

**Terms of Reference  
For  
Consultant for  
Sector Specific Study and Report for Tannery and Chrome Chemicals  
Sector**

**Capacity Building and Industrial Pollution Management Project  
(CBIPMP)**

**1. Background :**

The Government of India, through the Ministry of Environment and Forests (MoEF) is implementing a project on Capacity Building and Industrial Pollution Management (CBIPMP) with financial assistance from the World Bank.

The objective of the project is aligned with the endeavor of the GOI to establish a National Program for Rehabilitation of Polluted Sites (NPRPS) as a framework for scaling up the clean up and rehabilitation of polluted sites and facilitate the reduction of environmental and health risks associated with legacy polluted sites. It also aims to build capacity at the State and Central level and develop a framework to address these issues in a comprehensive and systemic manner.

Project activities include demonstrative investments for area-based management of pollution resulting from legacy contamination and ongoing industrial activities through (i) remediation/containment of polluted sites/hazardous waste hotspots, (ii) implementation of enforcement and self-regulatory measures to improve compliance and competitiveness of industries in selected industrial clusters, and (iv) upgrading of common environmental infrastructure.

**2. Scenario of Tanneries and Chrome Chemical Industries in the State :**

Tanning industry is one of the oldest industries in India and ranks amongst the five top-most export oriented industries of the country and West Bengal is one of the key states. About 75% of the tanneries are in cottage and small-scale sector, about 20 % in the medium and only about 5 % in the medium / large sector. Basic Chrome Sulphate is the main chemical used for tanning purpose. The raw material for this industry is Chromite Ore. Processes employed at various steps have serious environmental impacts due to the effluent generation from washing, spillage etc. and poor standards of hazardous waste management.

**3. Objectives of Study :**

The objectives of the Study on tannery & chrome chemical manufacturing industries will be to assess the feasibility of various clean technology options and provide recommendations for implementation of clean technology measures for better compliance of environmental norms, techniques for upgradation of pollution control system and better solid and hazardous waste management including use of chrome residue in environmental friendly manner. The study should also recommend the use of financial incentives and economic instruments to promote the uptake of cleaner technologies including recovery options of

different salts and chemicals in tanneries, taking into account known and widespread barriers to such investments.

#### **4. Duration of the Assignment :**

Six (6) months from the date of award

#### **5. Scope of Work :**

The consultant shall conduct the following tasks :

1. Prepare a comprehensive database for the tannery and chrome chemical manufacturing sector in West Bengal including the profile of industries, products, manufacturing processes, environmental practices, etc.
2. Identify challenges of environmental compliance faced by the tannery and chrome chemicals manufacturing sector in India. This shall include the detailed description of the environmental practices / technologies, issues / constraints associated vis-a-vis the industry in India and abroad.
3. Outline existing compliance assistance provided by the WBPCB and other govt. organisations to the tannery and chrome chemicals manufacturing sector and to its suppliers;
4. Analyze cleaner technology options, including the following; and other international practices and evaluate the feasibility of implementing them by the industries in west Bengal :
  - a. The options for tannery sector may include :
    - i. near Zero chromium discharge tanning methodology,
    - ii. use of enzymes instead of sodium sulphide for de-hairing,
    - iii. pickle less tanning methodology
    - iv. recovery of salt and other cleaner process technologies for tannery.
    - v. Other options as identified by the consultant
  - b. The options for chrome chemical manufacturing sector may include :
    - i. process modification in BCS tower,
    - ii. roasting of chromite ore for conversion to chromate,
    - iii. recovery of chromium (+6) from leachate residue,
    - iv. reduction of chromium percentage in leachate generated
    - v. Identifying ways and means of utilisation of hazardous waste for suitable purpose (for eg. in cement kilns, brick fields) to avoid illegal dumping and creation of new orphan / legacy sites.
5. Prepare a road map for technological bridge - with universities, strategic partners, industrial associations and other relevant government institutions. Prepare a roadmap for national and international technology transfer for these sectors.

