European Bank
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Final Report - Appendix D

E&S Non-Technical Summary Report

FIS0001727

Jordan: Shallala WWTP Rehabilitation and Expansion F.S.

Client: EBRD

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1 Introduction

This Environmental and Social Non-Technical Summary (NTS) presents the key findings of the Environmental and Social Assessment (ESA) undertaken for the Shallalah Wastewater Treatment Plant (WWTP) Rehabilitation and Expansion Project (the "Project").

The Project is being considered for financing by the European Bank for Reconstruction and Development (EBRD). In accordance with the EBRD Environmental and Social Policy (2024), the Project has been classified as Category B, meaning that environmental and social impacts are expected to be site-specific, reversible, and manageable through established mitigation measures.

This NTS summarizes:

- The Project rationale;
- Baseline environmental and social conditions;
- Key environmental and social risks and impacts;
- Climate change and Green Economy Transition (GET) aspects;
- Gender and human capital considerations;
- Environmental and Social Management measures;
- Stakeholder engagement arrangements;
- Next steps.

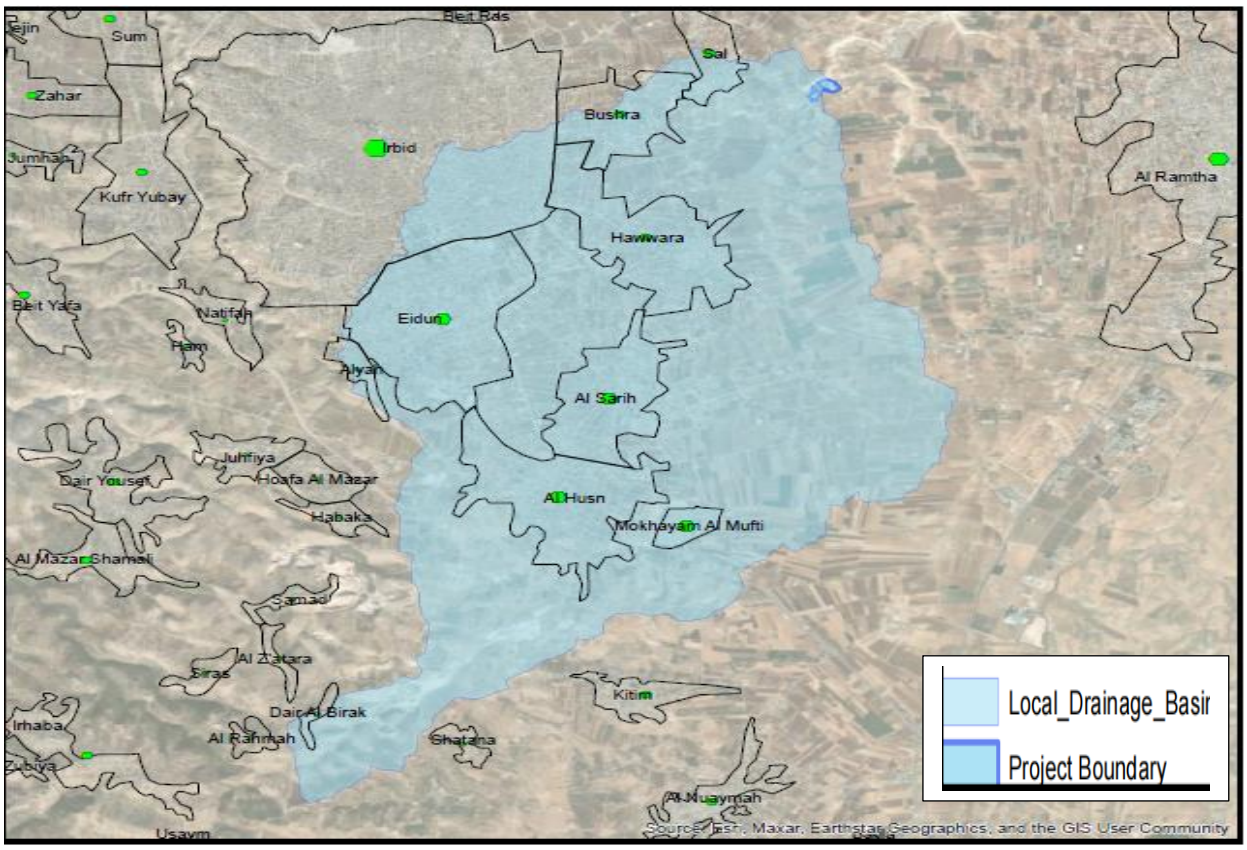

Figure 1-1: Spatial context of Shallalah WWTP.

