment of sewage treatment plant, as the consent is supposed to have been obtained even before start of construction otherwise.
2. Consent conditions shall be complied with and compliance report shall be submitted periodically to State Pollution Control Board as per consent condition.

EMP Preparation and Implementation

3. An EMP shall be developed which shall identify key environmental issues, the mitigation measure, capacity building training and awareness. Nature of reporting and frequency shall also be defined which should preferably be six monthly. The EMP shall be integrated in the contract documents, with necessary amendments (if necessary) or agreements with the contractor and shall be implemented for the remainder of the construction period.
4. Independent Environment and Social/ Compliance Monitoring Audit by the third party independent inspection agency shall be carried out annually, as per the ESMF requirements of NGRBA program.

Design and Operational Specific

5. Arrangement shall be made for STP sludge handling (intermittent storage, transportation, and disposal) to ensure that sludge is used as manure and is not disposed in the river.
6. Specific site shall be identified for intermittent storage of waste at each IPS.

7. Tree plantation shall be made on the periphery of the IPS site to prevent spread of bad odour and undertake landscaping to enhance aesthetic at each IPS locations.
8. Consideration may be given for constructing garland drain around the site with small opening intermittently in the boundary wall to allow run off rainwater to drain off without accumulating in the adjacent residential areas.
9. Sourcing of earth/filling material for STP site shall be pre planned. Soil excavated in laying trunk sewers and IPS development shall be used for filling instead of sourcing the earth from new locations.
10. Adequate protection measures shall be made to ensure that adjacent water body at IPS 1 (Dhobi Ghat) is not polluted.

Land Acquisition

11. Advance notice to local residents / shop owners and vendors to avoid inconvenience to vendors / squatters. BUIDCO to (i) buy time on FM radio; (ii) space in local newspaper; (iii) print and distribute pamphlets about the project through newspaper vendors and (iv) put up information boards at construction site for information dissemination.
12. BUIDCO to (i) provide adequate safety measures during construction; (ii) ensure access to residences and shops and (iii) spray water to control dust.

Stakeholder Consultation and Disclosure

13. Further disclosure of information related to the subproject interventions is required and the BUIDCO needs to hire services of local NGO / CBO for information dissemination and public consultation.

Grievance Redresses

14. BUIDCO is designating Dy. Project Director & Project Manager (CS & QC) as Grievance Redress Officer. The telephone number and address of Grievance Redress Officer will be displayed on the project information board.

8. IMPLEMENTATION SCHEDULE OF THE ACTION PLAN

| S.No | Action | Responsibility | Time frame |
|-------------------------------|--|-----------------------|--|
| Environment Management | | | |
| 1. | Prepare Generic Environment Management Plan and incorporate in the construction contract | BUIDCO | Immediate/prior to The Disbursement of retroactive claim under the project |
| 2. | Obtain the 'Consent' of Bihar Pollution Control Board for the setting up the STP | BUIDCO | Immediate / prior to the Disbursement of retroactive claim under the project |
| 3. | Initiate design measures (points 5 to 10 above) and implement | BUIDCO | During the Implementation |
| Social Safeguards | | | |
| 4 | Hiring of NGO/ CBO for information dissemination | BUIDCO | Immediate |
| 5 | Preparation of IEC material | BUIDCO | One Month after Action 4 |
| 6 | Designate Grievance Redr.Officer | BUDICO | Immediate/ Prior to The Disbursement of retroactive claim under the project |
| 6 | Information dissemination | BUIDCO | Continuous-through project life |
| 7. | In-country disclosure of this DDR and RAP | BUIDCO/ULB /NMCG | Immediately (DDR) / After Action 2 for RAP |

