IMPLENENTING SAFETY IN CONSTRUCTION SITE DURING INTEGRATED STROM WATER DRAIN WORK

[1]A.MOHANA SUBRAMANIAN., [2]DR. S.THIRUGNANAM
[1] (PG SCHOLAR). INDUSTRIAL SAFETY ENGINEERING.
SRM VALLIAMMAI ENGINEERING COLLEGE
[2]M.E., Ph.D. DEPARTMENT OF MECHANICAL ENGINEERING.
SRM VALLIAMMAI ENGINEERING COLLEGE

Abstract

The purpose of this project is to provide a consolidated summary of all the Environmental and Social (E&S) commitments relevant for the construction phase of the Project. Environmental and Social Management Plan (ESMP) also gives an overview about the E&S Management System that is being implemented to ensure systematic and effective execution of these commitments, including roles and responsibilities between the PIA/Implementation Consultant and the Contractor. The ESMP is updated as the Project proceeds to reflect the results of discussions with stakeholders and to include details of any other E&S developments. The Project Coordination is set up to update the project progress to all the stakeholders (mainly to all residents' welfare association) under the Zonal officer who has direct contact with public for all kind of civic body activities. This Project Coordination is act as a grievance cell in order to ensure all kind mitigation measures related to this project.

Keywords:ESMP,PIA,STAKE HOLDERS

Introduction

The purpose of this Construction Environmental and Social Management Plan (ESMP) is to provide a consolidated summary of all the Environmental and Social (E&S) commitments relevant for the constructionphase of the Project. The measures focus on environmental (such as air emissions, biodiversity, and environmental contamination) and social aspects (such as the protection of human rights, communication with local stakeholders, safety of workers and communities). This ESMP also gives an overview about the E&S Management System that is being implemented to ensure systematic and effective execution of these commitments, including roles and responsibilities between the PIA/Implementation Consultant and the Contractor. The ESMP is updated as the Project proceeds to reflect the results of discussions with stakeholders and to include details of any other E&S developments. As the Chennai City Population is increasing rapidly so is the consumption of ground water. Because of this, the ground water level is going down and Sea water is infiltrating the ground water which will make it difficult for the future generations to utilize it beneficially. Further, as the Coastal City has mostly flat terrain, it is prone to flooding during rainy season and needs effective Storm Water Drain System to prevent water stagnation in roads.

THE AIM OF THE PROJECT

The aim of this project is to strengthen the resilience of storm water management to flooding in the project area M3Kovalam Basin by collecting the rain water and recharging the ground water with the help of various rain water harvesting techniques and the excess will be discharged into sea. The Project has a drain length of 52.47 km covering 318 roads. It is proposed to have a total of 26 Eco Storage Tanks with a capacity of 24,442 m3 approximately, 168 Sunken wells and over 1932 Rainwater Harvesting Structures. Any excess rainwater after Harvesting by above mentioned 3 ways will be discharged into sea by 27 individual Outfalls.

ESMP

This is Environmental and Social Management Plan (ESMP) is for the Lao PDR Emissions

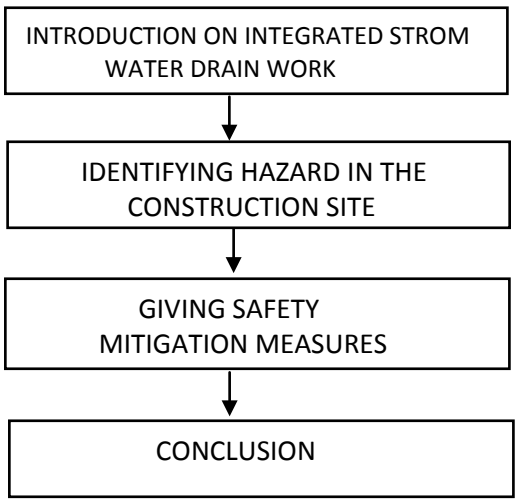
Reduction Programme through Improved Governance and Sustainable Forest Landscape Management. The programme's main objective, an ambitious one that entails paradigm shifts in a number of interrelated sectors, is as follows: To support the Government and people of Laos in changing the present-day use of forests and landscapes and to ensure a transition to sustainable management at scale.

THE PURPOSE OF IMPLEMENTING ESMP IN PROJECT

The purpose of this Construction Environmental and Social Management Plan (ESMP) is to provide a consolidated summary of all the Environmental and Social (E&S) commitments relevant for the construction phase of the Project. This ESMP also gives an overview about the E&S Management System that is being implemented to ensure systematic and effective execution of these commitments, including roles and responsibilities between the PIA/Implementation Consultant and the Contractor. The ESMP is updated as the Project proceeds to reflect the results of discussions with stakeholders and to include details of any other E&S developments.

METHEDOLOGY

The following flow chart will explain the PROCESS to be followed in the project work



IDENTIFYING HAZARD IN THE CONSTRUCTION ACTIVITIES

EXCAVATION

Excavation is among the most hazardous construction operations. Excavations are needed for the foundation of structures, installation and repair of utility lines, replacement of water and sewer lines etc. An excavation may be defined as any manmade cut, trench, or depression in the earth's surface formed by earth removal

Safety requirements stipulated by AERB during excavation work are as follows:

i) Means for rapid access and egress should be provided. All trenches 120 cm or more in depth should at all times be supplied with at least one ladder for every 30 m along the trench. Ladder should be extended from bottom of the trench to at least 1 m above the surface of the ground.

ii) Workers should not be exposed to dangers of being buried by excavated material or collapse of shoring. Measures to prevent dislodgment of loose or unstable earth,

iii) Measures should be taken to prevent persons who are not engaged in excavation work, from approaching excavation areas by placing warning signals, barricades etc. near the site of the excavation.

