

# Semi Annual Environmental Monitoring Report

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Loan Number: 2528 IND

Reporting Period: (July – December 2013)

## **IND: North Eastern Region Capital Cities Development Investment Program (Tranche 1)**

### **Project City: Agartala, Tripura**

**Prepared by:** State Investment Program Management and Implementation Unit (SIPMIU),  
Agartala, Government of Tripura, Urban Development Department

## **Semi Annual Environmental Monitoring Report**

**Project Number: 35290-01  
Loan 2528-IND**

**(January 2014)  
Period: July to December 2013**

India: North-Eastern Region Urban Development Program I  
(Agartala, Tripura)

*Prepared by:*

**STATE INVESTMENT PROGRAMME MANAGEMENT AND IMPLEMENTATION UNIT  
(SIPMIU), Agartala, Government of Tripura, Urban Development Department**

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## I. Introduction

### A. Background

1. The Government of India has proposed to implement projects to improve urban conditions in North Eastern region capital cities under North Eastern Region Capital Cities Development Investment Programme (NERCCDIP). The investment Programme will aim at improving infrastructure and urban service, and also strengthening the urban institutions for better service delivery and operation maintenance of the assets. The capital cities under the Programme are Agartala (In Tripura), Aizwal (In Mizoram), Gangtok (In Sikkim), Kohima (In Nagaland), and Shillong (In Meghalaya). This report deals with the proposed investment Programme (NERCCDIP: ADB Loan 2528-IND & 2834 - IND) for Agartala, the capital city of Tripura.
2. M/s STUP Consultants P. Ltd is the Design, Construction Supervision, and Management Consultants for the present assignment.
3. The works under the investment Programme includes development of urban infrastructure facilities in the sector for Water Supply and Solid Waste Management system. The budgetary allocation for improvement in the Water Supply and Solid Waste Management components in <sup>1</sup>Indian currency is 1812.7 million rupees (Estimated revised cost 2557.51 Million Rupees).
4. NERCCDIP will improve infrastructure through the development, design and implementation of a series of subprojects, each providing improvements in a particular sector (water supply, sewerage, solid waste etc) in the capital cities. NERCCDIP has been classified by ADB as environmental assessment category B (some negative impacts but less significant than category A) and the impacts of subprojects were assessed through Initial Environmental Examination (IEE) reports (for Tr-I & II) prepared according to ADB Environment Policy (2002,2009) and Environmental Assessment Guidelines (2003).
5. This report is the **Semi Annual Environmental Monitoring Report (SAEMR) – Tranche I for the period July to December 2013** to describe the “Environmental Compliance” including status of implementation of the mitigation measures and monitoring recommended in the Initial Environmental Examination (IEE).

### B. Project Profile

6. This report is for the period from January to June end. Till 31<sup>st</sup> December, 2013 under **Tranche I** only 1 environmental sensitive sub-project has been awarded. There is only one sub project under Tr-I which divided into 5 lots including one procurement lot. All 5 lots of sub projects have been awarded and out of these physical activities completed for 2 lots (including one procurement lot). Table below shows the project components under implementation, starting date of implementation, and schedule date of completion etc. along with physical progress for **Tranche I**. Monitoring is carried out by visual observation, document check.

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<sup>1</sup> Based on a conversion factor of : 1 US \$ = Rs 48

### Sub-project Status of Tranche – I (Upto 31<sup>st</sup> December 2013)

| Location             | Sub-projects components<br>(Package No.)   | Starting date of Implementation | Projected months of completion<br>(as per Work order) | Schedule date of completion<br>(Extended date of completion) | Physical progress as on 31.12.2013 (%) |
|----------------------|--|---------------------------------|---|--|--|
| <b>Agartala city</b> | <b>Water Supply-</b> Replacement of Deep Tube Wells – Lot 1 (AGT/WS01(R) /NCB/11/1/Lot1)     | 16.11.2011                      | 12  | 16.11.2012   | 100% (Physical work completed)         |
|                      | <b>Water Supply-</b> Replacement of Deep Tube Wells – Lot 2 (AGT/WS01(R) /NCB/11/1/Lot2)     | 04.03.2013                      | 12  | 04.03.2014   | Under progress- 59 %                   |
|                      | <b>Water Supply-</b> Replacement of Deep Tube Wells – Lot 3 (AGT/WS01(R) /NCB/11/1/Lot3)     | 06.03.2013                      | 12  | 06.03.2014   | Under progress- 50 %                   |
|                      | <b>Water Supply-</b> Construction of Pump House for 16Tube Wells (AGT/WS01(R3)CIV./NCB/12/4) | 15.06.2013                      | 12  | 15.06.2014   | Under progress- 31%                    |

7. Till date scope of the sub projects are not changed.

**TABLE 1 SUB PROJECT DETAILS**

| S. No. | Name of Work   | Location   | Description  | Changes if any from approved scope |
|--------|--|--|--|------------------------------------|
| 1      | <b>Water Supply-</b> Replacement of Deep Tube Wells – Lot 2: 8 Nos, (AGT/WS01(R) /NCB/11/1/Lot2) | <b>Agartala- Tripura:</b> Dukli III Matripally, Gazaria camper bazaar, Sripally, Srinagar, Beltoli, Pragati school, Bhagal Singh colony and other 1 location (not yet fixed)                       | <ul style="list-style-type: none"> <li>○ Replacement of tube wells at <b>8 locations</b> – Dukli III Matripally, Gazaria camper bazaar, Sripally, Srinagar, Beltoli, Pragati school Bhagal Singh colony and other 1 location (not yet fixed)</li> <li>○ <i>Installation of tube wells-</i> Drilling of borehole; reaming, lowering of pipes including development; installation of pump, motor including Trail run and commissioning all completed</li> <li>○ <i>Electrical works for pump house &amp; pump and motor</i></li> </ul>     | Nil                                |
| 2      | <b>Water Supply-</b> Replacement of Deep Tube Wells – Lot 3: 6 Nos, (AGT/WS01(R) /NCB/11/1/Lot3) | ○ <b>Agartala - Tripura:</b> Renters colony, Vivekananda nagar, Mahashakti, Jogendra nagar electric supply office, Pratapgarh I, Katashola Jogendra nagar II and other 2 locations (not yet fixed) | <ul style="list-style-type: none"> <li>○ Replacement of tube wells at <b>8 locations</b> - Renters colony, Vivekananda nagar, Jogendra nagar electric supply office, Mahasakti, Pratapgarh I, Katashola Jogendra nagar II and other 2 locations (not yet fixed)</li> <li>○ <i>Installation of tube wells-</i> Drilling of borehole; reaming, lowering of pipes including development; installation of pump, motor including Trail run and commissioning all completed</li> <li>○ <i>Electrical works for pump house &amp;</i></li> </ul> | Nil                                |

