

## **Terms of Reference**

**National or International consultant:** International

**Description of the assignment (Title of consultancy):** Industrial Wastewater Sludge Expert

**Project Title:** Lebanon Environmental Pollution Abatement Project (LEPAP)

**Period of assignment/services:** 50 working days spread over a period of 3 months

### **1. Background Information/Project Description**

In order to ensure a smooth transition for Lebanon towards environmental sustainability, the Government of Lebanon, through the Ministry of Environment (MoE) has requested the support of the World Bank (WB) and the Italian Government to establish the Lebanon Environmental Pollution Abatement Project (LEPAP) as a national initiative to respond to the challenges for promoting the financial and environmental sustainability of the industrial sector in Lebanon.

The LEPAP was initiated by the MoE in 2014 and consists of two main components: (A) Technical Assistance Component funded by the Italian Agency for Development Cooperation (AICS), and (B) Investment Component funded by the WB. LEPAP is being implemented by the United Nations Development Program (UNDP) in close partnership with the Ministry of Finance (MoF) and Banque du Liban (BDL). The LEPAP aims at reducing industrial pollution in targeted industrial enterprises and will contribute to strengthening the monitoring and enforcement capabilities of the MoE.

Under the technical assistance component, the AICS has approved the allocation of a financial contribution to UNDP to provide technical assistance to the project's beneficiaries mainly the MoE and the concerned industries and to support in the overall management of the project's activities. These ToRs relate to the technical assistance component of the project.

UNDP is seeking to recruit an International Expert (referred to as "Individual Consultant (IC)") to develop guidelines for the management of sludge resulting from the Wastewater Treatment Plants (WWTPs) implemented in small and medium industrial enterprises. The objective of this assignment is to ensure that human health and the environment are strictly protected from any negative impacts of industrial sludge management. The outcomes of this assignment shall be used by the MoE as a reference document to regulate the treatment, reuse and disposal of industrial sludge.

### **2. Scope of Work, Responsibilities and Description of the Proposed Analytical Work**

The Consultant will work under the direct supervision of the UNDP LEPAP/Monitoring and Evaluation (M&E) Officer. During the fulfilment of the tasks under this agreement, the Consultant will ensure regular communication with UNDP and will ensure a timely delivery of the expected outputs and will regularly inform the Project Management Unit (PMU) of the progress as well as any obstacles that might occur.

Under this consultancy, the Consultant(s) is requested to complete the following tasks:

**Task 1: Understanding of industrial sludge sector in Lebanon**

- Review the available documentation and legislation related to the sludge management;
- Meet with relevant stakeholders such as the Ministry of Environment, Council for Research and Development (CDR), LEPAP beneficiaries and other industries equipped with WWTPs, suppliers of WWTPs, etc.
- Develop a good understanding of the types of WWTPs implemented in Lebanese industries, the quality of resulting sludge, the current sludge management practices and the challenges faced by the industries;
- Assess the expected quality and type of sludge depending on the sector and treatment techniques and suggest classification criteria and methodology to be adopted for the classification of sludge;

**Task 2: Sludge management and treatment options**

- Explore potential sludge management and treatment techniques depending on sludge classification and type of industry;
- Provide a detailed description of the proposed management and treatment options in line with international guidelines and best available techniques with a focus on the design parameters, investment cost, footprint needed, O&M, final usage or disposal;
- Describe the environmental impacts of each of the proposed options and suggest mitigation and monitoring measures as applicable;
- Explore potentials for the reuse of sludge across several industrial sectors or in agriculture and present the conditions and means of pre-treatment, if needed and provide analysis in line with the industries in Lebanon;
- Develop the sampling and testing methodology to be adopted including parameters to be tested, frequency and location of testing;

**Task 3: Technical specification and legislative advice**

- Specify the parameter limits in case of sludge recovery or reuse per type;
- Suggest environmental conditions for the storage and transport of industrial sludge in case of disposal offsite and prepare a technical guideline accordingly;
- Specify the requirements for considering a landfilling location for industrial sludge and provide specifications for its construction and operation if this is a viable option;
- Provide an overview of the health and safety measures to be considered by the industries for the generation, treatment, storage, recovery and transport of sludge;
- Assess the Lebanese permitting and environmental approvals systems adopted for the reuse and disposal of industrial sludge and provide recommendations as needed;
- Suggest documentation and tracking system for the treatment, reuse or disposal of industrial sludge including the preparation of the templates and formats needed for their implementation.

