

Terms of reference
for
Inventorisation of hazardous waste in the state of West Bengal

Under Capacity Building for Industrial Pollution Management Project (CBIPMP)

1. INTRODUCTION

The Government of India, through its Ministry of Environment & Forests, is implementing a World Bank funded project titled “Capacity Building for Industrial Pollution Management” with the objective of strengthening the environmental management capacity of central and state level regulatory authorities with emphasis on rehabilitation of polluted sites and for undertaking area-based demonstration projects on remediation of contaminated sites. The project also aims at developing a “National Program for the Rehabilitation of Polluted Sites” to reduce or eliminate the environmental and health risks associated with legacy pollution.

2. PROJECT DESCRIPTION

Two states, Andhra Pradesh and West Bengal, have been identified for undertaking remediation of contaminated sites as demonstration projects and also for conducting other studies aimed at more fruitful regulation of hazardous wastes. The State Pollution Control Boards of the two states will be responsible for implementation of the project at the state level.

The project will have the following components for implementation in West Bengal :

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- i. Strengthening of Environmental Institutions which includes various study projects including inventorisation of Hazardous Waste in the State of West Bengal and
- ii. Investments in Priority Investments and Environmental Improvements - Remediation of a group of seven legacy polluted sites in Hooghly district and closure/ containment of the old Dhapa dumpsite in Kolkata will be conducted in West Bengal as part of this component

3. OBJECTIVE

The objective of this consultancy is to identify all hazardous wastes generating sources in West Bengal, to assess and quantify different categories of such waste, compile treatment and disposal practices and propose alternative options. The assessment of the existing hazardous waste management systems is also to be done with recommendations for improvement.

4. SCOPE OF WORK

The work will be carried out through the following broad steps:-

Step 1 : Preliminary Study

Objective: to collect, collate and review the existing data and general information on hazardous waste generating sources.

The consultant shall

- Review and collate earlier inventorisation studies and existing inventory available with the WBPCB, CPCB, and other sources (if any). _
- Review and collate industry lists available with the WBPCB, Industries Department, factories directorate, various industry associations, etc. to identify other hazardous waste generating and handling units including hazardous waste recycling units, chemical laboratories, transport facilities, drugs and pharma storage facility etc.
- Tap other sources such as Public Complaints, legal proceedings on issues relating to environmental damages, information from other monitoring programs, media news, articles/publications on environmental contamination, etc.
- Identify possible hazardous wastes generated by the newly listed units based on available information on process and raw materials.

Output : A preliminary inventory of hazardous waste generating activities and an estimate of the waste generation in the state

Step 2 : Field visits

Objective : to verify waste generation record in respect to handling, storage, treatment, recycling and disposal practices and adequacy of existing waste management infrastructure in the state

The Consultant shall

- conduct a thorough review of the available data on the units identified in Step 1 and verify :-_
- * Hazardous waste type and quantity
- * Hazardous waste storage, handling, recycling, treatment and disposal practices

- Visit units generating disposable hazardous wastes (incinerable and land disposable) from their process to verify the type and quantity of hazardous waste generated and the storage and disposal practices of such wastes.
- Collect samples of hazardous wastes that are required to be analysed for determination of hazard characteristics and get them analyzed at the Central Laboratory of the WBPCB or other laboratories recognized under the Environment (Protection) Act, 1986 in consultation with the Board.

The preliminary inventory prepared shall be modified after the field visits and waste analysis. The presentation and review of existing data should include as far as possible, but not be limited to, the following aspects:

- * List of hazardous waste generating , handling, recycling and disposing units in the state
- * Main raw materials used, major products manufactured and the types and quantities of hazardous waste generated/recycled/ handled by each unit
- * Systems and practices in each unit for usage, storage, treatment, recycling and disposal of hazardous waste. This includes record keeping of waste generation and disposal, information display boards, and guidelines and kits for emergency management. _
- * Brief description of the location of the units that generate and store disposable hazardous wastes_i.e. proximity to habitation, surface water bodies, other sensitive environments, etc. Comments on potential contaminant migration and possible impact on local communities and visible soil, surface water or groundwater contamination _
- * Suggestions for waste minimization in each of the units visited (generating disposable hazardous wastes from their process)

