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Currency Equivalents

1 EUR = 0.771 JOD (Source : XE www.xe.com March 2024)

Abbreviations

Acronym	Definition
CC	Climate Change and Natural Disaster Risks
CH	Cultural Heritage
E&S	Environmental and Social
EHS	Environmental, Health and Safety (Guidelines)
EIB	European Investment Bank
ESCP	Environmental and Social Commitment Plan
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Monitoring Plan
ESS	Environmental and Social Standards (World Bank)
GAP	Gap Analysis (between national and international standards)
HS	Community and Worker Health & Safety
ILO	International Labour Organization
KfW	KfW Development Bank
LAP	Land Acquisition Plan
LMP	Labour Management Procedures
NTS	Non-Technical Summary
NRW	Non-Revenue Water
O&M	Operation and Maintenance
P	Physical Impacts
S	Social Impacts and Risks
SEP	Stakeholder Engagement Plan
ToR	Terms of Reference
WAJ	Water Authority of Jordan
WB	World Bank
WBG	World Bank Group

1 Non-Technical Summary

1.1 Purpose of the ESIA and this Summary

This Non-Technical Summary (NTS) presents the main findings of the Environmental and Social Impact Assessment (ESIA) prepared for the Madaba Water Supply Project. It explains, in plain language, what the Project is, why it is needed, which environmental and social impacts may occur, and how these will be managed and monitored over time. The NTS is intended for affected communities, local and national authorities, civil society and other stakeholders who do not need the technical details of the full ESIA but wish to understand its key conclusions.

The ESIA has been prepared in line with Jordanian legislation, in particular the Environmental Classification & License Regulation No. 69/2020, and with the requirements of the KfW Development Bank Sustainability Guidelines, the World Bank Environmental and Social Standards (ESS1–ESS10), the World Bank Group Environmental, Health and Safety (EHS) Guidelines, the European Investment Bank (EIB) Environmental and Social Standards, International Labour Organization (ILO) Fundamental Conventions and relevant international treaties to which Jordan is a party.

1.2 Project Description and Rationale

The Project aims to improve the reliability, quality and efficiency of the water supply for Madaba and the areas of Lib, Areed and Dhiban (see Area of Interest in Figure 1 and overview of technical infrastructure in Figure 2) , which currently face serious water scarcity, aging infrastructure and high levels of non-revenue water. It consists of two main components

- **Component 1-Pilot Plant Water Supply:** Construction Installation and operation of a small modular drinking water treatment pilot plant (about 3–6 m³/h) with an intake structure and pipeline, located near the Wala Dam in the buffer zone of the Mujib Biosphere Reserve. The pilot plant will test treatment processes and effluent options and provide data for future larger-scale investments.
- **Component 2 – Distribution Network and Infrastructure:** Rehabilitation and improvement of the water supply networks in Lib, Areed and Dhiban, including replacement and new construction of transmission and distribution pipes, construction of new elevated and strategic reservoirs, and upgrading or replacement of pumping stations

The Project responds to national priorities under the Jordan National Water Strategy and seeks to improve access to safe drinking water, reduce physical losses and energy use, and increase resilience to droughts and climate variability.

1.3 Legal Standards Framework

The ESIA reviews the relevant national and international requirements for environmental and social management:

- **National Framework:** Jordanian environmental law and regulations, including the Environmental Classification & License Regulation No. 69/2020, sector laws for water, land and cultural heritage, and related instructions and standards.
- **International and lender standards:**
 - World Bank Environmental and Social Standards (ESS1–ESS10).
 - World Bank Group General and Water & Sanitation EHS Guidelines.
 - KfW Development Bank Sustainability Guidelines.
 - EIB Environmental and Social Standards.
 - Guidelines on human rights and gender for German development cooperation and ILO core labour conventions.

A gap analysis shows that Jordanian legislation does not require some of the instruments expected by international lenders (such as an Environmental and Social Commitment Plan (ESCP), Labour Management Procedures, Resettlement Plans, Stakeholder Engagement Plans and formal grievance mechanisms). The Project therefore includes project-specific measures to close these gaps (for example a Stakeholder Engagement Plan (SEP), Land Acquisition Plan (LAP) and grievance mechanisms).

1.4 ESIA Process and Baseline Conditions

The ESIA followed a structured process:

- Collection and analysis of data on physical, biological, social, economic and cultural conditions in the Project's Area of Influence, including Madaba, Lib, Areed, Dhiban and the Wala–Mujib area.
- Identification of vulnerable groups and water-vulnerability patterns.
- Mapping of archaeological and cultural heritage sites and biological features, including the Mujib Biosphere Reserve and key biodiversity areas.
- Description of land use, geology and soils, climate and hydrology, air quality and noise.
- Analysis of legal and institutional frameworks and a gap analysis between national and international standards.
- Assessment of technical alternatives, including a "no-project" scenario, routing and site options for tanks and reservoirs.
- Identification and evaluation of potential environmental and social impacts using a structured classification: Physical (P), Biodiversity (B), Social (S), Community and Worker Health & Safety (HS), Cultural Heritage (CH), and Climate and Natural Disaster Risks (CC).
- Development of an Environmental and Social Monitoring Plan (ESMP), LAP, SEP and a detailed climate assessment.

