

Semi Annual Environmental Monitoring Report

Project Number - 35290-01
Loan 2834 - IND
(January 2014)

India: North Eastern Region Capital Cities
Development Investment Program – Shillong
Solid Waste Management Subproject (Tranche-II,
Shillong, Meghalaya) (January – June 2014)

Prepared by the State Investment Project Management and Implementation Unit (SIPMIU),
Urban Affairs Department for the Asian Development Bank.

ABBREVIATIONS

ADB	— Asian Development Bank
CBO	— Community Building Organization
CLC	— City Level Committees
CPHEEO	— Central Public Health and Environmental Engineering Organization
CTE	— Consent to Establish
CTO	— Consent to Operate
DSMC	— Design Supervision Management Consultant
EAC	— Expert Appraisal Committee
EIA	— Environmental Impact Assessment
EMP	— Environmental Management Plan
GSPA	— Greater Shillong Planning Area
GRC	— Grievance Redress Committee
H&S	— Health and Safety
IEE	— Initial Environmental Examination
IPCC	— Investment Program Coordination Cell
lpcd	— liters per capita per day
MFF	— Multitranche Financing Facility
MOEF	— Ministry of Environment and Forests
MSW	— Municipal Solid Waste
NAAQS	— National Ambient Air Quality Standards
NEA	— National-Level Executing Agency
NER	— North Eastern Region
NERCCDIP	— North Eastern Region Capital Cities Development Investment Program
NGO	— Nongovernmental Organization
NSC	— National Level Steering Committee
O&M	— Operation and Maintenance
PMIU	— Project Management and Implementation Unit
PSP	— Private Sector Participation
SEA	— State-level Executing Agency
SEIAA	— State Environment Impact Assessment Authority
SIPMIU	— State-level Investment Project Management and Implementation Unit
SMB	— Shillong Municipal Board
SPS	— Safeguard Policy Statement
TOR	— Terms of Reference
UD&PAD	— Urban Development & Poverty Alleviation Department
UAD	— Urban Affairs Department
UDD	— Urban Development Department
ULB	— Urban Local Body

I. INTRODUCTION

A. BACKGROUND

1. The North-Eastern Region Capital Cities Development Investment Program (NERCCDIP) envisages achieving sustainable urban development in the Project Cities of Agartala, Aizawl, Kohima, Gangtok and Shillong through investments in urban infrastructure sectors. Urban infrastructure and services improvement is proposed in the following sectors: (i) water supply; (ii) sewerage and sanitation; and (iii) solid waste management. The expected impact of NERCCDIP is increased economic growth potential, reduced poverty, and reduced imbalances between the North-Eastern Region (NER) and the rest of the country. The expected outcomes of the Investment Program will be an improved urban environment and better living conditions for the 1.65 million people expected to be living in the NERCCDIP cities by 2018. To this end, NERCCDIP will (i) improve and expand urban infrastructure and services in the cities, including slums; and (iii) strengthen urban institutional management and the financing capacity of the institutions, including the urban local bodies (ULBs). Based on considerations of economic justification, absorptive capacity and sustainability of the implementing agencies, subprojects have been identified in each city in the priority infrastructure sectors.

2. Though NERCCDIP aims to improve the environmental condition of urban areas, the proposed improvements of infrastructure facilities may exert certain adverse impacts on the natural environment. While developing urban infrastructure facilities, impacts during the construction stage are expected to be more severe than impacts during the operation phase, though for a short duration. Exceptions being some facilities such as solid waste landfills and sewage treatment plants, which may also exert adverse impacts during the operation phase, if due care is not taken.

3. NERCCDIP will be implemented over a six year period beginning in 2010, and will be funded by a loan via the Multitranches Financing Facility (MFF) of the Asian Development Bank (ADB). The Ministry of Urban Development (MOUD) is the national Executing Agency. State-level Investment Program Management and Implementation Units (SIPMIU) in each state are responsible for overall technical supervision and execution of all subprojects funded under the Investment Program. The SIPMIU is being assisted by design, management and supervision consultants (DMSC) who are designing the infrastructure, managing the tendering of contracts, and will supervise construction.

4. ADB requires the consideration of environmental issues in all aspects of the Bank's operations, and the requirements for Environmental Assessment are described in ADB's Safeguards Policy Statement (SPS, 2009). This states that ADB requires environmental assessment of all project loans, program loans, sector loans, sector development program loans, loans involving financial intermediaries, and private sector loans. ADB has provided on its part, a Project Preparatory Technical Assistance (TA 4348-IND) for the preparation of an urban sector profile of the North-Eastern states, followed by a Technical Assistance (TA 4779-IND) for Project Implementation and Urban Management in the North-Eastern Region (Phase II) to continue the works under Tranche II.

5. Initial Environmental Examination (IEE) has been prepared for the Shillong Solid Waste Management Subproject as part of NERCCDIP -Tranche II. The subproject covers (i) Construction of Garage cum workshop shed & staff rest room at old landfill site, Marten; (ii)

Procurement of primary and secondary collection vehicles and workshop machineries; (iii) Procurement of different type of bins, personal protective equipments; and (iv) construction of a short-term sanitary landfill site over an area of 8500 sqm is under process for approval.

6. This IEE report covers the general environmental profile of Shillong and includes an overview of the potential environmental impacts and their magnitude on physical, ecological, economic, and social and cultural resources within the subproject's influence area during design, construction, and operation stages. An Environmental Management Plan (EMP) is also proposed as part of this report which includes mitigation measures for significant environmental impacts during implementation of the Project, environmental monitoring program, and the responsible entities for mitigation and monitoring.

Extent of the IEE Study

7. This IEE report was prepared on the basis of detailed screening and analysis of all environmental parameters, field investigations and stakeholder consultations to meet the requirements for environmental assessment process and documentation per ADB's Safeguard Policy Statement (SPS, 2009) and the Government of India's Environmental Impact Assessment (EIA) Notification of 2006.

ADB Policy

8. ADB requires the consideration of environmental issues in all aspects of ADB's operations, and the requirements for Environmental Assessment are described in ADB's SPS (2009). This states that ADB requires environmental assessment of all project loans, program loans, sector loans, sector development program loans, loans involving financial intermediaries, and private sector loans.

