



**LEBANON**  
**DAOURA/BOURJ HAMMOUD WASTEWATER TREATMENT PLANT**  
**FEASIBILITY STUDY**

# **ESIA Scoping Report and Stakeholder Engagement Plan**

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**October 2020**

**ENVIROPLAN S.A. in consortium with KOCKS CONSULT GMBH,  
p2m berlin GmbH & Ecocentra**



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**List of Basic Acronyms and abbreviations**

BAF	Biological Aerated Filters
BMLWE	Beirut and Mount Lebanon Water Establishment
CAS	Conventional Activated Sludge
CDR	Council for Development and Reconstruction
DGUP	Directorate General for Urban Planning
EBRD	European Bank for Reconstruction and Development
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
EU	European Union
FS	Feasibility Study
GoL	Government of Lebanon
HCUP	Higher Council for Urban Planning
HRAS	High Rate Activated Sludge system
MBBR	Moving Bed Biofilm Reactor
MBR	Moving Bed Biofilm Reactor
MOE	Ministry of Environment
MOEW	Ministry of Energy and Water
MOPH	Ministry of Public Health
NSWW	National Strategy for Waste and Wastewater
PR	Performance Requirements
SEP	Stakeholder Engagement Plan
WWTP	Wastewater Treatment Plant

## **1. INTRODUCTION**

The wastewater sector in Lebanon suffers from chronic under-investment, combined with a weak institutional and governance structure and an insufficient tariff framework. Wastewater treatment is almost non-existent in Lebanon with only 8% of wastewater generated in the country actually treated. In addition, only 60% of the population is connected to a sewage collection network<sup>1</sup>. In particular, parts of the areas of northern Beirut, parts of Baabda, and the Metn district still have their wastewater systems under preparation, thus all the wastewater generated from these areas are haphazardly discharged into septic tanks and into the sea without any treatment.

In line with the Government of Lebanon's (GoL) efforts to address the critical need for wastewater infrastructure, a wastewater treatment plant (WWTP) is proposed in Daoura/Bourj Hammoud. The development of this WWTP was divided into two construction phases. Phase 1 includes the pre-treatment headworks plant, which is currently under implementation, and Phase 2 includes the construction of the remaining components of the WWTP, which are the primary and secondary treatment units and WWTP associated facilities (i.e. power supply, networks). This phase will also include the rehabilitation of existing supplementary components such as pumping stations and sewage networks. The WWTP is expected to provide a treatment capacity of around 325,000 m<sup>3</sup> per day and to serve around 1.4 million inhabitants from Beirut, Metn and Baabda Districts.

The WWTP will be the largest in Lebanon and the development of this project will require the rehabilitation of the existing auxiliary components including pumping stations and coastal sewage network in the served area. The proposed project is a crucial component to reduce the negative effects of unsanitary disposal of wastewater along the coast of Lebanon. Proper operation of the WWTP will eventually reduce marine pollution, protect groundwater aquifers, improve the health conditions of the population directly and indirectly affected by wastewater pollution, and protect the environment and existing diverse ecosystems.

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<sup>1</sup> MOEW. (2010). National Water Sector Strategy. Ministry of Energy and Water, Lebanon

## **2. BACKGROUND INFORMATION**

Due to the importance of improving wastewater management throughout the country and in line with the strategy of the Ministry of Energy and Water (MOEW), the GoL has approached the European Bank for Reconstruction and Development (EBRD) with a request to assess the possibility of financing Phase 2 of the WWTP through sovereign financing.

In November 2019, the Consortium ENVIROPLAN S.A., KOCKS Consult, P2M Berlin and Ecocentra was contracted by EBRD for the Feasibility Study (FS) for this project. The FS would evaluate all four options identified in an existing preliminary design study conducted in 2018 by the Council for Development and Reconstruction (CDR), validate the robustness of the recommended solution and evaluate its benefits based on an assessment of the institutional, technical, environmental, social and economic risks and benefits, as well as the technical requirements for the interface and the successful integration with the preliminary WWTP currently under implementation. The FS assignment also requires conducting an environmental and social impact assessment (ESIA) scoping report, environmental and social audit, ESIA study and stakeholder engagement.