2 Project Background and Rationale

The Shallalah WWTP serves communities within Irbid Governorate under the Yarmouk Water Company (YWC). The plant was originally designed to serve approximately 163,000 Population Equivalent (PE) but is currently hydraulically and organically overloaded.

Existing challenges include:

- Overloaded wastewater and sludge treatment lines;
- Inconsistent compliance with effluent reuse standards;
- Reduced operational reliability;
- Increased environmental and public health risks if not addressed.

The Project aims to:

- Rehabilitate and upgrade existing treatment units;
- Expand capacity to approximately 242,000 PE;
- Improve effluent compliance with national and relevant EU standards;
- Upgrade sludge management systems;
- Improve energy efficiency and methane capture;
- Strengthen climate resilience.

All works will occur within the existing WWTP boundary.

No land acquisition or physical displacement is required.

Figure 2-1: Shallah WWTP layout.

3 Project Rationale and Alternatives Considered

Jordan is one of the most water-scarce countries globally, making wastewater treatment and reuse a strategic national priority. The Shallala WWTP is currently operating beyond its effective design capacity, leading to inconsistent effluent compliance, operational inefficiencies, and increased environmental risks.

Alternatives considered during the feasibility study included:

- Do Nothing Scenario: rejected due to increasing environmental and public health risks
- Minimal Rehabilitation: insufficient to address capacity and compliance issues
- Optimised Rehabilitation Only: improves efficiency but does not resolve overload
- Rehabilitation and Expansion (Preferred Option): provides long-term, resilient solution

Table 3-1:Summary of Project Alternatives and Environmental & Social Considerations

Alternative	Description	Environmental & Social Implications	Technical & Operational Performance	Compliance with Reuse & EBRD Standards	Overall E&S Assessment
Alternative A: Do Nothing	Continue operating the existing WWTP with only routine maintenance and no major upgrades.	Increasing environmental pollution risks, continued odour issues, risk of effluent non-compliance, and potential public health concerns due to inadequate treatment performance.	Plant already operating beyond design capacity, with declining reliability and higher emergency maintenance needs.	Does not meet current environmental standards or treated wastewater reuse requirements.	Environmentally unacceptable and socially unsustainable.
Alternative B: Rehabilitation Only	Repair and replace aging equipment without increasing treatment capacity or introducing advanced treatment processes.	Partial reduction in operational risks but continued overloading, persistent odour and sludge management issues, and limited improvement in environmental performance.	Short-term improvement in efficiency but insufficient to meet future wastewater inflows and reuse objectives.	Partial compliance only; reuse-quality effluent cannot be reliably achieved.	Not a long-term environmentally or socially viable solution.

Alternative C: Optimized Rehabilitation	Modernization of existing facilities with efficiency improvements within the existing footprint constraints.	Moderate environmental improvements and reduced energy use; however, continued capacity limitations and residual environmental risks during peak flows.	Improved efficiency but constrained by footprint, limited redundancy, and insufficient ultimate capacity.	Partial compliance with reuse and environmental performance standards.	Intermediate option but does not fully address strategic E&S risks.
Alternative D: Expansion & Rehabilitation (Preferred Option)	Construction of a new treatment train combined with rehabilitation and integration of existing facilities to create a modern water reclamation plant.	Significant reduction in pollutant discharge, improved effluent quality suitable for unrestricted agricultural reuse, reduced odour emissions, enhanced public health protection, and long-term environmental benefits.	Resolves capacity deficit, improves operational resilience, provides redundancy, and enables safe phased rehabilitation.	Fully compliant with national standards, reuse objectives, and EBRD environmental and social requirements.	Environmentally sound, socially beneficial, and technically sustainable. Selected Preferred Alternative.