9. **Screening and Categorization.** The nature of the environmental assessment required for a project depends on the significance of its environmental impacts, which are related to the type and location of the project, the sensitivity, scale, nature and magnitude of its potential impacts, and the availability of cost-effective mitigation measures. Projects are screened for their expected environmental impact are assigned to one of the following four categories:

- (i) **Category A.** Projects could have significant adverse environmental impacts. An EIA is required to address significant impacts.
- (ii) **Category B.** Projects could have some adverse environmental impacts, but of lesser degree or significance than those in category A. An IEE is required to determine whether significant environmental impacts warranting an EIA are likely. If an EIA is not needed, the IEE is regarded as the final environmental assessment report.
- (iii) **Category C.** Projects are unlikely to have adverse environmental impacts. No EIA or IEE is required, although environmental implications are reviewed.

10. **Environmental Management Plan.** An EMP which addresses the potential impacts and risks identified by the environmental assessment shall be prepared. The level of detail and complexity of the EMP and the priority of the identified measures and actions will be commensurate with the Project's impact and risks.

11. **Public Disclosure.** SIPMIU will post the following safeguard documents on its website so affected people, other stakeholders, and the general public can provide meaningful inputs into the project design and implementation:

- (i) For environmental category A projects, draft EIA report at least 120 days before Board consideration;
- (ii) Final or updated EIA and/or IEE upon receipt; and
- (iii) Environmental Monitoring Reports submitted by SIPMIU during project implementation upon receipt.

B. PROJECT PROFILE

Type, Category and Need

12. **Type.** This is a solid waste management subproject intended to improve the current situation in Shillong in terms of providing a disposal area, improving the collection system, and raising the awareness of the community of their responsibility to place their waste at collection points, and to segregate waste that is suitable for recycling. Under Tranche-2, a garage cum workshop shed and staff rest room is to be constructed for parking and repairing of garbage vehicles.

13. **Category.** Environmental examination indicates the proposed subproject falls within ADB's environmental Category B projects. The Project components will only have small-scale, localized impacts on the environment, and can be mitigated. Under ADB procedures such projects require an IEE to identify and mitigate the impacts, and to determine whether further study or a more detailed EIA may be required.

14. **Need.** The subproject is needed because the present solid waste infrastructure in Shillong is inadequate for the needs of the growing population. There is no vehicle maintenance infrastructure within the site and lack of landfill machineries like compactor, tippers, grinding machine and drilling machines etc. The personal protective equipment are also lacking and causing hazardous situation. So, it is essential to procure land fill machineries and personal protective equipment and also construction of garage and workshop.

15. The primary objective of the subproject is to upgrade the existing SWM services to make them scientific and more efficient and to adopt sanitary landfilling for ultimate disposal as per Municipal Solid Waste (Management and Handling) Rule (MSW Rules) (2000) in the interests of health and economic well-being of the people of Shillong. The other objective is to provide the long term (till 2041) solution of the problem of solid waste management by way of modernization of the system through modern household and community bins for separate collection of biodegradable and non- biodegradable wastes, and recyclables, closed body transportation of garbage, dressing sanitary landfill site with bull dozers and compacting with land compactor, supplying Personnel Protective Equipment (PPE) to the laborers to protect their health. Besides, generation of revenue by better collection of user charges through effective creation of community awareness and selling of compost and recyclables.

Location and Implementation Schedule

16. The subproject is located in the Greater Shillong Planning Area (GSPA)¹. Under Tranche II the subproject is to be implemented within the area falling under Shillong Municipal Board (SMB) which is 10.25 square km. The subproject site is located on a vacant land of existing landfill site at Marten, Mawiong about 8 km outside Shillong city.

17. The procurement of primary and secondary collection vehicles and workshop machinery has been started in June 2012 and supply for the entire procurement is expected to be completed soon. Civil works for the construction of Garage-cum workshop etc. at Marten under Tranche – 2 started in April 2013 and is expected to be completed by September 2014. Letter of acceptance for Procurement of different types of bins and personal protective equipment has been issued to the supplier and supply is expected to be completed in 12 months.

Description of the Subproject

1. Existing Solid Waste Management

18. **Management.** Solid Waste Management is managed by three different authorities for each town and village viz. (i) the Shillong Municipal Board (SMB) within the municipal area (ii) the Dorbars, outside the municipal area, and (iii) The Shillong Cantonment Board, within the cantonment area. The Meghalaya Government oversees all solid waste management in GSPA.

- (i) Shillong Municipal Board – The SMB is responsible for collection transportation and disposal of solid waste generated in Shillong city. The area covered by SMB is 10.25 square kilometers (km²). The Chief Executive Officer looks after the administration of SMB.
- (ii) The Dorbars – The 5 census towns of Shillong Urban Agglomeration (SUA) include Mawlai, Nongthymmai, Madanryting, Pynthorumkhrah and Nongmynsong. Each town is divided into a number of DorbarShnongs and each DorbarShnong has a Headman. The DorbarShnong looks after the collection and transportation of solid waste generated in their respective localities.
- (iii) Shillong Cantonment Board (SCB) - This is a military area covering 1.84 km². The solid waste generated in the Cantonment area is collected and transported, separately by cantonment vehicles. The Cantonment Executive Officer (CEO) looks after the administration of Shillong Cantonment Board (SCB).

19. **Waste Generation.** The solid waste generated in GSPA is 149 metric ton per day (MTD) with waste generation rate within SUA area is 356 grams per capita and outside SUA area is 262 grams per capita per day. The major solid waste generation sources are households (56 %), markets (23 %), hotels & restaurants (7 %), construction waste (2 %), and street sweeping (7 %).

20. **Segregation.** Waste segregation is not practiced in Shillong. The absence of segregation poses problems to the operation of the existing compost plant in Marten dumpsite.

21. However, as far as bio-medical waste is concerned, the system adopted by SMB is found to be satisfactory. The bio-medical waste is collected by a van designed for this purpose and the waste is disposed off at incinerator, installed at Marten dumpsite.

¹The GSPA is spread over an area of 173.87 km². It comprises three distinct areas, namely the Shillong Municipal Board (SMB) area, 6 other urban centers (Shillong Cantonment, Mawlai, Nongthymmai, Pynthorumkhrah, Madantring, and Nongmynsong towns) and rural areas with 32 settlements. GSPA, with its total population of 312,539 (2001 Census) accounts for 78% of the total urban population of Meghalaya.