The study should consider the use of various financial incentives and economic instruments to promote the adoption of such clean technologies, including inter alia accessing concessional or soft loans (for instance through SIDBI), use of energy service companies to advance capital required for energy efficiency

investments, carbon finance (for performance based contracts or as collateral for commercial loans) and responsible sourcing of wholesale purchases by domestic or international buyers.

## **6. Deliverables**

The entire assignment is expected to follow all the guidelines of World Bank and necessary approvals as required must be taken from Project Director. All deliverables shall be provided in colour hardcopy (3 copies of draft versions and 10 copies for final version) and in electronic form also. After submission of all draft reports or draft final report, the consultant shall organise a workshop involving all stakeholders to present the findings and seek comments. All recommendations shall be incorporated / implemented by the consultant in the final report.

- Twenty (20) percent of the lump-sum amount shall be paid upon submission of 1<sup>st</sup> interim report having information database through primary survey - within 2 months of the award of contract: 3 hard copies and electronic version.
- Thirty (30) percent of the lump-sum amount shall be paid upon submission of report having incorporated the comments and findings of the workshop involving all stakeholders within 4 months of award of contract; 3 hard copies and electronic version
- Thirty (30) percent of the lump-sum amount shall be paid upon submission of Draft final report - within 5 months of the award of contract: 3 hard copies and electronic version. This would incorporate the recommendation on the comments and findings of the workshop involving all stakeholders. This would be discussed with Project Director and ECAC Expert Committee for inputs and clearance.
- Twenty (20) percent of the lump-sum amount shall be paid upon submission of Final Report - within 6 months of the date of award of contract: 10 hard copies and electronic version

## **7. Procedures for review of reports**

The reports submitted by the consultant would be sent to the Project Director. The consultant would be required to make presentation of all the reports as per the delivery schedule to the PIU / ECAC Expert Committee and all concerned stakeholders and seek its comments. All recommendations shall be incorporated / implemented by the consultant.

## **8. Qualifications of consultant :**

The consultant should have the following minimum qualifications :

The consultancy is aimed for a firm having experts with appropriate qualifications and experience of working with both private and public sector

organizations. The consulting firm should propose a team of minimum three members viz. Team Leader, Senior Project Manager and Senior Industrial Engineering consultant.

*Technical Evaluation for CVs of the above positions and experience of the firm*

Particulars / Position	Minimum requirements	Desired attributes
Team Leader: will be responsible for overall leadership to the assignment, interactions with agencies and institutions, quality control and report delivery.	➤ Master's degree in Environmental Engineering/Chemical Engineering,/ Civil Engineering or related discipline.	<ul style="list-style-type: none"> <li>• minimum of 15 years experience in industrial environmental issues and 5 years of the specific expertise in environmental compliance issues in related sectors.</li> <li>• Should have demonstrated expertise in the leather industry and leather chemical industry.</li> </ul>
Senior Project Manager: Will be responsible for work program management and interactions with local agencies/ industries including management of market survey.	Masters level qualifications from a recognized university in Environmental Engineering/ Chemical Engineering/ Civil Engineering or related discipline.	<ul style="list-style-type: none"> <li>• minimum of 10 years overall experience.</li> <li>• Experience in leather industry and leather chemical industry.</li> <li>• Experience in financial incentives and economic instruments targeted at small and medium enterprises</li> </ul>
Industrial Engineer	Bachelor degree in Environmental Engineering/ Chemical Engineering/ Civil Engineering or related discipline	<ul style="list-style-type: none"> <li>• minimum 4 years experience in handling industrial pollution issues or products.</li> <li>• Experience in leather industry and leather chemical industry.</li> </ul>

The consultant can combine more than one expertise and could include other technical specialists as required to perform the scope of work envisaged in the TOR.

The consultant should mobilize adequate staff and resources to complete the assignment within the stipulated time frame. The comprehensive details of such staff and resources and their deployment schedule shall be provided in the technical proposal.