**TABLE 1 SUB PROJECT DETAILS**

| S. No. | Name of Work   | Location  | Description   | Changes if any from approved scope |
|--------|--|---|---|------------------------------------|
|        |  |   | <i>pump and motor</i>   |                                    |
| 3      | <b>Water Supply-</b><br>Construction of Pump House for 16Tube Wells (AGT/WS01(R3) CIV./NCB/12/4) | o <b>Agartala-Tripura:</b> At above mentioned tube well sites | Construction of pump house building and allied works completed at Gazaria Camper bazar, Sripally, Srinagar, Beltoli, Pragati school and rest under construction | Nil                                |

## **II. Environmental Assessment and Review Procedure**

### **A. Environmental Legal Requirements**

***Details on National, State and local level environmental policy, law and legislation application to the project.***

#### Environmental Legislation and Pollution Control Acts

The Government of India has formulated various policy guidelines; acts and regulations aimed at the sustenance of environment in general, which are briefly summarized and applicable acts with the projects, are described in the following sub-sections.

| Sl. No. | Sources               | Legislation   |
|---------|-----------------------|---|
| 1       | Water Pollution       | The Water (Prevention and Control of Pollution) Act, 1974, as amended in 1988   |
| 2       | Air Pollution         | The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987  |
| 3       | Noise Pollution       | The Noise Pollution (Regulation and Control) Rules, 2000  |
| 4       | Environment           | The Environment (Protection) Act, 1986  |
| 5       | Public Liability      | The Public Liability Insurance Act, 1991<br>The Public Liability Insurance Rules, 1991  |
| 6       | Hazardous Waste       | <ul style="list-style-type: none"> <li>➤ Hazardous Waste (Management and Handling) Rules, 1989</li> <li>➤ Batteries (Management and Handling) Rules, 2001</li> <li>➤ Manufacture, Storage and Import of Hazardous Chemical Rules, 1989</li> <li>➤ Emergency Planning Preparedness and Response for Chemical Disasters Rules, 1995</li> <li>➤ Manufacturing, Use, Import, Export and Storage of Hazardous Microorganisms, Genetically Modified Engineered Organisms or Cell Rules, 1993</li> <li>➤ Hazardous Microorganisms and Genetically Modified Organisms (Manufacture, Use Import Expert and Storage) Rules, 1999</li> <li>➤ Bio- Medical Waste (Management and Handling) Rules, 2000</li> </ul> |
| 7       | Municipal Solid Waste | Municipal Solid Waste (Management and   |

| Sl. No. | Sources                         | Legislation  |
|---------|---------------------------------|--|
|         |                                 | Handling) Rules, 2000<br>Recycled Plastics Manufacturing and Usage Rules, 1999   |
| 8       | EIA Notification                | The Ministry of Environment and Forests has revised the EIA notification, 1994, and issues the revised EIA notification on 14th September 2006 |
| 9       | Use and Management of Explosive | The Explosives Act, 1884 and The Explosives Rules, 1983  |

▪ **The Environment Protection act, 1986 and the EIA Notification, 1994**

The Environmental (Protection) Act, 1986 is the umbrella legislation providing for the protection of environment in the country. This Act provided for the Environment (Protection) Rules, which have been formulated under the act “The Environmental Impact Assessment Notification, 1994 and the Amendments / Revised EIA notification on 14<sup>th</sup> September 2006”.and Year 2009.

▪ **The Forest (Conservation) Act, 1980**

The Forest (Conservation) Act, 1980 pertains to the cases of diversion of forest area and felling of roadside plantation. Depending on the size of the tract to be cleared, clearances are applied for at the following levels in the governments:

- If the area of forests to be cleared or diverted exceeds 20 ha (or, 10ha in hilly area), the prior permission of the Central Government is required;
- If the area of forest to be cleared or diverted is between 5 to 20 ha, the Regional Office of Chief Conservator of Forests is empowered to approve;
- If the area of forest to be cleared or diverted is below or equal to 5 ha, the State Government can give permission;
- and If the area to be clear-felled has a forest density of more than 40%, permission to undertake any work is needed from the Central Government, irrespective of the area to be cleared.

▪ **The Wildlife (Protection) Act, 1972**

The Wildlife Protection Act has allowed the government to establish a number of National Parks and Sanctuaries over the past 25 years, to protect and conserve the flora and fauna of the state.

▪ **The Water and Air (Prevention and Control of Pollution) Acts 1974**

The water (Prevention and Control of Pollution) Act, 1974 resulted in the establishment of the Central and State level Pollution Control Boards whose responsibilities include managing water quality and effluent standards, as well as monitoring water quality, prosecuting offenders and issuing licenses for construction and operation of certain facilities. The SPCB is also empowered to set air quality standards and monitor and prosecute offenders under the air (Prevention and Control of Pollution) Act, 1981.

8. Because of the relatively minor negative impacts of most of the types of the subproject likely to be developed under NERCCDIP, it is expected that most

subproject should not fall within the scope of these legal instruments. Subprojects and activities that will need to comply with certain laws are:

- Any components that require the acquisition of forest land;
- Water Treatment Plants (WTP);
- Composting and landfill facilities;
- Common waste management facilities, including composting, landfills, transfer stations;
- Common waste management facilities within 10 km of the boundary of protected areas (such as National Parks, Sanctuaries, Notified areas and Biosphere Reserves);
- Mobile diesel generators

## B. Compliance with Environmental Regulations

### *Details on compliance with environmental policy, law and legislation*

9. Under Program I for replacement of tube well no Clearances (Environment and Forest) are required.

| Table 2: Present Status of Environment & Forest and Other Clearances |                    |  |                             |                 |                           |
|--|--------------------|--|-----------------------------|-----------------|---------------------------|
| Town   | Work (Package No.) | Applicable Legislation/<br>Type of clearance | Clearance given by and date | Subject / Issue | Remarks/<br>Action needed |
| Not Applicable   |                    |  |                             |                 |                           |

## C. Compliance of Environmental Loan Covenants

10. The status of compliance of ADB's major Environmental Loan Covenants shown below:

**Table 3: Compliance of Environmental Loan Covenants**

| Project Specific Covenants  | Status / Issues  |
|---|--|
| <b>Environment</b>  |  |
| India and the States will ensure that the design, construction, operation and implementation of all sub-project facilities is carried out in accordance with the environmental assessment and review procedures and Initial Environmental Examinations (IEEs) for core sub-components agreed upon between the Government and ADB, and complies with the Government's environmental laws and regulations and ADB's Environment Policy (2002) and Safeguard Policy Statement (SPS, 2009). Any adverse environmental | <p><b>Under compliance</b></p> <p>All documents are prepared in accordance with ADB Environmental Policy 2002 and SPS 2009 and Environmental Assessment Guidelines 2003</p> <p>Initial Environmental Examination report for <b>Tranche I was prepared and approved by ADB.</b></p> <p>Mitigation measures applied according to project location, specific sector</p> |