22. **Collection and Transportation System.** The Health and Conservancy Department (HCD) of SMB looks after the work of collection and transportation of solid waste generated within the SMB. Currently, SMB has 410 permanent workers and has appointed 50 people on Muster Roll basis for solid waste management.

23. House-to-house collection is at present in existence in a few localities only. There are about 23 vehicles which would stop on particular location on the side of the road at a particular time and the households and shops handover the waste to these vehicles. Some of the vehicles are more than 10 years old and need urgent replacement. The SMB vehicles collect only from SMB area which generates about 50 MTD of waste out of the total generation of 135 MTD from GSPA. SMB has provided 11 trucks, 3 compactors and 9 primary collection vehicles. 257 road sweepers, 5 conservancy supervisors, 6 sanitary inspectors and a chief medical and health officer. As per the SMB, there are 105 dustbins within the area of 10.8 sq. km. However, due to less coverage and delay of collecting vehicles, many households keep their waste on the streets, and dogs scatter these waste on the roads and create unhygienic, unhealthy conditions.

24. **Disposal.** The collected wastes are disposed at a disposal site located in Mawiong, located about 8 km from the city. The site has been operational since 1938. To improve the practice of dumping at the existing site and to comply with the requirements of MSW Rules, under NERCCDIP Tranche I construction of an emergency engineered landfill and associated infrastructures (leachate collection facilities, environmental protection measures etc.) in a portion of the site is being undertaken.

25. A compost plant with a capacity of 100 MTD was constructed in the Marten, Mawiong dumpsite earlier. It is currently proposed for rehabilitation and expansion to 150 MTD capacity by the private operator who has been operating this plant on private-public partnership basis. An average residual waste for disposal is estimated to be 50 to 60 MTD.

2. Subproject Component

26. The subproject under Tranche 2 covers (i) Construction of Garage cum Workshop shed & staff rest room at old landfill site, Marten Mawiong; (ii) Procurement of primary and secondary collection vehicles and workshop machineries; (iii) Procurement of different type of bins and personal protective equipment and (iv) construction of a short-term sanitary landfill site over an area of 8500 sqm which is under process for approval. Details of the proposed subproject components are provided in **Table 1**. The descriptions shown in the table are based on the present proposals, which are expected to be substantially correct, although certain details may change as development of the subproject progresses. The status of the contract is as below.

- (i) Construction of Garage cum Workshop shed & staff rest room at old landfill site, Marten Mawiong March 2013 completion September 2014
- (ii) Procurement of primary and secondary collection vehicles and workshop machineries – tending stage
- (iii) Procurement of different type of bins and personal protective equipment awarded in July 2012 and completion July 2013 extension is awaited.
- (iv) Construction of a short-term sanitary landfill site over an area of 8500 sqm.- DPR is under process for approval.

Table 1: Shillong Solid Waste Management Subproject Components

Component	Location	Function	Description	Remarks
(i) Improvement in Primary Collection				
▪ Procurement of HDPE house hold bins	At each household	For collection of segregated waste from house hold	• 20 litres capacity	• 60,000 numbers • no physical interaction with the environment
▪ Procurement of HDPE Litter bins	Public places (garden, street corner etc)	For primary collection of waste	• 25/50 litres capacity	• 100 numbers • no physical interaction with the environment
▪ Procurement of Mobile Garbage Bin	Commercial area	For primary collection of waste	• 360 liters capacity	• 50 numbers • no physical interaction with the environment
▪ Procurement of Satellite Vehicles	Within city area	Garbage Tippers for primary collection of waste from house hold	• 1.5 cum. Capacity	• 12 numbers • no physical interaction with the environment
▪ Procurement of personal protective equipment	To be distributed to workers engaged in solid waste management	personal protective equipments	• Hand Gloves – 460 nos., Gumboots – 460 nos., Cotton Masks – 4860 nos., Rain Coats – 460 nos.	• no physical interaction with the environment
(ii) Improvement in Secondary Collection				
▪ Procurement of Refuse Compactor Vehicles	For transferring compacted waste from transfer station to land fill site	For secondary collection of waste	• 7.0 m ³ capacity	• 2 numbers • no physical interaction with the environment
▪ Procurement of Heavy Duty trucks with folding cover	For transferring waste from transfer station to land fill site	For secondary collection of waste	• 4.5 m ³ capacity	• 2 numbers • no physical interaction with the environment
▪ Procurement of workshop equipment	Landfill site	For operation and maintenance of vehicles	• Air Compressor, Car Washing Machine, Welding Machine, Grinding Machine, Hand Drill Machine, Chain Pulley Block	• no physical interaction with the environment
(iii) Construction of associated infrastructure at old landfill site, Mawiong				
▪ Construction of garage cum workshop shed and staff rest rooms	Existing dumpsite	Maintenance of equipment	Garage and repair shop at existing dumpsite, rest rooms for staff	• No land acquisition required
▪ development of emergency sanitary landfill remaining balance measuring 8,500 m ²	Marten	To final disposal of the rejects/ inert materials of the waste collected from the city.	▪ It is proposed to develop a sanitary landfill for an area of additional 8,500 sqm to accommodate disposal of solid waste for 9 year 6 months	▪ No land acquisition required ▪ No tree felling required ▪ All required clearances and approvals obtained for 15,000 m ² emergency landfill site.

Note: m³ = cubic meters; m² = square meters; m = meters; 1 lakh = 100,000; MFED – Meghalaya Forest and Environment Department; SMB = Shillong Municipal Board.

II. ENVIRONMENT ASSESSMENT & REVIEW FRAMEWORK

(iv) **ENVIRONMENT LEGAL REQUIREMENT**

EIA Notification (2006)

27. The Government of India's EIA Notification of 2006 (replacing the EIA Notification of 1994), sets out the requirement for environmental assessment in India. This states that Environmental Clearance is required for specified activities/projects, and this must be obtained before any construction work or land preparation (except land acquisition) may commence. Projects are categorized as A or B depending on the scale of the project and the nature of its impacts.