The beneficiary of the project is the Beirut and Mount Lebanon Water Establishment (BMLWE). The Project will be implemented by the CDR.

### 3. PURPOSE AND OBJECTIVES OF THE SCOPING REPORT

The project will likely have a wide range of positive and negative environmental and social impacts at the local, national and regional level. In order to identify and assess each impact, an ESIA is currently underway for the entire project. This is in line with local regulations, which require that a new wastewater treatment plant undergo an Environmental Impact Assessment (EIA) that should be approved by the Ministry of Environment (MOE). A screening form has been prepared by the Consultant and submitted by CDR to MOE in order to register and determine the project's environmental approval requirements. The screening form was submitted on 12 May 2020. The screening process normally takes up to two weeks (according to Decree 8633/2012) after which MOE issues their response. However, until today, no response has been obtained from MOE. The screening form can be found in Annex I.

It is worth mentioning that an EIA was conducted prior to commencement of Phase 1 of the construction works, covering both phases of the WWTP. Nevertheless, under this study, a comprehensive ESIA for both phases (Phase 1 and Phase 2) including all components of the wastewater system is being undertaken, including facilities and activities associated with the project but not funded by EBRD.

This report includes the results of the first step of the ESIA, which is the scoping phase, which aims to define the scope of the ESIA study. The specific objectives of the scoping report are to:

- Define the study area;
- Identify the significant environmental and social risks associated with the project;
- Determine the information that needs to be collected for the ESIA;
- Describe the methodology for evaluating the potential significant environmental and social impacts in the ESIA;
- Propose a Stakeholder Engagement Plan (SEP) for the entire duration of the project.

The document contains all the findings of the scoping phase and is structured in line with EBRD requirements as well as those of the MOE, as follows:

1. Introduction
2. Background Information
3. Purpose and Objectives of the Scoping Report
4. Study Area
5. Scope of Work
  - 5.1. Policy, Legal and Administrative Framework
  - 5.2. Public Participation and Stakeholder Engagement
  - 5.3. Description of the Proposed Project
  - 5.4. Description of the Surrounding Environment of the Project
  - 5.5. Potential Environmental and Social Impacts
  - 5.6. Analysis of Project Alternatives
  - 5.7. Environmental and Social Management Plan



6. Structure and Work Plan for the ESIA Report
7. Annex I: Screening Application
8. Annex II: Stakeholder Engagement Plan
9. Annex III: Project Layout and Existing Sea Outfall