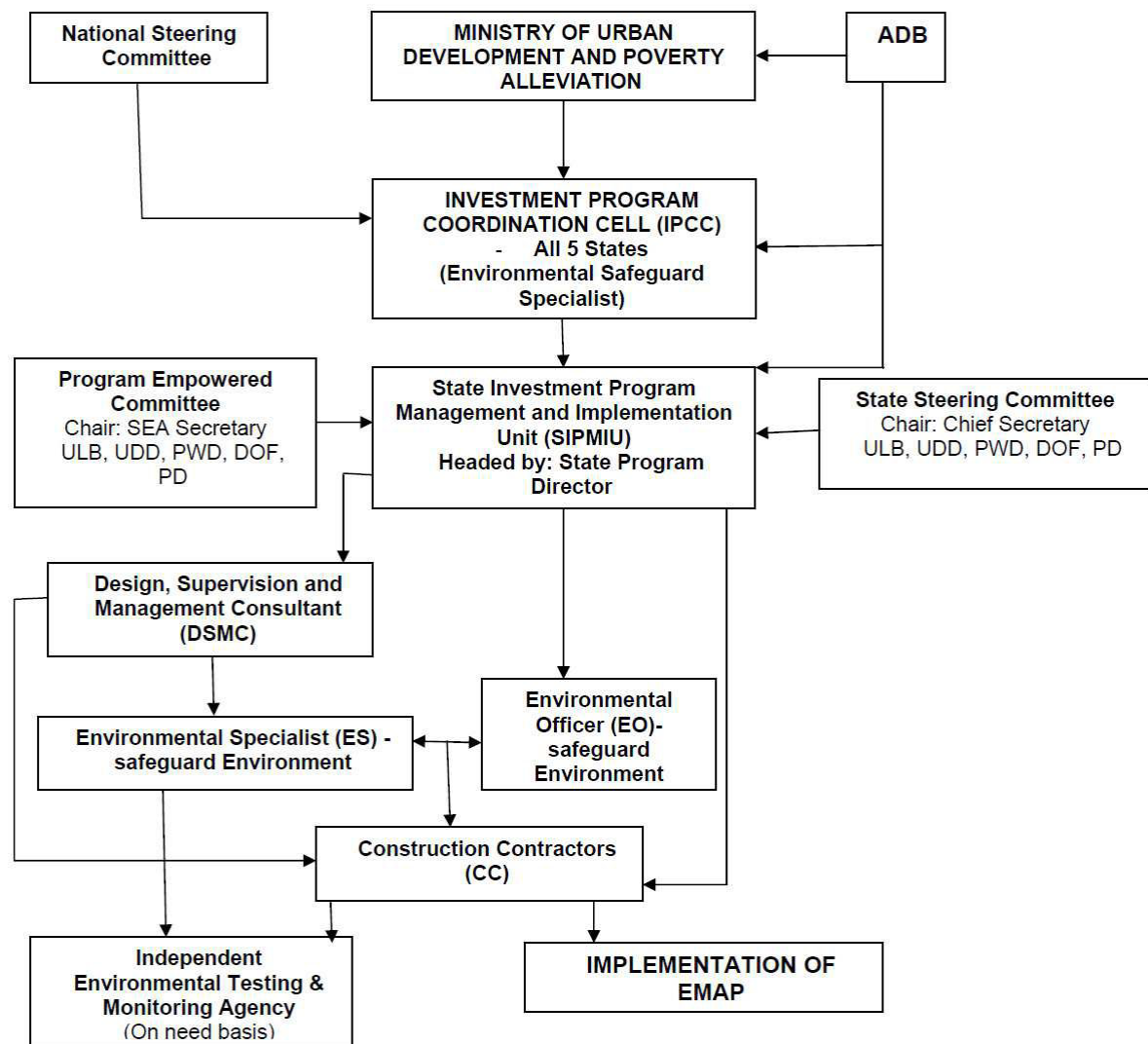
| Project Specific Covenants   | Status / Issues   |
|--|---|
| <p>impacts arising from the construction, operation and implementation of sub-component facilities will be minimized by implementing the environmental mitigation and management measures, and other recommendations specified in environmental assessment reports (e.g., IEEs). The Government will ensure environmental requirements will be incorporated in bidding documents and civil works contracts. Issuance of bid documents will be made after review and clearance of IEE/EIA by ADB and SEIAA or MOEF. Gol will prepare and submit annually to ADB an environmental monitoring report that describes progress in implementation of the EMP and EARP and issues encountered and measures adopted; and compliance with the relevant assurances and loan covenants. (FFA)</p> | <p>development and associated design requirements.<br/>EMP is prepared and incorporated in bidding document.<br/>Regularly monitoring of EMP application is started for compliance as per stated mitigation measures.<br/>Till date no clearance is required for Tranche I project<br/>Quarterly report prepared regularly.<br/>Annual monitoring report for the period January to December 2012 was submitted in February 2013 and last <b>Revised semi-annual report for June 2013 was submitted in August 2013</b></p> |

#### **D. Environmental Organization and Management**

##### ***Details on the SIPMIU and DSMC environmental cell setup and personnel***

11. Environmental issues of the project coordinated by an Environmental Specialist within the DSMC, who ensures that all subprojects, comply with environmental safeguards. The SIPMIU comprises of a Safeguards and Social Cell staffed with an Environmental Officer (EO). The EO is responsible for implementing the environmental safeguard provisions in the project including (i) ensuring environmental criteria for subproject selection in the EARP are followed, (ii) ensuring mitigation requirements are in contractor bidding documents, and (iii) liaising with various Central and State government agencies on compliance matters. The SIPMIU appointed and manage Construction Contractors (CC) to build elements of the infrastructure that are required to submit Environmental Implementation Plans (EIPs) for SIPMIU approval. The SIPMIU is assisted by the DSMC, who is responsible for design the infrastructure, manage tendering of contracts, and supervise the construction process.
12. An Environmental Specialist (ES) in the DSMC is responsible for addressing the environmental issues in the project components during design and implementation. The ES ensure all mitigation requirements are in contractor bidding documents and EMPs, and will supervise the effective implementation of environmental provisions during construction. In addition, the ES assist the SIPMIU on the procurement needs and other project implementation aspects and play a central role in ensuring capacity building on environmental management of the SIPMIU, Contractor and Line Departments through capacity development support and training. **Figure 1** shows institutional responsibility for implementation of environmental safeguard monitoring at different level.
13. EMP shows that most of the mitigation measures are fairly standard methods of minimizing disturbance from building in urban areas (maintaining access, planning work to avoid sensitive times, finding uses for waste material, etc), and experienced

Contractors should be familiar with most of the requirements. Monitoring of such measures normally involves making observations in the course of site visits, although some require more formal checking of records and other aspects. There are also some surveys of residents, as most of the measures are aimed at preventing impacts on people and the human environment.



**Figure 1: Institutional Responsibility- NERCCDIP**

AMC = Agartala Municipal Council, DOF = Department of Forest, PHED = Public Health Engineering Department, PWD = Public Work Department, SEA = State Executing Agency- Urban Development Dept. Govt. of Tripura, ULB = Urban Local Body.