28. Categories A projects require Environmental Clearance from the National Ministry of Environment and Forests (MOEF). The proponent is required to provide preliminary details of the project in the form of a Notification, after which an Expert Appraisal Committee (EAC) of the MOEF prepares comprehensive Terms of Reference (TOR) for the EIA study, which are finalized within 60 days. On completion of the study and review of the report by the EAC, MOEF considers the recommendation of the EAC and provides the Environmental Clearance if appropriate.

29. Category B projects require environmental clearance from the State Environment Impact Assessment Authority (SEIAA). The State level EAC categorizes the project as either B1 (requiring EIA study) or B2 (no EIA study), and prepares TOR for B1 projects within 60 days. On completion of the study and review of the report by the EAC, the SEIAA issues the Environmental Clearance based on the EAC recommendation. The Notification also provides that any project or activity classified as category B will be treated as category A if it is located in whole or in part within 10 km from the boundary of protected areas, notified areas or inter-state or international boundaries.

30. The only type of infrastructure provided by the NERCCDIP that is specified in the EIA Notification is solid waste management. For the proposed work in Tranche II, An environmental clearance is not required for Construction of Garage cum workshop shed & staff rest room at old landfill site, Marten, Mawiong.²

31. The Environmental Clearance has been received from SEIAA on 14th August 2009 for proposed landfill site at Marten, Mawiong dumpsite developed.

Water (Prevention and Control of Pollution) Act (1974)

32. Any component of urban infrastructure project having potential to generate sewage or trade effluent will come under the purview of the Water (Prevention and Control of Pollution) Act, 1974. Such projects have to obtain Consent for Establishment (CFE) under Section 25 of the Act from Meghalaya State Pollution Control Board before starting implementation and Consent to Operate (CTO) before commissioning. The Water Act also requires the occupier of such subprojects to take measures for abating the possible pollution of receiving water bodies.

² Per EIA Notification (2006) and also Annex 1 of the Project's Environmental Assessment and Review Framework, EC is required for preparation of land by the project management except for securing the land.

Air (Prevention and Control of Pollution) Act (1981)

33. The subprojects having potential to emit air pollutants into the atmosphere have to obtain (CTE under Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 from Meghalaya State Pollution Control Board before starting implementation and CTO before commissioning the project. The occupier of the project/facility has the responsibility to adopt necessary air pollution control measures for abating air pollution. If stone crushers, generators and other air pollution sources are to be established as part of the subproject, they will fall under the purview of the Air Act.

Municipal Solid Waste (Management and Handling) Rules (2000)

34. The Government of India notified Municipal Solid Waste (Management and Handling) Rules (2000) in exercise of the powers conferred by Sections 3, 6 and 25 of the Environment (Protection) Act (1986) with the objective of regulating the management and handling of the municipal solid waste. Under the Rules, the municipal authority is required to take all steps to ensure that the municipal solid wastes generated in their jurisdiction are handled and disposed of without causing any adverse impact on human health or environment. This subproject is required to obtain authorization for setting up waste processing and disposal facility (including landfills) from Meghalaya State Pollution Control Board.

Forest Legislation

35. Forest legislation in India dates back to enactment of the Indian Forest Act, 1927. This Act empowers the State Government to declare “any forest land or waste-land, which is the property of Government or over which the Government has proprietary rights or to the whole or any part of the forest-produce of which the Government is entitled”, a reserved forest or protected forest. The State Government may assign to any village-community the rights of Government over a reserved forest – those are called village-forests. Act also allows Government control over forest and lands not being the property of Government.

36. Acts like clearing or break up of any land for cultivation or for any other purpose, damage to vegetation/trees and quarrying or removing any forest produce from reserved forest is prohibited. All these are also applicable to village-forests. For protected forests, with the provision of the Act, the State Government makes rules to regulate activities like cutting of trees and removal of forest produce, clearing or breaking up of land for cultivation or any other purpose, and for protection and management of any portion of protected forest.

37. The Government of India's Forest (Conservation) Act, 1980 (amended in 1988) restricts the deforestation of forests for use of non-forest purposes. According to the Act, State Government requires prior approval of the Government of India for the use of forest land for non-forest purposes (means the breaking up or clearing of any forest land) or for assigning least to any private person or agency not controlled by government. The Forest (Conservation) Rules, 2003 issued under this Act, provide specific procedures to be followed for conversion of forest land for non-forest purposes.

38. Conversion of forest lands that are part of National Parks/Sanctuaries and Tiger Reserve areas (notified under Indian Wildlife [Protection] Act, 1972) is not permitted. In exceptional case, the State Government requires consent of the Indian Board of Wildlife for obtaining approval of the State Legislature for de-notification of the area as a sanctuary.

39. Cutting of trees in non-forest land, irrespective of land ownership, also requires permission from the Meghalaya Forest and Environment Department (MFED). Afforestation to the extent of two trees per each tree felled is mandatory. The SMB with the assistance of the State Government has made a payment of INR 78,76,400/- to the State Forest Department for compulsory afforestation and net present value as per directive of the Govt. of India.

Table 2: Present status of environment& forest and other clearances

TOWN	WORK PACKAGE	APPLICABLE LEGISLATION/ TYPE OF CLEARNACE	CLEARANCE GIVEN BY AND DATE	SUBJECT/ ISSUE	REMARK/ ACTION NEEDED
SHILLONG	Tranche II SWM 1.Construction of garage cum workshop at Marten. 2.Construction of a short-term sanitary landfill site over an area of 8500 sqm.- DPR is under process for approval	EIA Notification 2006	SEIAA, Meghalaya 14 August 2009	Environmental Clearance	Already received
		Forest Conservation Act 1980	MOEF 21 November 2011	Forest Clearance	Already received
		Air Act 1981 and Water Act 1974	Meghalaya PCB 26 November 2009	Consent For Establish (CFE)	Already received

C. COMPLIANCE ON ENVIRONMENTAL LOAN COVENANTS

40. The Environment Loan Covenants under NERCCDIP requires 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). Any adverse environmental 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. GoI 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.

41. The sub project in Shillong is categorized as “B” and accordingly an IEE report has been prepared. The IEE maps the potential environmental impacts and mitigation measures and also specifies an environmental budget for environmental mitigation measures, monitoring requirements and capacity building at various stages of project implementation. IEE was made a part of the bidding document. In view of the fact that the actual implementation of the sub project has started in March 2012, this is the first Environmental monitoring report being prepared for Tranche II. The details of compliance with the environmental loan covenants are reflected in following Table-3.