4 Legal and Policy Framework

The Environmental and Social Assessment has been conducted in accordance with national legislation in Jordan, European Union environmental standards, and the EBRD Environmental and Social Policy (2024). The Project has been assessed against EBRD Performance Requirements (PR1–PR10) and Good International Industry Practice (GIIP).

The Project complies with:

- Jordanian environmental legislation;
- National standards for wastewater treatment and reuse;
- Sludge management standards;
- Occupational health and safety regulations.

The Environmental and Social Assessment has been conducted in accordance with:

- EBRD Environmental and Social Policy (2024);
- EBRD Performance Requirements (PR1–PR10).

Given the rehabilitation nature and confined footprint of the Project, the level of assessment is proportionate to a Category B classification.

5 Environmental and Social Assessment Process

The assessment included:

- Review of feasibility and technical documentation;
- Site visits and verification of operational conditions;
- Environmental and social risk screening;
- Review of regulatory compliance;
- Climate risk screening;
- Greenhouse gas assessment;
- Review of labour and human resources practices;
- Stakeholder identification and engagement planning.

The assessment covered both construction and operational phases. Given the brownfield nature of the Project, no extensive new ecological surveys were required.

6 Baseline Conditions

6.1 Physical Environment

The Project is located within an existing operational wastewater treatment facility in Irbid Governorate. The surrounding area includes agricultural land and communities served by the plant.

Key baseline findings include:

- Hydraulic overloading of treatment units;
- Inconsistent effluent quality during peak conditions;
- Sludge management inefficiencies;
- Odour concerns linked to overloading.

6.1.1 Biodiversity

The site is industrial and fully modified.

Findings confirm:

- No protected areas within the Project footprint;
- No critical habitats affected;
- No natural habitat conversion;
- No reliance of threatened species on the site.

Improved effluent quality is expected to benefit downstream environmental conditions.

6.1.2 Social Context

The WWTP serves communities within Irbid Governorate where agriculture is a key livelihood.

Key social characteristics include:

- Dependence on treated wastewater reuse for irrigation;
- Presence of vulnerable groups;
- Gender gaps in workforce participation within the water sector.

No physical or economic displacement is anticipated.

7 Key Environmental and Social Risks and Impacts

7.1 Construction Phase

Temporary impacts may include:

- Dust and noise;
- Construction traffic;
- Waste generation;
- Occupational health and safety risks;
- Temporary community disturbance.

These impacts are expected to be localised and manageable through mitigation measures.

7.2 Operational Phase

Operational risks relate to:

- Odour;
- Sludge management;
- Effluent compliance;
- Worker health and safety;
- Infrastructure resilience to extreme weather events.

The Project significantly reduces current environmental risks by addressing plant overloading and inefficiencies.

Residual impacts are expected to be minor and controlled.

Table 7-1: Impacts and Mitigation Summary Table

Aspect	Project Effect	Management Measures	Residual Impact
Effluent Quality	Improved treatment performance and compliance	Upgraded treatment systems; routine monitoring	Positive
Sludge Management	Improved stabilization and handling	Rehabilitation of digesters; improved management procedures	Positive
Odour	Reduced odour risk compared to current operations	Process control; maintenance	Minor
Energy & Emissions	Reduction of greenhouse gas emissions	Methane capture; biogas utilisation; energy efficiency	Positive (≈1,969 tCO_2e reduction annually)

Climate Resilience	Improved capacity during extreme rainfall	Increased hydraulic capacity; operational optimization	Reduced climate risk
Biodiversity	No habitat loss; improved downstream water quality	Controlled discharge and monitoring	Negligible / Positive
Worker Safety	Improved working conditions	Updated OHS procedures and training	Minor (managed)
Community Health	Reduced environmental and health risks	Effluent monitoring; regulatory compliance	Positive
Gender & Inclusion	Opportunity to enhance workforce inclusion	Equal opportunity recruitment; safe workplace practices	Positive opportunity

8 Climate Change and Green Economy Transition (GET)

8.1 Climate Mitigation

A greenhouse gas (GHG) assessment has been conducted using a bottom-up approach consistent with IPCC methodology, aligned with the Feasibility Study baseline scenario. The assessment compares a business-as-usual (BAU) scenario representing current operational inefficiencies and methane emissions with an investment case scenario incorporating methane recovery and reduced grid electricity consumption.