#### ***Details of third party consultants / laboratories hired for EMP***

14. For effective monitoring, selected environmental parameters have been identified as indicators which may be qualitatively and quantitatively measured and compared over a period of time in order to assess/ensure the compliance of EMP. The environmental performance indicators are physical, biological and social characteristics identified as most important in affecting the environment at critical

locations all along the sub-project corridors. The parameters identified as performance indicators are:

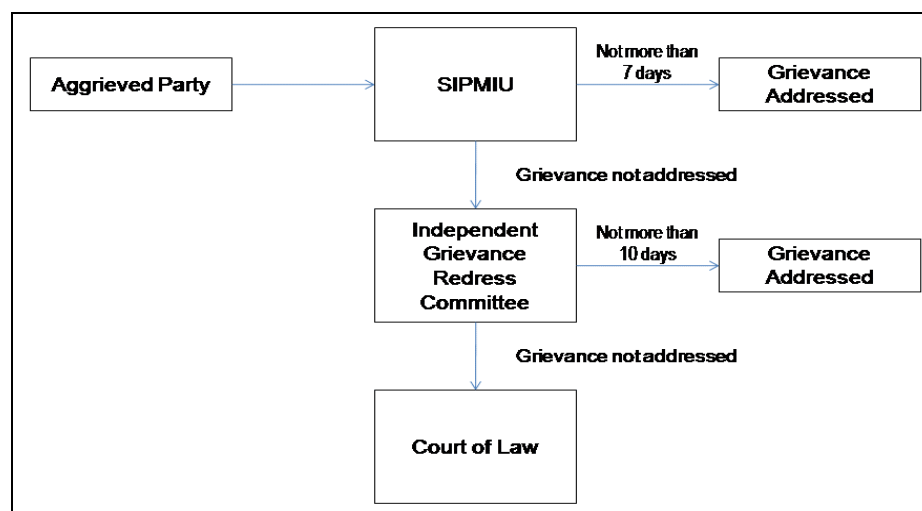
- Air, noise and water quality
- Compliance to EMP
- Compliance to local/state/national environmental regulations

15. The present work is only replacement of tube wells. Since the work involves drilling and simple construction of pump house building chances of air, water pollution is insignificant. There is no as such requirement of air, water monitoring during construction. Only during operation of tube well water quality monitoring is necessary.

16. *At present visual monitoring is continued. There is no requirement for 3<sup>rd</sup> party consultants/laboratories.*

***Grievance redressal mechanism and details of complains received and redressal.***

17. **Mechanism:** Grievances of affected persons will first be brought to the attention of the SIPMIU. Grievances not redressed by the SIPMIU will be brought to the Independent Grievance Redress Committee (IGRC) set up to monitor project implementation in Agartala. The IGRC, is chaired by the Secretary, Urban Development Department with representatives from the ULB, state government agencies, community-based organizations (CBOs) and NGOs. The GRC will determine the merit of each grievance, and resolve grievances within 10 days of receiving the complaint. Grievance not redressed by the IGRC will be referred to the appropriate courts of law. The DSMC will keep records of all grievances received including: contact details of complainant, date that the complaint was received, nature of grievance, agreed corrective actions and the date these were effected, and final outcome. The grievance redress process is shown in **Figure 2**. Costs involved in resolving the complaints will be borne by the SIPMIU. The GRCs will continue to function throughout the project duration. Till date there is no as such grievances are reported.



**Figure 2: Grievance Redress Mechanism**

18. Independent Grievance Redress Committee (IGRC) is established in SIPMIU.

### III. EMP Compliance Status

19. Status of compliance with various aspects of EMP as stated in the IEE

**TABLE 4 COMPLIANCE OF EMP AND OH&S NORMS**

| <b>Project: Water Supply</b> - Replacement of Deep Tube Wells – Lot 2   |  |   |                            |                                   |                            |  |
|---|--|---|----------------------------|-----------------------------------|----------------------------|--|
| <b>Package No:</b> AGT/WS01(R) /NCB/11/1/Lot 2  |  |   |                            |                                   |                            |  |
| <b>Progress:</b> 59 %   |  |   |                            |                                   |                            |  |
| <b>Physical progress :</b> Bore Drilling of borehole; reaming, lowering of pipes including development completed at 7 locations |  |   |                            |                                   |                            |  |
| Sr. No.   | Mitigation Activities and Method   | Location                                  | Responsible for Mitigation | Monitoring Method                 | Responsible for Monitoring | Compliance Status/ Explanation   |
| <b>Pre Construction Design phase</b>  |  |   |                            |                                   |                            |  |
| 1   | Site preparation work completed including necessary clearance  | Tube well construction site               | SIPMIU                     | Observation and document checking | SIPMIU/DSMC                | <b>Yes-</b> All sites (except one new site) have been handed over to Construction Contractor |
| <b>Construction</b>   |  |   |                            |                                   |                            |  |
| 2   | Establishment of temporary camps with sanitary and solid waste management arrangement  | Tube well construction site               | Contractor                 | Site observation                  | DSMC/ SIPMIU               | <b>Yes-</b> Temporary camp established at site. Worker using toilet of old pump house        |
| 3   | Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures | Tube well construction site               | Contractor                 | Site observation                  | DSMC/ SIPMIU               | <b>NR-</b> No overburden materials generated   |
| 4   | Water sprinkling at construction site for arresting dust (if any during dry period)  | Tube well construction site               | Contractor                 | Site observation                  | DSMC/ SIPMIU               | <b>NR-</b> Water sprinkling is not required as per nature of work                            |
| 5   | Materials carrying vehicle are covered   | City road and Tube well construction site | Contractor                 | Site observation                  | DSMC/ SIPMIU               | <b>NR-</b> Only pipes are transported  |
| 6   | All vehicles and equipments mobilized to construction site and producing emission, have Pollution Control Board certification  | City road and Tube well construction site | Contractor                 | Record                            | DSMC/ SIPMIU               | <b>Partly complied</b> - PUC certificates collected partly                                   |
| 7   | At sensitive locations enclosures provided around generator set or other noise producing machinery                             | Tube well construction site               | Contractor                 | Site observation                  | DSMC/ SIPMIU               | <b>No-</b> Not done by contractor  |