Table 3: Compliance of Environmental Loan Covenants

Project Specific Covenants	Status/Issues
Preparation of IEE	Prepared and uploaded in SIPMIU website
Environmental Management Plan	Part of IEE report
Environmental budget	Part of IEE report
IEE to be part of bidding document	Incorporated
Annual environmental monitoring report	To be submitted in December

D. ENVIRONMENTAL ORGANISATION AND MANAGEMENT

1. Details of Environmental cells setup in SIPMIU and DSMC

42. An Environmental Expert with intermittent input has been provided in DSMC with assistance being provided by an Engineering Assistant. SIPMIU has posted an Assistant Environmental Specialist being assisted by an administrative staff.

Sl. No.	Officer's Name	Designation	Mobile No	Email Address
1.	Sri Biswajit Dutta	Project Director	---	b_dutta59@yahoo.co.in
2.	Shri. F. B. Chyne	Project Manager and Solid Waste Management Specialist, SIPMIU.	9436100719	f.b.chyne@gmail.com
3.	Shri. L. C. J. Lyngdoh	Assistant Environment Specialist, SIPMIU	9774591279	carrylaw85@gmail.com
4.	Shri B.K. Hari Prasad up to	Team Leader, DSMC		BK.Hariprasad@mottmac.com

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5.	Anjay Kumar	Environmental Specialist, DSMC	9313329631	anjay.kumar@mottmac.com
6.	Dhirendra Chaudhary	Assistant Engineer, DSMC	9774276153	dhirendra.chaudhary@mottmac.com
7.	T. Subramani	Solid Waste Management Expert	7204291564	smani98@yahoo.co.in

2. Responsibilities for supervision of environmental matters

43. To ensure proper compliance of environmental safeguards, the Environmental Experts of DSMC and Environmental Officer SIPMIU will monitor environmental matters and report to the Project Manager who shall advise the Project Director.

3. Responsible for carrying out mitigation measures

44. During construction stage, implementation of mitigation measures is the construction contractor's responsibility while during operation stage, Government will decide agency that will be responsible for the conduct of maintenance or repair works.

45. To ensure implementation of mitigation measures during the construction period, contract clauses for environmental provisions will be part of the civil works contracts. Contractors' conformity with contract procedures and specifications during construction will be carefully monitored by SIPMIU and DSMC.

4. Responsible for carrying out monitoring measures

46. During construction, Environmental Specialist (ES) of DSMC and the Assistant Environmental Specialist (AES) of SIPMIU will monitor the construction contractor's environmental performance.

47. During the operation stage, monitoring will be the responsibility of an operator appointed by authority as well as Meghalaya Pollution Control Board.

5. Responsible for reporting

48. DSMC will submit periodic monitoring and implementation reports to SIPMIU, who will take follow-up actions, if necessary. SIPMIU will submit monitoring reports to the PD who will then submit to ADB. SIPMIU will also prepare annual monitoring reports for IPCC and assist IPCC in preparing an annual monitoring report to ADB. The annual report is to focus on the progress of implementation of the EMP and EARP and issues encountered and measures adopted, follow-up actions required, if any, as well as the status of Program compliance with subproject selection criteria, and relevant loan covenants. IPCC will seek clearance for submission and disclosure of the annual environmental monitoring report to ADB.

6. Third Party Agency for EMP

49. No Third Party Agency has been engaged.

7. GRIEVANCE REDRESS MECHANISM

50. Grievance redressal is being handled by SIPMIU. Grievances not redressed by the SIPMIU will be brought to the Independent Grievance Redress Committee (IGRC) set up to monitor project implementation in Shillong. The IGRC, is chaired by Principal Secretary³, Urban Affair Department with representatives from the ULB, state government agencies, community-based organizations (CBOs) and NGOs. The IGRC 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 **Annexure-2**.

51. There have been no complaints or grievance reported on the sub project till date.

52. All costs involved in resolving the complaints will be borne by the SIPMIU. The IGRCs will continue to function throughout the project duration.

EMP COMPLINCE STATUS –Solid Waste Management (Tranche II)

53. Following Table 4 reflects the requirement and status of implementation of the Environmental Management Plan.

Table 4: Pre-construction Environmental Monitoring Program for construction of Garage cum workshop and staff rest room at Marten Mawiong

Description of Impact	Mitigation Measures	Monitoring methods & frequency	Monitoring conducted by	Compliance Status
Social and Cultural Resources	Consult SIPMIU to obtain an expert assessment of the archaeological potential of the site; (ii) Include state and local archaeological, cultural and historical authorities, and interest groups in consultation forums as project stakeholders so that their expertise can be made available; and (iii) Develop a protocol for use by the construction contractors in conducting any excavation work, to ensure that any chance finds are recognized and measures are taken to ensure they are protected and conserved.		Contractor/ DSMC / SIPMIU	No social or cultural resources found at the project site.
Construction work camps, hot	Prioritize areas within or nearest possible vacant space in the	Quarterly Verification by	Contractor/ DSMC / SIPMIU	Labour camp has not been

³ The Secretary, Urban Affairs Department with representatives of all the concerned departments as members, will chair the Independent Grievance Redress Committee (IGRC). The Program Director would be the Secretary of the Committee. The IGRC will be responsible to take decisions in all matters related to grievance redressal of the Project.

Description of Impact	Mitigation Measures	Monitoring methods & frequency	Monitoring conducted by	Compliance Status
mix plants, stockpile areas, storage areas, and disposal areas.	subproject location; (ii) If it is deemed necessary to locate elsewhere, consider sites that will not promote instability and result in destruction of property, vegetation, irrigation, and drinking water supply systems; Do not consider residential areas; (iv) Take extreme care in selecting sites to avoid direct disposal to water body which will inconvenience the community.	DSMC		establish. All labour are being hired from the local market.
Sources of Materials	Prioritize sites already permitted by the Government; (ii) If other sites are necessary, inform construction contractor that it is their responsibility to verify the suitability of all material sources and to obtain the approval of SIPMU and (iii) If additional quarries will be required after construction is started, inform construction contractor to obtain a written approval from SIPMU.	Quarterly Verification by DSMC	SIPMIU and DSMC	Material being sourced from the local market. No stone quarries required,

Table No. 5. Construction Environmental Monitoring Program for Construction of Garage cum workshop and staff rest room at Marten.