The consultant shall also visit

- the Common Hazardous Waste Treatment Storage and Disposal Facility at Haldia to review the capacity of the plant and systems compared to the hazardous waste inventory and also the practices for waste treatment and disposal, and

Output: An updated list of hazardous waste generating, recycling and handling units, in a consistent and comparable format, clearly identifying the nature and type of wastes and giving an estimate of the hazardous waste generation from each unit, the handling, storage, treatment and disposal practices, information on any visible

contamination of land or surface water, the performance of the CHWTSDF, the disposal of industrial hazardous waste alongwith municipal waste, etc.

Step 3:

Objective : Determination of hazardous waste generation factors for certain dominant small and medium sector industries to facilitate realistic waste inventerisation in these units

The consultant shall visit units in the following small and medium industry sectors and conduct studies for their raw material, process, product and production efficiency in order to determine the process specific hazardous Waste Generation Factors (WGF) with respect to raw material or product quantity :-

- o galvanizing
- o secondary lead smelting
- o fabric dyeing
- o asbestos
- o petroleum product storage

West Bengal has an abundance of small and medium scale industries under the abovementioned sectors that together contribute substantially to the total hazardous waste generation in the state. The operators of these units are not aware of the waste characteristics and correct quantification methods and hence waste generation records submitted to the State PCB are often not realistic. As such information is important for better regulation and planning, the estimation of waste generation factors for these industry segments will help the WBPCB in framing a realistic policy for waste management in these small and medium industries.

Output : A comprehensive list of all hazardous waste types generated from these five identified industrial operations alongwith process specific waste generation factors expressed as ratio of major raw material / major product.

Step 4 :

The consultant shall determine through the aforementioned studies and field visits

- the total quantity of hazardous waste being generated in the state as compared to the quantity being treated at the existing Common Hazardous Waste Treatment Storage and Disposal Facility at Haldia (CHWTSDF)
- the adequacy of the existing CHWTSDF and the need for more facilities in view of the quantity of hazardous waste generation ascertained through this study

5. DELIVERABLES

The entire assignment is expected to follow all guidelines of the World Bank and necessary approvals may be taken from WBPCB whenever required. The assignment shall be for a period of 12 months and the delivery schedule shall be as follows :-

1. Preliminary study report with list of units identified for field visits (Step 1 and part of Step 2) - within 3 months of mobilization
2. Second Interim Report after completing field visits (Step 2 and Part of Step 3) - within 8 months of mobilization
3. Draft final report - within 10 months of mobilization
4. Final report after incorporating changes suggested by the Board - within 12 months of mobilization

All deliverables shall be provided in colour hard copies (3 copies for draft version and 10 copies for final version) and also in electronic form.

6. PROCEDURES FOR REVIEW OF REPORTS

The consultant shall also make presentations before the Project Steering Committee, the Project Implementation Unit of WBPCB and the Technical Evaluation Panel of the MoEF as and when required. A copy of the reports will be sent to the Technical Evaluation Panel of the MoEF for their views. The recommendations of the TEP, Steering Committee and WBPCB shall be incorporated/ implemented by the consultant firm.

7. CONSULTANT/ FIRM QUALIFICATIONS

Key Position	Area of Specific Expertise Desired	Minimum Qualification required and
1. Team Leader	Hazardous waste management, waste characterization, industrial operations, process control, contaminated/ polluted site investigation, etc.	Masters degree in chemical, civil engineering or environmental science, technology or engineering or related discipline with minimum of 15 years experience in industrial environmental issues and 5 years of the specific
2. Technical Specialists a. Environmental Engineer / Hazardous Waste Management Expert (at least two specialists)	a. Hazardous waste management, related regulations, best practices, site assessments and remediation techniques	All technical specialists shall have Masters degree in related discipline with minimum of 10 years experience and 5 years of specific expertise. All technical specialists are expected to be familiar with the

b.Environmental scientist/ chemist	b. Sampling and analysis of hazardous waste samples, development of sampling protocol, knowledge of	Indian industrial setup, environmental policies, environmental enforcement / compliance structure & issues.
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