| <b>Project: Water Supply</b> - Replacement of Deep Tube Wells – Lot 2<br><b>Package No:</b> AGT/WS01(R) /NCB/11/1/Lot 2<br><b>Progress: 59 %</b><br><b>Physical progress :</b> Bore Drilling of borehole; reaming, lowering of pipes including development completed at 7 locations |  |   |                            |                   |                            |  |
|---|--|---|----------------------------|-------------------|----------------------------|--|
| Sr. No.   | Mitigation Activities and Method   | Location                                  | Responsible for Mitigation | Monitoring Method | Responsible for Monitoring | Compliance Status/ Explanation   |
| 8   | Regular maintenance of noise producing equipment done  | Tube well construction site               | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>Yes-</b> Done as per requirement  |
| 9   | Arrangement of drainage of waste water and arresting solid waste from waste water generated at construction site                                     | Tube well construction site               | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>Yes-</b> At all the locations arrangement have been made for discharge of waste water in nearby <i>nala</i> / channel. No flooding is reported during testing |
| 10  | Arrangement of pit for storage of muck   | Tube well construction site               | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>Yes-</b> At all the locations pit has been dug for storage of muck  |
| 11  | Felling of trees done (if necessary) with mitigation measures i.e. planting of three trees for each tree fell.                                       | Tube well construction site               | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>NR-</b> All are free area   |
| 12  | Pollution of water bodies at construction site   | Tube well construction site               | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>NA-</b> No water bodies existing near the project site  |
| 13  | Disposal of construction debris if any as per mitigation measures  | Tube well construction site               | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>NR-</b> No as such construction debris generated till date  |
| 14  | Ensure use of Personal Protective Equipment like helmet, gumboot, gloves, and earplugs at work place<br>Arrangement of First Aid Box at working site | Tube well construction site               | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>Partly complied</b> - Workers use PPE like helmet, gumboot, hand gloves partially. First Aid box available at site  |
| 15  | Provide Health and Safety training to all personnel and implement H&S plan   | Tube well construction site               | DSMC/ Contractor           | Record            | DSMC/ SIPMIU               | <b>Yes-</b> Training program have been conducted covering health & safety issue  |
| 16  | Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites                         | City road and Tube well construction site | Contractor                 | Observation       | DSMC/ SIPMIU               | <b>Yes-</b> Materials are transported mostly at non-peak hours. No congestion is reported. Transportation of materials completed                                 |
| 17  | Consideration of public safety - as per prescribed mitigation measures   | Tube well construction site               | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>NR-</b> Tube well site located at isolated place. No outside public available at site. If required it will be   |

| <b>Project: Water Supply</b> - Replacement of Deep Tube Wells – Lot 2   |  |                             |                            |                                      |                            |  |
|---|--|-----------------------------|----------------------------|--------------------------------------|----------------------------|--|
| <b>Package No:</b> AGT/WS01(R) /NCB/11/1/Lot 2  |  |                             |                            |                                      |                            |  |
| <b>Progress:</b> 59 %   |  |                             |                            |                                      |                            |  |
| <b>Physical progress :</b> Bore Drilling of borehole; reaming, lowering of pipes including development completed at 7 locations |  |                             |                            |                                      |                            |  |
| Sr. No.   | Mitigation Activities and Method                               | Location                    | Responsible for Mitigation | Monitoring Method                    | Responsible for Monitoring | Compliance Status/ Explanation                               |
|   |  |                             |                            |                                      |                            | done at future locations                                     |
| 18  | Employ at least 50% of workforce from communities near sites   | Tube well construction site | Contractor                 | Site observation                     | DSMC/ SIPMIU               | <b>Yes-</b> More than 90% of labourer are from Agartala city |
| 19  | Continuous monitoring on implementation of mitigation measures | Tube well construction site | Contractor/ DSMC           | Site observation and record checking | DSMC/ SIPMIU               | <b>Yes-</b> Will be continued as per schedule                |

NA: Not Applicable, NR- Not Required

| <b>Project: Water Supply</b> - Replacement of Deep Tube Wells – Lot 3  |  |   |                            |                                   |                            |   |
|--|--|---|----------------------------|-----------------------------------|----------------------------|---|
| <b>Package No:</b> AGT/WS01(R) /NCB/11/1/Lot 3   |  |   |                            |                                   |                            |   |
| <b>Progress:</b> 50 %  |  |   |                            |                                   |                            |   |
| <b>Physical progress:</b> Bore Drilling of borehole; reaming, lowering of pipes completed, development completed at 6 locations. |  |   |                            |                                   |                            |   |
| Sr. No.  | Mitigation Activities and Method   | Location                                  | Responsible for Mitigation | Monitoring Method                 | Responsible for Monitoring | Compliance Status/ Explanation  |
| <b>Pre Construction Design phase</b>   |  |   |                            |                                   |                            |   |
| 1  | Site preparation work completed including necessary clearance  | Tube well construction site               | SIPMIU                     | Observation and document checking | SIPMIU/DSMC                | <b>Yes-</b> All sites have been handed over to Construction Contractor                |
| <b>Construction</b>  |  |   |                            |                                   |                            |   |
| 2  | Establishment of temporary camps with sanitary and solid waste management arrangement  | Tube well construction site               | Contractor                 | Site observation                  | DSMC/ SIPMIU               | <b>Yes-</b> Temporary camp established at site. Worker using toilet of old pump house |
| 3  | Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures | Tube well construction site               | Contractor                 | Site observation                  | DSMC/ SIPMIU               | <b>NR-</b> No overburden materials generated  |
| 4  | Water sprinkling at construction site for arresting dust (if any during dry period)  | Tube well construction site               | Contractor                 | Site observation                  | DSMC/ SIPMIU               | <b>NR-</b> Water sprinkling is not required as per nature of work                     |
| 5  | Materials carrying vehicle are covered   | City road and Tube well construction site | Contractor                 | Site observation                  | DSMC/ SIPMIU               | <b>NR-</b> Only pipes are transported   |
| 6  | All vehicles and equipments mobilized to   | City road and Tube well                   | Contractor                 | Record                            | DSMC/ SIPMIU               | <b>Partly complied</b> - PUC certificates   |

| <b>Project: Water Supply</b> - Replacement of Deep Tube Wells – Lot 3  |  |                             |                            |                   |                            |  |
|--|--|-----------------------------|----------------------------|-------------------|----------------------------|--|
| <b>Package No:</b> AGT/WS01(R) /NCB/11/1/Lot 3   |  |                             |                            |                   |                            |  |
| <b>Progress: 50 %</b>  |  |                             |                            |                   |                            |  |
| <b>Physical progress:</b> Bore Drilling of borehole; reaming, lowering of pipes completed, development completed at 6 locations. |  |                             |                            |                   |                            |  |
| Sr. No.  | Mitigation Activities and Method   | Location                    | Responsible for Mitigation | Monitoring Method | Responsible for Monitoring | Compliance Status/ Explanation   |
|  | construction site and producing emission, have Pollution Control Board certification   | construction site           |                            |                   |                            | collected partly   |
| 7  | At sensitive locations enclosures provided around generator set or other noise producing machinery   | Tube well construction site | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>No-</b> Not done by contractor  |
| 8  | Regular maintenance of noise producing equipment done  | Tube well construction site | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>Yes-</b> Done as per requirement  |
| 9  | Arrangement of drainage of waste water and arresting solid waste from waste water generated at construction site                                     | Tube well construction site | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>Yes-</b> At all the locations arrangement have been made for discharge of waste water in nearby <i>nala</i> / channel. No flooding is reported during testing |
| 10   | Arrangement of pit for storage of muck   | Tube well construction site | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>Yes-</b> At all the locations pit has been dug for storage of muck  |
| 11   | Felling of trees done (if necessary) with mitigation measures i.e. planting of three trees for each tree fell.                                       | Tube well construction site | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>NR-</b> All are free area   |
| 12   | Pollution of water bodies at construction site   | Tube well construction site | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>NA-</b> No water bodies existing near the project site  |
| 13   | Disposal of construction debris if any as per mitigation measures  | Tube well construction site | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>NR-</b> No as such construction debris generated till date  |
| 14   | Ensure use of Personal Protective Equipment like helmet, gumboot, gloves, and earplugs at work place<br>Arrangement of First Aid Box at working site | Tube well construction site | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>Partly complied</b> - Workers use PPE like helmet, gumboot, hand gloves partially. First Aid box available at site  |
| 15   | Provide Health and Safety training to all personnel and implement H&S plan   | Tube well construction site | DSMC/ Contractor           | Record            | DSMC/ SIPMIU               | <b>Yes-</b> Training program have been conducted covering health & safety issue  |