Under the BAU scenario, total emissions in the first year of operation (2031) are estimated at approximately 12,829 tCO_2e/year, primarily driven by methane emissions from biological decomposition of wastewater and grid electricity consumption.

Under the investment case, emissions are reduced to approximately 1,969 tCO_2e/year, reflecting methane capture and utilisation through Combined Heat and Power (CHP) systems, as well as reduced reliance on grid electricity.

This results in a net annual GHG emissions reduction of approximately 10,860 tCO_2e/year, representing a significant contribution to climate change mitigation.

Methane captured and combusted in CHP systems is considered biogenic, and the resulting CO_2 emissions are treated as carbon neutral in accordance with international practice.

The Project is classified as a Green Economy Transition (GET) investment under EBRD's GET 2.0 framework, delivering both mitigation and adaptation benefits. The significant emissions reduction and improved resource efficiency contribute to low-carbon transition pathways, while enhanced infrastructure resilience supports climate adaptation objectives.

8.2 Climate Adaptation and Resilience

Climate screening identified key risks including extreme rainfall, drought, and high temperatures.

The upgraded design improves:

- Hydraulic capacity and flood resilience;
- Operational reliability during peak inflow events;
- Reliability of wastewater reuse under drought conditions.

These measures are aligned with the climate risk assessment findings and are designed to enhance system resilience to extreme rainfall events, temperature increases, and drought conditions, consistent with climate projections for northern Jordan. The Project strengthens long-term climate resilience of wastewater infrastructure.

9 Gender and Human Capital

The assessment considered gender and workforce aspects.

Findings indicate:

- Underrepresentation of women in technical roles;
- Opportunities for workforce development and skills enhancement.

The Project provides opportunities to:

- Promote equal employment practices;
- Strengthen workplace safety;
- Support technical training and skills development;
- Ensure inclusive stakeholder engagement.

No gender-specific adverse impacts are anticipated.

10 Environmental and Social Management

An Environmental and Social Management Plan (ESMP) has been prepared to manage identified risks.

The ESMP includes:

- Dust, noise, and waste controls during construction;
- Effluent and sludge monitoring during operation;
- Occupational health and safety measures;
- Emergency preparedness procedures;
- Climate and energy performance monitoring;
- Defined responsibilities and reporting arrangements.

Contractors will be required to implement environmental and social measures. YWC will oversee compliance during operation.

11 Stakeholder Engagement and Grievance Mechanism

A Stakeholder Engagement Plan (SEP) has been prepared in accordance with PR10.

Engagement activities include:

- Disclosure of this NTS;
- Consultation with affected communities;
- Ongoing communication during construction and operation.

A Grievance Mechanism is operational and allows submission through:

- Telephone hotline;
- Website or mobile application;
- In-person reporting.

All grievances will be recorded, investigated, and resolved in a timely and transparent manner.

12 Project Benefits

The Project will deliver:

- Improved wastewater treatment performance;
- Reduced environmental contamination risk;
- Reduced greenhouse gas emissions;
- Improved sludge management;
- Significant reduction in greenhouse gas emissions
- Enhanced climate resilience;
- Improved public health protection;
- Support for agricultural reuse;
- Strengthened institutional capacity.

The Project has been assessed in accordance with the European Bank for Reconstruction and Development Green Economy Transition (GET 2.0) methodology and qualifies as a high-impact GET investment delivering both climate mitigation and adaptation benefits.