Environment and Social information format for screening

| | | | |
|---|--|---|--|
| <p>Project Title: Sewerage System in Buxar Town, Bihar</p> <p>Implementing agency: Bihar Urban Infrastructure Development Corporation Ltd. (BUILDCO)</p> <p>Project cost:</p> <p>Project components:</p> <p>A. Construction of one Sewerage Treatment Plant (STP) with capacity to treat 16 MLD</p> <p>B. Construction of two Intermediary Pumping Stations (IPS)</p> <p>C. Laying out Sewage Network of 95.214 kilometres</p> <p>Project location (Area/ district): Buxar Town, Bihar</p> | | | |
| | Screening Criteria | Assessment of category (High/ low) | Explanatory note for categorisation |
| 1 | Is the project in an eco-sensitive area or adjoining an eco-sensitive area? (Yes/No) If Yes, which is the area? Elaborate impact accordingly. | No | |
| 2 | <p>Will the project create significant/ limited/ no social impacts?</p> <ul style="list-style-type: none"> • Land acquisition resulting in loss of income from agricultural land, plantation or other existing land-use. • Land acquisition resulting in relocation of households. • Any reduction of access to traditional and river dependent communities (to river and areas where they earn for their primary or substantial livelihood). • Any displacement or adverse impact on tribal settlement(s). • Any specific gender issues. | <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> | |
| 3 | <p>Will the project create significant / limited / no environmental impacts during the construction stage? (Significant / limited / no impacts)</p> <ul style="list-style-type: none"> • Clearance of vegetation/ tree-cover • Direct discharge of construction run-off, improper storage and disposal of excavation spoils, wastes and other construction materials adversely affecting water quality and flow regimes. • Improper storage and handling of substances leading to contamination of soil and water • Flooding of adjacent areas | <p>Limited</p> <p>Limited</p> <p>Limited</p> <p>Limited</p> | <p>The excavated soil and other waste may affect the water quality if Stored in-Appropriate manner.</p> <p>The boundary wall May act as Barrier in absence of garland drains and opening in the boundary</p> |

| | | | |
|---|--|--|--|
| | <ul style="list-style-type: none"> Elevated noise and dust emission Disruption to traffic movements Damage to existing infrastructure, public utilities, amenities etc. Failure to restore temporary construction sites Possible conflicts with and/or disruption to local community Health risks due to unhygienic conditions at workers' camps Safety hazards during construction | <p>Limited</p> <p>Limited</p> <p>Limited No</p> <p>Limited No</p> <p>Limited</p> | <p>walls. Use of noise making equipment like compressors without acoustic enclosures and absence of dust suppression measures may lead to this. This will happen especially during working in the narrow lane areas.</p> <p>Due to Inadequate adherence to Occupational Health & Safety Practices including use of PPEs.</p> |
| 4 | <p>Will the project create significant / limited / no environmental impacts during the operational stage? (Significant / limited / no impacts)</p> <ul style="list-style-type: none"> Flooding of adjacent areas Impacts to water quality due to effluent discharge Gas emissions Safety hazards | <p>No</p> <p>Limited</p> <p>No</p> <p>No</p> | <p>If untreated sewage is discharged to river, in case of STP breakdown.</p> |
| 5 | <p>Do projects of this nature / type require prior environmental clearance either from the MOEF or from a relevant state Government department? (MOEF/ relevant State Government department/ No clearance at all)</p> | <p>Yes</p> | <p>Consent from State Pollution Control Board under Water (Prevention and Control of Pollution) Act,</p> |

| | | | |
|---------------------------|--|----------------|---|
| | | | 1972. |
| 6 | Does the project involve any prior clearance from the MOEF or State Forest department for either the conversion of forest land or for tree-cutting? (Yes/ No). If yes, which? | Yes | Permission for cutting of trees from concerned district / forest departments. |
| 7 | Please attach photographs and location maps along with this completed Environmental Information Format For Screening. | Attached | |
| Overall assessment | | Limited impact | |

Photographs taken during Due Diligence – Site Visit



Proposed Location for STP at Sarimpur



Proposed Location for STP at Sarimpur



Proposed Location for IPS at Dhobi Ghat



Proposed Location for IPS at Dhobi Ghat



Laying out Sewerage Network in Buxar



Laying out Sewerage Network in Buxar