Field	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Compliance Status
Sources of Materials	(i) Use quarry sites and sources permitted by government; (ii) Verify suitability of all material sources and obtain approval of State Investment Project Management & Implementation Unit (SIPMIU); and (iii) Submit to DSMC on a monthly basis documentation of sources of materials.	Construction Contractor	Construction Contractor documentation	Material being sourced from the local market.
Air Quality	(i) Consult with SIPMIU/DSMC on the designated areas for stockpiling of clay, soils, gravel, and other construction materials; (ii) Dug material is to be used immediately, avoiding the need to stockpile on site; (iii) Damp down exposed soil and any stockpiled on site by spraying with water when necessary during dry weather; (iv) Bring materials (aggregates) as and when required; (v) Use tarpaulins to cover sand and other loose material when	Construction Contractor	(i) Location of stockpiles; (ii) Complaints from sensitive receptors; (iii) Heavy equipment and machinery with air pollution control devices; (iv) Ambient air for respirable particulate matter (RPM) and suspended particulate matter (SPM); (v) Vehicular emissions such as sulphur dioxide (SO ₂), nitrous oxides (Nox), carbon monoxide	Meghalaya Pollution Control Board have conducted the Environmental Monitoring. Results awaiting

Field	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Compliance Status
	transported by vehicles; (vi) Fit all heavy equipment and machinery with air pollution control devices which are operating correctly; and (vii) Clean wheels and undercarriage of vehicles prior to leaving construction site.		(CO), and hydrocarbons	
Surface water quality	(i) Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets; (ii) Prioritize re-use of excess spoils and materials in the construction works. If spoils will be disposed, consult with SIPMIU/DSMC on designated disposal areas; (iii) Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies; (iv) Place storage areas for fuels and lubricants away from any drainage leading to water bodies; (v) Dispose any wastes generated by construction activities in designated sites; and (vi) Conduct surface quality inspection according to the Environmental Management Plan (EMP).	Construction Contractor	Areas for stockpiles, storage of fuels and lubricants and waste materials; (ii) Number of silt traps installed along drainages leading to water bodies; (iii) Records of surface water quality inspection; (iv) Effectiveness of water management measures; (v) For inland water: suspended solids, oil and grease, biological oxygen demand (BOD), and coliforms.	Meghalaya Pollution Control Board have conducted the Environmental Monitoring. Results awaiting
Noise Levels	(i) Plan activities in consultation with SIPMIU/DSMC so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance; (ii) Provide prior information to the local public about the work schedule; (iii) Require horns not be used unless it is necessary to warn other road users or animals of the vehicle's approach; (iv) 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 (v) Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s.	Construction Contractor	(i) Complaints from sensitive receptors; (ii) Use of silencers in noise-producing equipment and sound barriers; (iii) Equivalent day and night time noise levels	Meghalaya Pollution Control Board have conducted the Environmental Monitoring. Results awaiting
Landscape and Aesthetics	(i) Prepare and implement Waste Management Plan; (ii) Avoid stockpiling of excess	Construction Contractor	(i) Waste Management Plan;	There is no interference to the landscape

Field	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Compliance Status
	excavated soils; (iii) Avoid disposal of any debris and waste soils in the forest areas and in or near water bodies/rivers; (iv) Coordinate with SIPMIU for beneficial uses of excess excavated soils or immediately dispose to designated areas; (v) Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas; (vi) Remove all wreckage, rubbish, or temporary structures which are no longer required; and (vii) Request SIPMIU/DSMC to report in writing that the necessary environmental restoration work has been adequately performed before acceptance of work.		(ii) Complaints from sensitive receptors; (iii) SIPMIU/DSMC to report in writing that the necessary environmental restoration work has been adequately performed before acceptance of work.	and aesthetic of the area.
Socio-Economic – Employment	(i) Employ at least 50% of the labour force, or to the maximum extent, local persons within the 4-km immediate area if manpower is available; and (ii) Secure construction materials from local market.	Construction Contractor	(i) Employment records; (ii) records of sources of materials	Local labours are used for the construction purpose.
Occupational Health and Safety	(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; (c) H and S Training for all site personnel; (d) documented procedures to be followed for all site activities; and I documentation of work-related accidents; (ii) Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site. Provide medical insurance coverage for workers; (iv) Secure all installations from unauthorized intrusion and accident riskv) Provide supplies of potable drinking water; (vi) Provide clean eating areas where workers are not exposed to hazardous or noxious substances; (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; (viii) Ensure the visibility of	Construction Contractor	(i) Site-specific Health and Safety (H and S) Plan; (ii) Equipped first-aid stations; (iii) Medical insurance coverage for workers; (iv) Number of accidents; (v) Supplies of potable drinking water; (vi) Clean eating areas where workers are not exposed to hazardous or noxious substances; (vii) record of H and S orientation trainings (viii) personal protective equipments; (ix) % of moving equipment outfitted with audible back-up alarms; (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.	(i) The contractor has prepared site safety plan and submitted to SIPMIU given in Annxure-4 and same will be provided in the vernacular language and kept in conspicuous place in the site office of contractor. (ii) Contractor has been instructed to keep the first aid box in the office (iii), No accident reported, (iv) Contractor supply drinking water, (v) a

Field	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Compliance Status
	<p>workers through their use of high visibility vests when working in or walking through heavy equipment operating areas;</p> <p>(ix) Ensure moving equipment is outfitted with audible back-up alarms;</p> <p>(x) Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate; and</p> <p>(xi) 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>shelter has been created for eating area for the labourers, (vi) Briefing by the Environmental specialist was providing during the site visit on 21 June 2014. (vii) Personal protective equipments have been provided, (viii). No hazardous area on the project site.</p>
Quarry Sites and Borrow Pits	<p>(i) Verify suitability of all material sources and obtain approval of DSMC;</p> <p>(ii) Prioritize government-approved quarries and borrow pits;</p> <p>(iii) Obtain approval of DSMC if new quarries and borrow sites are necessary;</p> <p>(iv) Request DSMC to report in writing that the necessary environmental restoration work has been adequately performed before acceptance of work.</p>	Construction contractor	<p>(i) List of approved quarry sites and borrow pits;</p> <p>(ii) SIPMIU/DSMC report in writing that all necessary environmental restoration work has been adequately performed before acceptance of work.</p>	Quarry sites and borrow pits are not required at this stage.
Work Camps	<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</p>	Construction Contractor	<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>	There is no sensitive reception near the site and work camp. Drinking water is supply by the contractor.