TRENCH

The hazards associated with trench work are collapsing of the sides / caving in and ` 12 burying/ partially burying those in the trench. Trench provides confined space to work & collapse occurs quickly without warning. The probability of locating & rescuing a person in time is very low which increases the severity of the hazard. Main hazards associated with trench work

Important Control measures required to prevent the above hazards are:

i) Underground utilities (such as water pipelines, sewers, gas mains, electrical conduit system) should be located and protected, wherever necessary, before the start of excavation.

ii) Material should not be kept near the trench.

iii) Shoring (supporting the sides of the trench) and/or proper slopes to the trench walls should be provided.

SHAFT

Hazards mentioned for trench work are also applicable to the work related to shafts along with one additional & potential hazard called "Dangerous Working Atmosphere". Dangerous atmosphere may result from lack of oxygen, increase in carbon dioxide level (number of persons working for a long time), Carbon Monoxide level (use of Petrol/Diesel/Kerosene operated machines) which can lead to serious accidents

Important control measures to prevent the hazard are:

i) Test for oxygen level inside the shaft before start of work every day.

ii) In case of fuel operated machines, frequent monitoring of the air along with a proper ventilation system for the shaft should be ensured to provide a healthy working atmosphere.

iii) Effective communication system between the ground staff & the persons working in the shaft should always be there to ensure safe working environment.

DISSPOSAL OF SOIL

The disposal of soil involves the removal and transportation of excavated material with use of heavy equipment and vehicles from current location to a permitted off-site location or disposal facility. The main hazards to be considered include crushing and striking hazards posed by mechanized equipment and dumpers, tripping of materials etc. Managing traffic with the heavy vehicle movement is another aspect that needs to be looked into.

Important safety precautions to be followed for disposal of soil are:

i) The excavated material should be dumped sufficiently away from the edge of the ` 14 excavated pit to avoid the excavated material slipping and falling into the pit.

ii) As far as practical, earth should be removed mechanically from an earth mound/excavated heap. Wherever manual removal of earth is involved, earth should be removed from the top by maintaining a slope equal to the angle of repose of the earth.

iii) When excavated rocks, soil etc. are being filled into tippers, trucks etc., the drivers of such vehicles should come out of the driver's cabin and stay away at a safe distance.

Erection of Structures

The most serious accidents that occur during erection work of structures are due to fall of workers from the structures, fall of materials from structures on persons working below and collapse of the structure or a part of the structure.

Important measures to be taken to prevent the above hazards are:

i) Safe access should be provided to the structures under erection.

ii) Properly inclined ladders secured at the top and bottom should be used for vertical movements.

iii) A suitable working platform with guard rails & toe guards should be provided.

CASE STUDIES OF ACCIDENTS IN CONSTRUCTION SITE

CASE STUDY-1:

accident due to caught between objects brief description:

In the below given fig 7.1.During the cleaning of the belt at the tail pulley area of conveyor of sand screening section of batching plant, one worker was trapped between the tail end pulley belt roller and ground. The trapped person sustained multiple injuries. Probable Cause of the Accident: There was no arrangement to prevent un authorised access to the tail end pulley of the belt conveyor. The space available for working in that area was congested. The deceased person tried to clean the belt at the tail pulley end while it was in motion. In this process, his right hand got trapped/caught in between the belt and the ground. He was dragged under the roller and the belt end where he got entangled.

Lessons learnt to prevent such accident: - Belt guard with locking arrangement should be provided to prevent unauthorised access. - Loose cloths should not be worn during working in conveyor.

Fig 7.1

CASE STUDY-2:

ACCIDENT DUE TO ELECTROCUTION

Brief Description:

in the below given fig 7.2 Workers were working in the cable tunnel for job related to lighting system of the tunnel. One of the workers was assigned the work of termination of lighting cable in the emergency lighting

junction box, which was in charged condition. As the junction box was located at a higher elevation from the floor and due to non-availability of safe access, the worker over-reached the JB by stepping on the lower cable tray. He lost the balance and got in touch with live core of
cable leading to electrocution. Probable Cause of the accident: Contractor had mobilized the manpower without following the standard work procedure for working on an electrical system viz. isolating an energized circuit and obtaining work permit. Worker had been given authorization as an Assistant Electrician by the contractor based upon oral examination and no on-job training and field check list was undergone by him for carrying out jobs on electrical systems. Significant time was lost in shifting the worker from the tunnel as the layout of the tunnel was very congested and no communication system was available inside the tunnel.

Lessons learnt to prevent such accident:

- Work Permit system for working on charged electrical system.
- Authorized/licensed electricians to work on charged systems.
- Communication system to be always available near the working areas.

Fig 7.2

CONCLUSION

Literature review has been done properly and most of the data about the integrated strom water drain work has been collected using literature review. The average width and depth of the storm water drain of this package-14 is estimated as (1.20mx1.00m) only. Hence, this Project/Package-14 expected impacts are of small scale, temporary and site specific during the construction phase leading very minor air & noise, Health and Safety impacts to the works and local communities, traffic diversion and utility shifting, access to private properties, solid waste dumping and disposal of excavated soil. Also, it is not exceeding limits of the construction and major environmental norms. To mitigate the identified impacts an Environmental Management Plan is updated

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