| <b>Project: Water Supply</b> - Replacement of Deep Tube Wells – Lot 3<br><b>Package No:</b> AGT/WS01(R) /NCB/11/1/Lot 3<br><b>Progress: 50 %</b><br><b>Physical progress:</b> Bore Drilling of borehole; reaming, lowering of pipes completed, development completed at 6 locations. |  |   |                            |                                      |                            |   |
|--|--|---|----------------------------|--------------------------------------|----------------------------|---|
| Sr. No.  | Mitigation Activities and Method   | Location                                  | Responsible for Mitigation | Monitoring Method                    | Responsible for Monitoring | Compliance Status/ Explanation  |
| 16   | Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites | City road and Tube well construction site | Contractor                 | Observation                          | DSMC/ SIPMIU               | <b>Yes-</b> Materials are transported mostly at non-peak hours. No congestion is reported. Transportation of materials completed          |
| 17   | Consideration of public safety - as per prescribed mitigation measures   | Tube well construction site               | Contractor                 | Site observation                     | DSMC/ SIPMIU               | <b>NR-</b> Tube well site located at isolated place. No outside public available at site. If required it will be done at future locations |
| 18   | Employ at least 50% of workforce from communities near sites   | Tube well construction site               | Contractor                 | Site observation                     | DSMC/ SIPMIU               | <b>Yes-</b> More than 90% of labourer are from Agartala city  |
| 19   | Continuous monitoring on implementation of mitigation measures   | Tube well construction site               | Contractor/ DSMC           | Site observation and record checking | DSMC/ SIPMIU               | <b>Yes-</b> Will be continued as per schedule   |

NA: Not Applicable, NR- Not Required

| <b>Project: Water Supply-</b> Construction of Pump House for 16Tube Wells<br><b>Package No:</b> AGT/WS01(R3)CIV./ NCB/12/4<br><b>Progress: 31%</b><br><b>Physical progress:</b> Construction of pump houses completed at 5 locations, rest under construction |  |                             |                            |                                   |                            |  |
|---|--|-----------------------------|----------------------------|-----------------------------------|----------------------------|--|
| Sr. No.   | Mitigation Activities and Method   | Location                    | Responsible for Mitigation | Monitoring Method                 | Responsible for Monitoring | Compliance Status/ Explanation   |
| <b>Pre Construction Design phase</b>  |  |                             |                            |                                   |                            |  |
| 1   | Site preparation work completed including necessary clearance  | Tube well construction site | SIPMIU                     | Observation and document checking | SIPMIU/DSMC                | <b>Yes-</b> All sites have been handed over to Construction Contractor |
| <b>Construction</b>   |  |                             |                            |                                   |                            |  |
| 2   | Establishment of temporary camps with sanitary and solid waste management arrangement  | Tube well construction site | Contractor                 | Site observation                  | DSMC/ SIPMIU               | <b>NR-</b> Not required till date. Local labour are employed           |
| 3   | Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures | Tube well construction site | Contractor                 | Site observation                  | DSMC/ SIPMIU               | <b>NR-</b> No overburden materials generated                           |



**Project: Water Supply-** Construction of Pump House for 16Tube Wells

**Package No:** AGT/WS01(R3)CIV./ NCB/12/4

**Progress:** 31%

**Physical progress:** Construction of pump houses completed at 5 locations, rest under construction

| Sr. No. | Mitigation Activities and Method   | Location                                  | Responsible for Mitigation | Monitoring Method | Responsible for Monitoring | Compliance Status/ Explanation  |
|---------|--|---|----------------------------|-------------------|----------------------------|---|
| 4       | Water sprinkling at construction site for arresting dust (if any during dry period)  | Tube well construction site               | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>NR-</b> Water sprinkling is not required as per nature of work   |
| 5       | Materials carrying vehicle are covered   | City road and Tube well construction site | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>No-</b> Instruction has been given to the contractor   |
| 6       | All vehicles and equipments mobilized to construction site and producing emission, have Pollution Control Board certification                        | City road and Tube well construction site | Contractor                 | Record            | DSMC/ SIPMIU               | <b>No</b> - PUC certificates not collected  |
| 7       | At sensitive locations enclosures provided around generator set or other noise producing machinery   | Tube well construction site               | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>NR-</b> Not required   |
| 8       | Regular maintenance of noise producing equipment done  | Tube well construction site               | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>NR-</b> Not required at present  |
| 9       | Arrangement of drainage of waste water and arresting solid waste from waste water generated at construction site                                     | Tube well construction site               | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>Yes-</b> At all the locations arrangement have been made for discharge of waste water in nearby <i>nala</i> channel. |
| 10      | Felling of trees done (if necessary) with mitigation measures i.e. planting of three trees for each tree fell.                                       | Tube well construction site               | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>NR-</b> All are free area  |
| 11      | Pollution of water bodies at construction site   | Tube well construction site               | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>NA-</b> No water bodies existing near the project site   |
| 12      | Disposal of construction debris if any as per mitigation measures  | Tube well construction site               | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>NR-</b> No as such construction debris generated till date   |
| 13      | Ensure use of Personal Protective Equipment like helmet, gumboot, gloves, and earplugs at work place<br>Arrangement of First Aid Box at working site | Tube well construction site               | Contractor                 | Site observation  | DSMC/ SIPMIU               | <b>No</b> - Workers not using PPE<br>First Aid box not available at site  |
| 14      | Provide Health and Safety training to all personnel and  | Tube well construction site               | DSMC/ Contractor           | Record            | DSMC/ SIPMIU               | <b>Yes-</b> Training program have been conducted covering health &  |