Based on a bottom-up greenhouse gas assessment consistent with Intergovernmental Panel on Climate Change methodology, total emissions under the business-as-usual (BAU) scenario are estimated at approximately 12,829 tCO_2e/year in 2031, while emissions under the investment case decrease to approximately 10,860 tCO_2e/year, resulting in a net annual reduction of approximately 1,969 tCO_2e/year.

This reduction is primarily driven by methane capture and utilisation through Combined Heat and Power (CHP) systems, where combusted methane is treated as biogenic and carbon neutral, as well as reduced reliance on grid electricity.

The Project also enhances climate resilience by improving hydraulic capacity, operational flexibility, and reliability under extreme climate conditions such as flooding, drought, and heat stress.

Relative to current baseline conditions, the Project results in measurable environmental and social improvements.

13 Next Steps

Next steps include:

- Continued public disclosure and stakeholder engagement;
- Finalization and implementation of the ESMP;
- Integration of environmental and social measures into detailed design and procurement;
- Implementation of contractor management plans during construction;
- Ongoing monitoring and reporting during operation.

If material changes to the Project scope occur, environmental and social documentation will be updated accordingly.

Conclusion

The Environmental and Social Assessment confirms that the Shallalah WWTP Rehabilitation and Expansion Project:

- Is consistent with Category B classification;
- Does not involve significant or irreversible impacts;
- Does not require land acquisition or resettlement;
- Does not affect critical habitats;
- Reduces greenhouse gas emissions;
- Enhances climate resilience;
- Strengthens environmental compliance.

With implementation of mitigation measures and continued stakeholder engagement, the Project is considered environmentally and socially sound and aligned with EBRD Environmental and Social Policy (2024).

14 Contact Information and Communications

Purpose of Communication and Disclosure

In accordance with the EBRD Environmental and Social Policy (2024) and Performance Requirement 10 (PR10), the Project will ensure transparent, timely, and accessible communication with stakeholders throughout the project lifecycle, including construction and operation phases.

14.1 Project Proponent and Operator

14.1.1 Water Authority of Jordan (WAJ)- Project Owner

Water Authority of Jordan (WAJ) is the implementing authority responsible for strategic oversight, compliance with national regulations, and coordination with international lenders.

- Address: Amman, Hashemite Kingdom of Jordan
- Website: www.waj.gov.jo
- Role: Project Owner and Supervising Authority

14.1.2 Yarmouk Water Company (YWC) – Facility Operator

Yarmouk Water Company (YWC) is responsible for the operation and maintenance of the Shallala Wastewater Treatment Plant and will oversee the implementation of environmental and social management measures during operation.

- Service Area: Northern Governorates, Jordan
- Role: WWTP Operator and ESMP Implementation Oversight

14.1.3 Lender Information (Disclosure Context)

The Project is being considered for financing by the European Bank for Reconstruction and Development (EBRD). Environmental and social assessment and disclosure requirements follow EBRD Performance Requirements (PR1–PR10) and Good International Industry Practice (GIIP).

- European Bank for Reconstruction and Development (EBRD)
- Website: www.ebrd.com
- Public disclosure platform: EBRD Project Summary Documents (PSD)

14.1.4 Stakeholder Engagement Approach at Rapid ESIA Stage

In accordance with the EBRD Environmental and Social Policy (2024) and Performance Requirement 10 (PR10), stakeholder engagement has been initiated at a proportionate level consistent with the Feasibility and Rapid ESIA stage of the Shallala WWTP Expansion Project.

At this stage, engagement activities have focused on:

- Stakeholder identification and screening
- Review of institutional stakeholders (WAJ, YWC, local authorities)
- Preliminary assessment of affected communities and wastewater reuse beneficiaries
- Integration of stakeholder considerations into the Environmental and Social Assessment process

Given that the Project is currently at the feasibility and design stage, no construction-related impacts are occurring, and therefore engagement has been undertaken at a strategic and planning level. A comprehensive Stakeholder Engagement Plan (SEP) will be developed and disclosed during the Detailed ESIA phase, prior to commencement of construction activities.