## 4. STUDY AREA

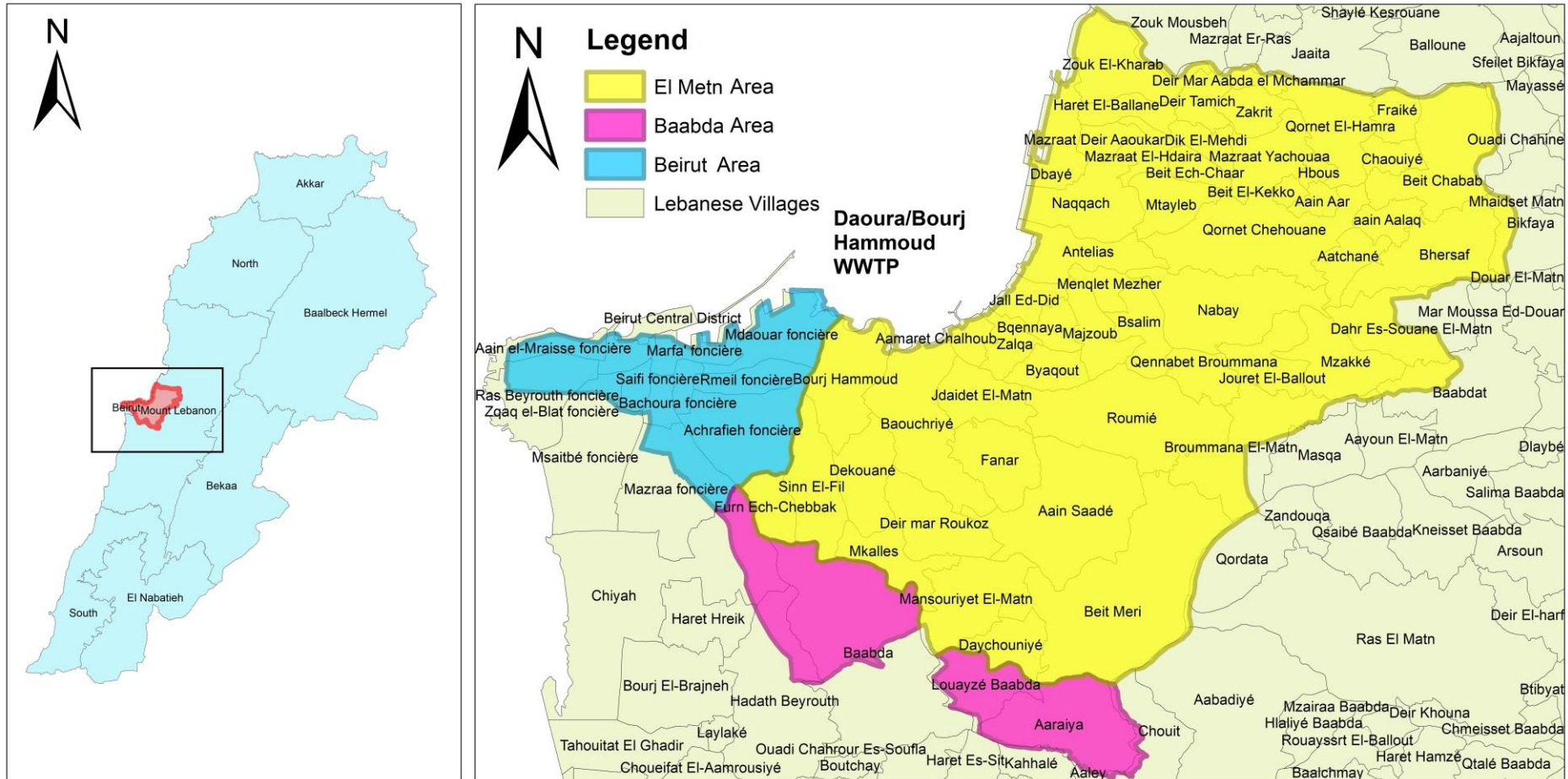
The proposed project where the WWTP is planned is located in Daoura/Bourj Hammoud, a northeastern suburb of Beirut. The site is a 65,000 m<sup>2</sup> area reclaimed from the Mediterranean Sea and close to the industrial area of Bourj Hammoud. It has the following coordinates: 33°54'11.32"N; 35°32'38.98"E. Figure 2 represents a map showing the location of the proposed WWTP along with the catchment area of the WWTP including parts of El Metn, Baabda and Beirut areas.

The Area of Influence of the project is used to identify the boundaries over which the potential impacts will be released. This varies depending on the type and nature of the impact and the attributes of the potentially affected receptors.

Impacts during construction will directly influence areas adjacent to the WWTP such as the residential area of Bourj Hammoud and the coastal area of the Mediterranean Sea. In addition, the project will directly influence areas where the associated facilities of the project will be installed (sewage networks and pumping stations within the entire catchment area (Figure 4-1). The rehabilitation works of the two existing sea outfall pipes will also influence the seabed along the pipes' routes.

During operation, sea water and the marine ecology may be affected in the area where the wastewater will be discharged. Air and odor emissions will likely affect the residential area of Bourj Hammoud and areas surrounding wastewater pumping stations. Moreover, the project will influence the area where the sludge will be disposed. For certain aspects, the impacts might extend further, for example in case of major wastewater leakages from networks, groundwater systems within the catchment area will likely be affected. As for the socio-economic impacts of the project, these impacts might also stretch to cover the entire watershed area as benefits and costs will be applicable to all households and businesses (Figure 4-1).

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**Figure 4-1:** Catchment area of Daoura/Bourj Hammoud WWTP including parts of El Metn, Baabda and Beirut areas