| <b>Project: Water Supply-</b> Construction of Pump House for 16Tube Wells                               |  |   |                            |                                      |                            |   |
|---|--|---|----------------------------|--------------------------------------|----------------------------|---|
| <b>Package No: AGT/WS01(R3)CIV./ NCB/12/4</b>   |  |   |                            |                                      |                            |   |
| <b>Progress:</b> 31%  |  |   |                            |                                      |                            |   |
| <b>Physical progress:</b> Construction of pump houses completed at 5 locations, rest under construction |  |   |                            |                                      |                            |   |
| Sr. No.   | Mitigation Activities and Method   | Location                                  | Responsible for Mitigation | Monitoring Method                    | Responsible for Monitoring | Compliance Status/ Explanation  |
|   | implement H&S plan   |   |                            |                                      |                            | safety issue  |
| 15  | Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites | City road and Tube well construction site | Contractor                 | Observation                          | DSMC/ SIPMIU               | <b>Yes-</b> Materials are transported mostly at non-peak hours. No congestion is reported. Transportation of materials completed                          |
| 16  | Consideration of public safety - as per prescribed mitigation measures   | Tube well construction site               | Contractor                 | Site observation                     | DSMC/ SIPMIU               | <b>NR-</b> Tube well pump house sites are located at isolated place. No outside public available at site. If required it will be done at future locations |
| 17  | Employ at least 50% of workforce from communities near sites   | Tube well construction site               | Contractor                 | Site observation                     | DSMC/ SIPMIU               | <b>Yes-</b> 100% labourer are from Agartala city  |
| 18  | Continuous monitoring on implementation of mitigation measures   | Tube well construction site               | Contractor/ DSMC           | Site observation and record checking | DSMC/ SIPMIU               | <b>Yes-</b> Will be continued as per schedule   |

NA: Not Applicable, NR- Not Required

#### IV. Observations Recommendations and Actions Taken

20. For protection of local environment during construction phase application of mitigation measures is continued as per specified EMP. Pubic consultation during construction/implementation phase is necessary. Since present project location is confined within specific site and no as such major work ongoing, public consultation not required during the report period.
21. As per ADB's new safeguard policy the project authority will establish a mechanism to receive and facilitate resolution of affected persons' concerns, complaints and grievances about the project's environmental performance. The grievances mechanism should be scaled to the risks and adverse impacts of the project. It will be addressed affected peoples' concerns and complaints promptly, using an understandable and transparent process that is gender responsive, culturally appropriate, and readily accessible to all the affected people at no cost and without retribution. The affected people will be informed by appropriate mechanism.
22. The action plan considered for satisfactory environmental compliance as per the present sub-project activities are given below.

#### Suggestion & Action plan consider for satisfactory Environmental Compliance

| Sr. No. | Issues             | Suggestion and recommendation | Action to be taken by | Time Frame      |
|---------|--------------------|-------------------------------|-----------------------|-----------------|
| 1       | Application of EMP | Effective implementation of   | Contractor under      | Immediately and |

|   |                                       |   |   |                                |
|---|---------------------------------------|---|---|--------------------------------|
|   |                                       | Environmental Management Plan is ensured by Contractors and the present status is varied from partially satisfactory to satisfactory but there is scope for improvement in the implementation of EMP.<br>Instruction given to contractors and monitoring for  | supervision of continuous SIPMIU and DSMC       |                                |
| 2 | Health and Safety                     | <ul style="list-style-type: none"> <li>o Proper disposal of debris and quick disposal of muck and other solid waste</li> <li>o Complete use of PPE</li> <li>o Collection of PUC certificate</li> </ul> <p>It has been observed during site visit that workers engaged in construction works are not always using PPE.<br/>-The contractor had been requested to insist workers to bear and use proper PPE.<br/>-The construction area should be access controlled to avoid any accident</p> | Contractor under supervision of SIPMIU and DSMC | Immediately and continuous     |
| 3 | Restoration of the construction area  | <p>Instruction has been given to contractors.</p> <p>- before acceptance of work site should be cleaned after disposal of all the excess materials/overburden for satisfactory restoration of the site according to the EMP.</p>  | Contractor under supervision of SIPMIU and DSMC | To be done at particular stage |
| 4 | Social relationship and public safety | Continuation of public consultation during construction   | Contractor                                      | Atleast Monthly                |

#### **ANNEXURE – 1**

Till date no third party monitoring agency is not involved.

Visual monitoring has been carried out by,

- ✓ Mr. A. Basu, Tube well Specialist, DSMC
- ✓ Mr. B.S.Purkayastha, Resident Engineer, DSMC
- ✓ Mr. Chandra Sekhar Banerjee, Engineering Assistant, DSMC
- ✓ Dr. Ardhendu Mitra, Environment Specialist, DSMC

#### **ANNEXURE – 2**

Grievances Redressal Mechanism

Till date there is no grievances has been registered in SIPMIU office

### ANNEXURE – 3

#### Contractors Environmental Implementation Plan

#### Anticipated Impacts and Mitigation Measures – Pre-construction Environmental Mitigation Plan

| Field  | Anticipated Impact            | Mitigation Measures  | Responsible for Mitigation   | Monitoring of Mitigation  |
|--|-------------------------------|--|--|---|
| Construction work camps, stockpile areas, storage areas, and disposal areas. | Disruption to public movement | <p>(i) Prioritize areas within or nearest possible vacant space in the subproject sites;</p> <p>(ii) If it is deemed necessary to locate elsewhere, consider sites that will not promote instability and result in destruction of property, vegetation, and drinking water supply systems;</p> <p>(iii) Do not consider residential areas;</p> <p>(iv) Take extreme care in selecting sites to avoid direct disposal to water body which will inconvenience the community.</p> | SIPMIU and DSMC to determine locations prior to award of construction contracts. | List of selected sites for construction work camps, stockpile areas, storage areas, and disposal areas. |

#### Anticipated Impacts and Mitigation Measures – Construction Environmental Mitigation Plan

| Field        | Anticipated Impact  | Mitigation Measures   | Responsible for Mitigation | Monitoring of Mitigation   |
|--------------|---|---|----------------------------|--|
| Air Quality  | Emissions from construction vehicles, equipment, and machinery used for construction resulting to dusts and increase in concentration of vehicle-related pollutants such as carbon monoxide, sulfur oxides, particulate matter, nitrous oxides, and hydrocarbons) | <p>(i) Consult with SIPMIU/DSMC on the designated areas for stockpiling of clay, soils, gravel, and other construction materials;</p> <p>(ii) Damp down any stockpiled on site by spraying with water when necessary during dry weather;</p> <p>(iii) Use tarpaulins to cover sand and other loose material when transported by trucks; and</p> <p>(iv) Fit all heavy equipment and machinery with air pollution control devices which are operating correctly.</p> | Construction Contractor    | <p>(i) Location of stockpiles;</p> <p>(ii) Complaints from sensitive receptors;</p> <p>(iii) Heavy equipment and machinery with air pollution control devices;</p> <p>(iv) Ambient air for respirable particulate matter (RPM) and suspended particulate matter (SPM);</p> |
| Noise Levels | Increase in noise level due to earth-moving and drilling equipment, and the   | (i) Plan activities in consultation with SIPMIU/DSMC so that activities with the greatest potential to generate noise are   | Construction Contractor    | (i) Complaints from sensitive receptors;   |