**3. Expected outputs and Deliverables**

The required deliverables under the ToRs are indicated in the table below:

<b>Deliverables/ Outputs</b>	<b>Estimated Duration to Complete</b>	<b>Target Due Dates</b>	<b>Review and Approvals Required</b>
<b>Deliverable 1:</b>	10 workdays	Within 4 weeks from date of Contract Signature	UNDP M&E Officer

Inception Report upon completion of Task #1			
<b>Deliverable 2:</b> Report on sludge classification and management upon completion of Task #2	20 workdays	Within 8 weeks from date of Contract Signature	UNDP M&E Officer
<b>Deliverable 3:</b> Guidelines for the management of industrial sludge upon completion of Task #3	20 workdays	Within 12 weeks from date of Contract Signature	UNDP M&E Officer

The time needed by the UNDP to review the submitted deliverables is 2 weeks. All deliverables are to be submitted in English Language.

#### **4. Institutional arrangements**

The Consultant will work under the direct supervision of the UNDP LEPAP/M&E Officer. During the fulfillment of the tasks under this agreement, the Consultant will ensure regular communication with the project team and will ensure a timely delivery of the expected outputs and will regularly inform the project team of the progress as well as any obstacles that might occur.

#### **5. Duration of work**

The duration of the assignment is 50 working days spread over a period of 3 months from the date of Contract signature.

#### **6. Duty station**

The assignment requires deskwork, research, meetings, as well as coordination between the different concerned stakeholders. The consultant is requested to conduct one mission of at least 5 working-days to Lebanon two weeks after contract signature. The remaining time of the consultancy can be undertaken from home.

#### **7. Requirements for experience and qualifications**

##### I. Academic Qualifications:

- Master's degree or equivalent in Chemistry, Civil Engineering, Environmental Engineering, or Industrial Engineering, Chemical Engineering or other closely related field.
- PhD degree is an asset.

##### II. Years of experience:

- The required minimum years of relevant experience is 15 years.

##### III. Technical experience:

- A minimum of 15 years in the design, operation and management of sanitation and wastewater treatment projects;

- A minimum of 7 years of experience in the management of industrial wastewater treatment;
- A minimum of 10 years of experience in sludge management including treatment, reuse and disposal, preferably sludge resulting from industrial facilities;
- Proven experience in resources recovery and reuse.

#### IIV. Competencies:

- Excellent English verbal and written communication and negotiation skills;
- Excellent analytical, organization and report-writing skills.

### **8. Scope of price proposal**

- The Consultant is expected to submit a financial proposal based on a Lump Sum amount including fees and foreseeable expenses. Lump sum amount must be “all-inclusive”<sup>1</sup>.

The UNDP shall effect payments to the consultant against each deliverable after acceptance by the Project M&E Officer and upon submission of a certificate of payments.

The financial proposal shall include a breakdown of this lump sum amount (including travel, per diems, and number of anticipated working days). The financial proposal shall be presented using the enclosed format of Appendix a – Annex III.

#### **Travel:**

All envisaged travel costs must be included in the financial proposal. This includes all travel to join duty station/repatriation travel. In general, UNDP should not accept travel costs exceeding those of an economy class ticket. Should the IC wish to travel on a higher class he/she should do so using their own resources. In the case of unforeseeable travel, payment of travel costs including tickets, lodging and terminal expenses should be agreed upon, between the respective business unit and Individual Consultant, prior to travel and will be reimbursed.

(UNSMS) applicable or not: Yes

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<sup>1</sup> The term “all inclusive” implies that all costs (professional fees, travel costs, living allowances, communications, consumables, etc.) that could possibly be incurred by the Contractor are already factored into the final amounts submitted in the proposal.