Field	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Compliance Status
	the site; (vii) Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas; (viii) Remove all wreckage, rubbish, or temporary structures 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.			
Social and Cultural Resources – Chance Finds	(i) Strictly follow the protocol for chance finds in any excavation work; (ii) Request SIPMIU/DSMC or any authorized person with archaeological/historical field training to observe excavation; (iii) Stop work immediately to allow further investigation if any finds are suspected; and (iv) Inform SIPMIU/DSMC if a find is suspected, and take any action they require ensuring its removal or protection in situ.	Construction Contractor	Records of chance finds	No social and cultural resources encountered in this project.

OBSERVATION RECOMMENDATION AND ACTION TAKEN

The work under the sub project has started in April 2012 and completion of garage-cum-workshop is scheduled to complete in September 2014. Construction of garage-cum-workshop has about 10% progress. Procurement of Primary and Secondary Collection Vehicles and Workshop Machineries is 100% complete. Procurement of Bins and Personnel Protective Equipment is scheduled to complete January 2015. DPR of 8500 square meter area of landfill is completed and tendering process to start. The pre-construction activities of this additional landfill are complete.

The contractor has been briefed to understand that he has to comply all the EMP mitigation measures as indicated in the IEE report. The contractor has taken all steps and precautions in complying with the same. However, it has been observed that this being a first ADB project in the State, the procedures for compliance have to be explained properly to the contractors. Site preparation for construction of garage is in progress, levelling is being done. Labours are procured from the local market. Since this site is located in the middle of the landfill site so does not have intervention with environmental attributes.

Photos



Photo – Garbage removal for construction of garage cum work shop



Photo – Foundation footing for Construction of Garage cum workshop



Photo –Construction of garage cum work shop site.



Photo – Ambient Air Quality Monitoring near construction of Garage site at Mawiong Marten



Photo – Water Quality Sampling at downstream of Marten Landfill Site



Photo – Water Quality Sampling at downstream of Marten Landfill Site



Photo – Leachate Sampling at Marten Landfill Site

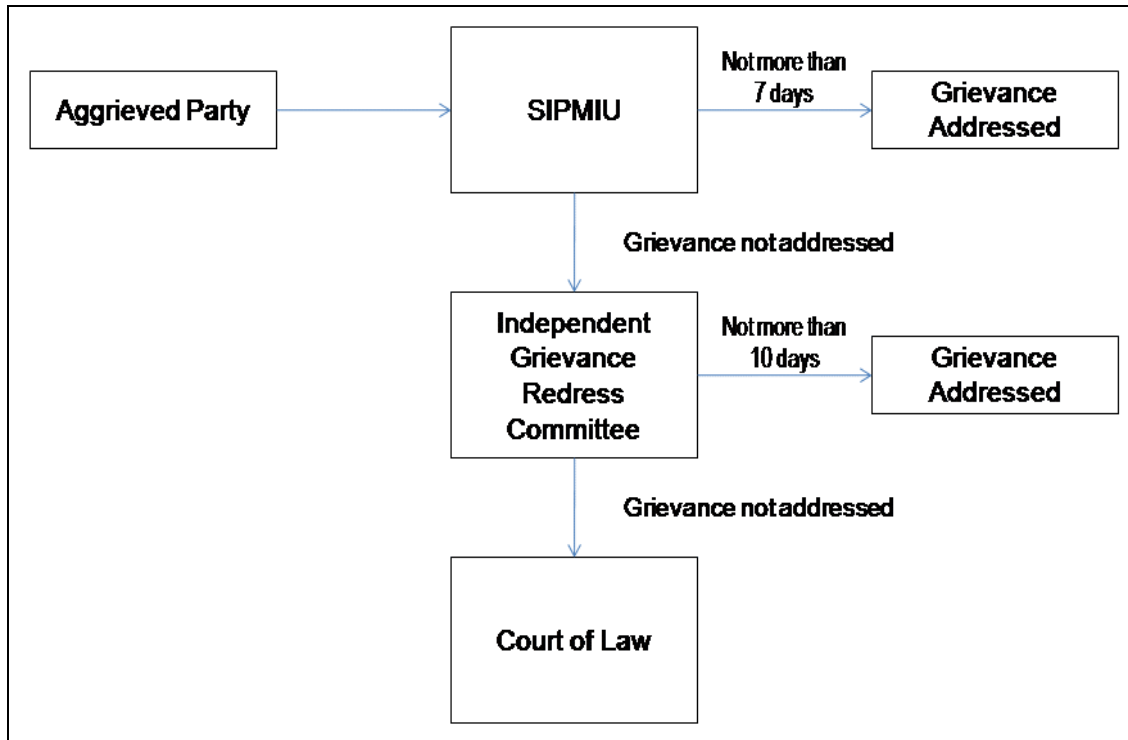


Photo – Leachate Sampling at Marten Landfill Site

Annexure – 1: Environment Monitoring Team Details.**City: Shillong****Office Address: Urban Affairs Complex, Dhankheti, Shillong**

Sl. No.	Officer's Name	Designation	Mobile No	Email Address
1.	Sri Biswajit Dutta	Project Director	---	b_dutta59@yahoo.co.in
2.	Shri. F. B. Chyne	Project Manager and Solid Waste Management Specialist, SIPMIU.	9436100719	f.b.chyne@gmail.com
3.	Shri. L. C. J. Lyngdoh	Assistant Environment Specialist, SIPMIU	9774591279	carrylaw85@gmail.com
4.	Shri B.K. Hari Prasad up to 30 May 2014	Team Leader, DSMC		BK.Hariprasad@mottmac.com
5.	Anjay Kumar	Environmental Specialist, DSMC	9313329631	anjay.kumar@mottmac.com
6.	Dhirendra Chaudhary	Assistant Engineer, DSMC	9774276153	dhirendra.chaudhary@mottmac.com
7.	T. Subramani	Solid Waste Management Expert	7204291564	smani98@yahoo.co.in

Annexure 2: Grievance Redress Mechanism



SIPMIU= State-level Investment Project Management and Implementation Unit.