|                      |   |  |                         |   |
|----------------------|---|--|-------------------------|---|
|                      | transportation of equipment, materials, and people                  | <p>conducted during periods of the day which will result in least disturbance;</p> <p>(ii) Require horns not be used unless it is necessary to warn other road users or animals of the vehicle's approach;</p> <p>(iii) Minimize noise from construction equipment by using vehicle silencers, fitting jackhammers with noise-reducing mufflers, and portable street barriers the sound impact to surrounding sensitive receptor; and</p> <p>(iv) Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s.</p>  |                         | <p>(ii) Use of silencers in noise-producing equipment and sound barriers;</p> <p>(iii) Equivalent day and night time noise levels</p>   |
| Landscape Aesthetics | and Solid wastes/ muck as well as excess construction materials     | <p>(i) Prepare and implement Waste Management Plan;</p> <p>(ii) Avoid stockpiling of excess excavated soils;</p> <p>(iii) Coordinate with AMC/PWD for beneficial uses of excess excavated soils or immediately dispose to designated areas;</p> <p>(iv) Recover used oil and lubricants and reuse or remove from the sites;</p> <p>(v) Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas;</p> <p>(vi) Remove all wreckage, rubbish; and</p> <p>(vii) Request SIPMIU/DSMC to report in writing that the necessary environmental restoration work has been adequately performed before acceptance of work.</p> | Construction Contractor | <p>(i) Waste Management Plan;</p> <p>(ii) Complaints from sensitive receptors;</p> <p>(iii) SIPMIU/DSMC to report in writing that the necessary environmental restoration work has been adequately performed before acceptance of work.</p> |
| Accessibility        | Traffic problems and conflicts near project locations and haul road | <p>(i) Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites;</p> <p>(ii) Schedule transport and hauling activities during non-peak hours;</p>   | Construction Contractor | <p>(i) Traffic Management Plan;</p> <p>(ii) Complaints from sensitive receptors;</p> <p>(iii) Number of signages placed</p>   |

|                                |  |  |  |   |
|--------------------------------|--|--|--|---|
|                                |  | <p>(iii) Locate entry and exit points in areas where there is low potential for traffic congestion;</p> <p>(iv) Keep the site free from all unnecessary obstructions;</p> <p>(v) Drive vehicles in a considerate manner;</p> <p>(vi) Coordinate with Agartala Municipal Traffic Office for temporary road diversions and with for provision of traffic aids if transportation activities cannot be avoided during peak hours; and</p> <p>(vii) Notify affected sensitive receptors by providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints.</p> |  | at subproject sites.  |
| Socio-Economic Employment      | - Generation of contractual employment increase in revenue | of and local   | <p>(i) Employ at least 50% of the labour force, or to the maximum extent, local persons within the 2-km immediate area if manpower is available; and</p> <p>(ii) Secure construction materials from local market.</p>  | <p>Construction Contractor</p> <p>(i) Employment records;</p> <p>(ii) records of sources of materials</p>   |
| Occupational Health and Safety | Occupational hazards which can arise during work           |  | <p>(i) Develop and implement site-specific Health and Safety (H and S) Plan which will include measures such as: (a) excluding public from the site; (b) ensuring all workers are provided with and use Personal Protective Equipment like helmet, gumboot, gloves, nose musk and ear plugs; (c) H and S Training for all site personnel; (d) documented procedures to be followed for all site activities; and (e) documentation of work-related accidents;</p> <p>(ii) Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site;</p> <p>(iii) Provide medical insurance coverage for workers;</p> <p>(iv) Secure all installations from unauthorized intrusion and accident risks;</p> | <p>Construction Contractor</p> <p>(i) Site-specific Health and Safety (H and S) Plan;</p> <p>(ii) Equipped first-aid stations;</p> <p>(iii) Medical insurance coverage for workers;</p> <p>(iv) Number of accidents;</p> <p>(v) Supplies of potable drinking water;</p> <p>(vi) Clean eating areas where workers are not exposed to hazardous or noxious substances;</p> <p>(vii) record of H and S orientation</p> |

|            |   |  |   |
|------------|---|--|---|
|            |   | <p>(v) Provide supplies of potable drinking water;</p> <p>(vi) Provide clean eating areas where workers are not exposed to hazardous or noxious substances;</p> <p>(vii) Provide H and S orientation training to all new workers to ensure that they are apprised of the basic site rules of work at the site, personal protective protection, and preventing injuring to fellow workers;</p> <p>(viii) Provide visitor orientation if visitors to the site can gain access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted;</p> <p>(ix) Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively.</p> | <p>trainings</p> <p>(viii) personal protective equipments;</p> <p>(ix) % of moving equipment outfitted with audible back-up alarms;</p> <p>(xi) sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal.</p> |
| Work Camps | Temporary air and noise pollution from machine operation, water pollution from storage and use of fuels, oils, solvents, and lubricants | <p>(i) Consult with SIPMIU/DSMC before locating project offices, sheds, and construction plants;</p> <p>(ii) Minimize removal of vegetation and disallow cutting of trees;</p> <p>(iii) Provide water and sanitation facilities for employees;</p> <p>(iv) Prohibit employees from poaching wildlife and cutting of trees for firewood;</p> <p>(v) Train employees in the storage and handling of materials which can potentially cause soil contamination;</p> <p>(vi) Recover used oil and lubricants and reuse or remove from the site;</p> <p>(vii) Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas;</p> <p>(viii) Remove all wreckage,</p>  | <p>Construction Contractor</p> <p>(i) Complaints from sensitive receptors;</p> <p>(ii) Water and sanitation facilities for employees; and</p> <p>(iii) SIPMIU/DSMC report in writing that the camp has been vacated and restored to pre-project conditions</p>  |

rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; and

(ix) Request SIPMIU/DSMC to report in writing that the camp has been vacated and restored to pre-project conditions before acceptance of work.

### **Anticipated Impacts and Mitigation Measures – Operation and Maintenance Environmental Mitigation Plan**

| <b>Field</b>                   | <b>Anticipated Impact</b>  | <b>Mitigation Measures</b>   | <b>Responsible for Mitigation</b> | <b>Monitoring of Mitigation</b>  |
|--------------------------------|--|--|-----------------------------------|--|
| Occupational Health and Safety | Adverse impacts on the appearance of surrounding environment and exposure of workers | <p>(i) Ensure persons employed will be provided with suitable equipment</p> <p>(ii) Ensure all removed material will be deposited in the municipal waste storage bins.</p> | PWD (DWS) and O and M Contractors | <p>(i) Records of training;</p> <p>(ii) H and S Plan approved by UDD</p> |