ANNEXURE 3: Contractor Environment Implementation Plan Requirements.

The contractor is required to ensure that the following activities are complied with during the construction period:

1. All the vehicles used for the construction shall comply with relevant environmental standard. Worker to be provided with PPE's like earplugs to minimize the health impacts. Construction in the night time to be restricted to the extent possible.
2. Re-use excavated material in this project wherever possible (eg bunds), Retain soil for covering waste when landfill is operating.
3. Remove waste soil for disposal as soon as it is excavated; Spray stockpiled soil and working areas in windy weather.
4. Conduct all excavation in the dry season.
5. Do not store toxic materials at or near the landfill site; include accident & spill prevention in Method Statement.
6. Contractor should employ at least 50% of workforce from communities in vicinity of work sites if possible.
7. Prepare and implement a site Health and Safety Plan that includes measures to: Exclude the public from all construction sites; Ensure that workers use Personal Protective Equipment; Provide Health & Safety Training for all personnel; Follow documented procedures for all site activities; Keep accident reports and records.
8. Regular water sprinkling to be ensured to minimize the impact. Worker to be provided with PPE's like dust masks.
9. The Design consideration will take care of temporary silt runoff due to construction. Silt fences will be used to mitigate siltation impacts.

Annexure -4- Site Safety Plan of Contractor based on provisions of IEE



Anderson Biotech Pvt. Ltd.

Ref: ABPL/SIPMIU/2013/01

Date: 4th January, 2013

To
Shri. B.Dutta
Project Director,
State Investment Programme Management
& Implementation Unit,

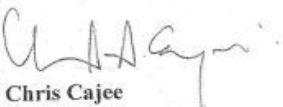
Sub :- EHS Plan for NERCCDIP-Development of Landfill Site and Associated works at
Marten, Shillong.

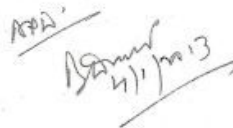
Dear Sir,

With reference to the subject cited above I am enclosing herewith a copy of the EHS Plan for
Development of Landfill Site and Associated works at Marten, Shillong for your reference.

Thanking You

Yours Sincerely


Chris Cajee



Office : LOWER LACHAUMIERE, Shillong - 793001, Ph. (0364) 2224224. Fax (0364) 2503305
Factory : Riat Khwan Forest, Mawiong, Mawlai.



Anderson Biotech Pvt. Ltd.

EHS Plan for NERCCDIP- Development of Landfill Site and Associated Works at Marten, Shillong

1. Barricading

- a. The site will be barricaded so that there is no disruption to traffic or to neighbours
- b. All holes and major pits will be properly barricaded to prevent any accidents.
- c. Areas where loading/unloading operations are being undertaken will be barricaded with temporary guard rails.
- d. Display boards will be put up at strategic places wherever necessary as a precautionary measure.

2. Personal Protective Equipment (PPE)

- a. ISI-certified PPE will be used by all personnel working at the site.
- b. For all works at a height, personnel will be provided with safety belts.
- c. Helmets will be provided for protection of the head.
- d. Safety shoes, gumboots will be provided for protection of the feet.
- e. Gloves will also be provided for protection of the hand.
- f. Nose mask will also be provided.
- g. Ear plugs will also be provided for noise protection.

3. Environment

- a. Construction waste will be properly disposed off.
- b. Construction materials will be stored properly.
- c. Noise-producing machinery will be regularly maintained.
- d. Waste water or rain water will be provided with appropriate drainage so that there is no pollution from the construction site.
- e. Scheduling of work will be done so that there is minimum social impact.
- f. Noisy work will not be carried out at night.
- g. All vehicles carrying materials will be adequately covered.
- h. Pollution under Control (PUC) for all material carrying vehicles will be ensured.
- i. All overburden earth/stone will be removed so that there is no accumulation at site.
- j. All generators, concrete mixers i.e., noise producing equipments will be provided with sound enclosures.

4. Working at Height.

- a. Proper barricades and scaffolding will be provided for areas being constructed at a height.
- b. A proper walkway and footboard will be provided at the top.
- c. If it is not possible to provide a barricade, workers/supervisors will be provided with safety belts.



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- d. All ladders being used will be secured from the top/bottom.
- e. Ladders will be used by one person at a time.
- f. All platforms, ladders and landings must be strong enough to take the load.
- g. All platform landings will be cleared and barricaded properly.
- h. Scaffoldings will be built to withstand appropriate loads.
- i. Scaffolding tie-ups will be checked regularly.

5. Construction Vehicles/Equipments

- a. All vehicles will be operated only by an experienced and licensed operator.
- b. All vehicles will maintain speed limits.
- c. Reversal of vehicles only under the guidance of a helper
- d. Reverse lights/horns will be fitted in all equipments/vehicles.
- e. Vehicle operating areas will be kept free from all workers and other materials.

6. Electrical Safety

- a. All electric cables will be laid out safely and properly.
- b. Standard quality plugs will be used.
- c. All electrical joints will be properly insulated.
- d. An adequately rated circuit breaker will be provided at every electrical connection.
- e. All electrical equipment and switch boards will be earthed.
- f. All electrical switch box/DBs system will be provided with 'Lock Out'/'Tag Out' system
- g. 'Danger' signs (Skull and Bones) will be displayed near DB's.

7. Excavation

- a. All slopes will be maintained properly to prevent soil collapse.
- b. If excavation is being carried out during the monsoon season, proper protection will be provided so that the site is protected.
- c. Any utilities buried below a trial trench e.g., live power cable, water/telephone lines etc. Will be checked regularly.
- d. All the periphery of the site being excavated will be properly barricaded.
- e. 'Caution' display boards will be placed at strategic locations so that it is visible to everyone.

8. House Keeping

- a. All equipment, construction materials, other materials will be kept at designated places.
- b. Scraps, unwanted materials will be removed from time to time.
- c. Carpenters will remove all nails and wooden waste after completion of work.
- d. Bar benders will remove all wire/bar pieces after completion of work.
- e. Oil spillage in the floor area will be mopped cleanly.
- f. A temporary storage area will be clearly designated.