Stakeholders, including affected communities, local authorities and relevant institutions, were consulted during ESIA preparation, and their feedback was used to refine project design, routing and mitigation measures. Ongoing engagement is planned through the SEP.

1.5 Main Environmental and Social Impacts

The ESIA finds that the Project will have significant positive impacts on water security, public health, service reliability and climate resilience, alongside localized and manageable risks during construction and operation.

Physical Environment (P)

- **Component 1:** Construction impacts are negligible due to the small pilot plant and absence of nearby communities. Operation generates small amounts of residuals¹ and liquid residuals and treated effluent; if managed properly, risks to soil and water are low and the effluent can have beneficial effects downstream.
- **Component 2:** Construction will generate temporary dust, noise and traffic, disturb soil and potentially affect roads and services. There is a risk of soil and water contamination from fuel and chemical spills and from improper waste disposal. During operation, risks include leaks, localized flooding in case of pipe bursts or tank failures, and improper handling of O&M waste.

Biodiversity (B)

- **Component 1:** The pilot plant lies in the buffer zone of the Mujib Biosphere Reserve but on already disturbed land. With works restricted to the approved footprint and careful management of effluent quality and flow, impacts on habitats and species are expected to be very low, and ecological flow in the wadi can be enhanced.
- **Component 2:** Network works may disturb roadside vegetation, agricultural land and small patches of habitat, and there is risk of indirect impacts on fauna and ecosystems from waste and spills. Proper routing, avoidance of sensitive areas, and pollution-prevention measures keep these impacts at a low to moderate level.

Social Impacts (S)

- **Component 1:** Direct social impacts are limited; the main benefit is improved planning for future water supply through pilot data and experience.
- **Component 2:** Land acquisition for some new tank sites may affect private landowners and users. Construction may temporarily disrupt access to homes, farms, businesses and services, and damage existing utilities. There are risks linked to labour influx and worker accommodation if not carefully managed. Positive impacts include better access to safe and reliable water, reduced non-revenue water, short-term employment opportunities and increased income for local businesses.

Community and Worker Health & Safety (HS)

- **Community:** Construction poses risks from heavy traffic, open trenches, dust, noise and accidental damage to infrastructure. During operation, failures or maintenance errors could lead to water-quality incidents, service interruptions or localized flooding.
- **Workers:** Construction and O&M staff face risks from heavy machinery, working at height on elevated tanks, handling chemicals and working with pressurized and electrical systems. Dam safety in the broader area is also a contextual risk that must be considered.

Cultural Heritage (CH)

- **Component 1:** The pilot plant is located away from known cultural heritage sites, and access to such sites is not expected to be affected.

¹ Refer to the residuals generated by the pilot water supply treatment plant. The Ministry of Water and Irrigation (MWI) agreed and recommend to use the term 'residuals' instead of 'sludge'.

- **Component 2:** Excavations could uncover unknown archaeological remains, and works or traffic management could temporarily restrict access to cultural sites. These risks are considered low to moderate but require clear procedures and coordination with the Department of Antiquities.

Climate Change and Natural Risks (CC)

The Project's direct greenhouse gas emissions are relatively low and mainly associated with construction and pumping energy. However, infrastructure such as elevated tanks and pressure-breaking chambers may be exposed to storms, flooding and heatwaves, requiring climate-resilient design and operation. The Project will significantly improve climate resilience for the local population by providing a more reliable and efficient water supply that better withstands droughts and extreme weather.

1.6 Mitigation Measures and Environmental and Social Monitoring Plan (ESMP)

The ESMP translates the ESIA findings into detailed commitments for both components and all impact categories. It specifies:

- How adverse impacts will be avoided, minimized or mitigated (e.g. erosion control, dust and noise suppression, spill prevention and response, safe waste management, biodiversity protection, safe routing near heritage sites, climate-resilient design).
- How positive impacts will be enhanced (e.g. maximizing local employment, supporting vulnerable groups' access to water, incorporating pilot results into future design).
- Who is responsible for implementing and monitoring each measure (PMU, operator, contractors, supervision consultant, authorities).
- When measures must be implemented (before construction, during construction, before operation, during operation).
- Which indicators will be used to monitor performance and how results will be reported.

Supporting instruments include LAP, SEP, Labour Management Procedures, a Chance Find Procedure for cultural heritage, and a climate assessment.

1.7 Stakeholder Engagement and Grievance Mechanisms

The ESIA and ESMP are supported by a Stakeholder Engagement Plan that defines how stakeholders in Lib, Areed, Dhiban and the wider area will be informed and consulted throughout preparation, construction and operation. Special attention is given to vulnerable groups. A project-level grievance mechanism for communities and a separate grievance mechanism for workers have been established so that concerns and complaints can be submitted free of charge, confidentially and without fear of retaliation. All grievances will be recorded, assessed and responded to within set timeframes.

1.8 Conclusions

In summary, the ESIA concludes that the Madaba Water Supply Project is environmentally and socially acceptable and brings substantial net benefits, especially in terms of improved water security, public health and climate resilience. The identified risks are site-specific, mostly temporary and can be managed

to acceptable levels through careful design and the full implementation of the ESMP, LAP, SEP, Labour Management Procedures and associated plans. Continuous monitoring, stakeholder engagement and adaptive management will be essential to ensure that commitments are respected and that any unforeseen impacts are identified and addressed in a timely manner.

Annex 1: Maps

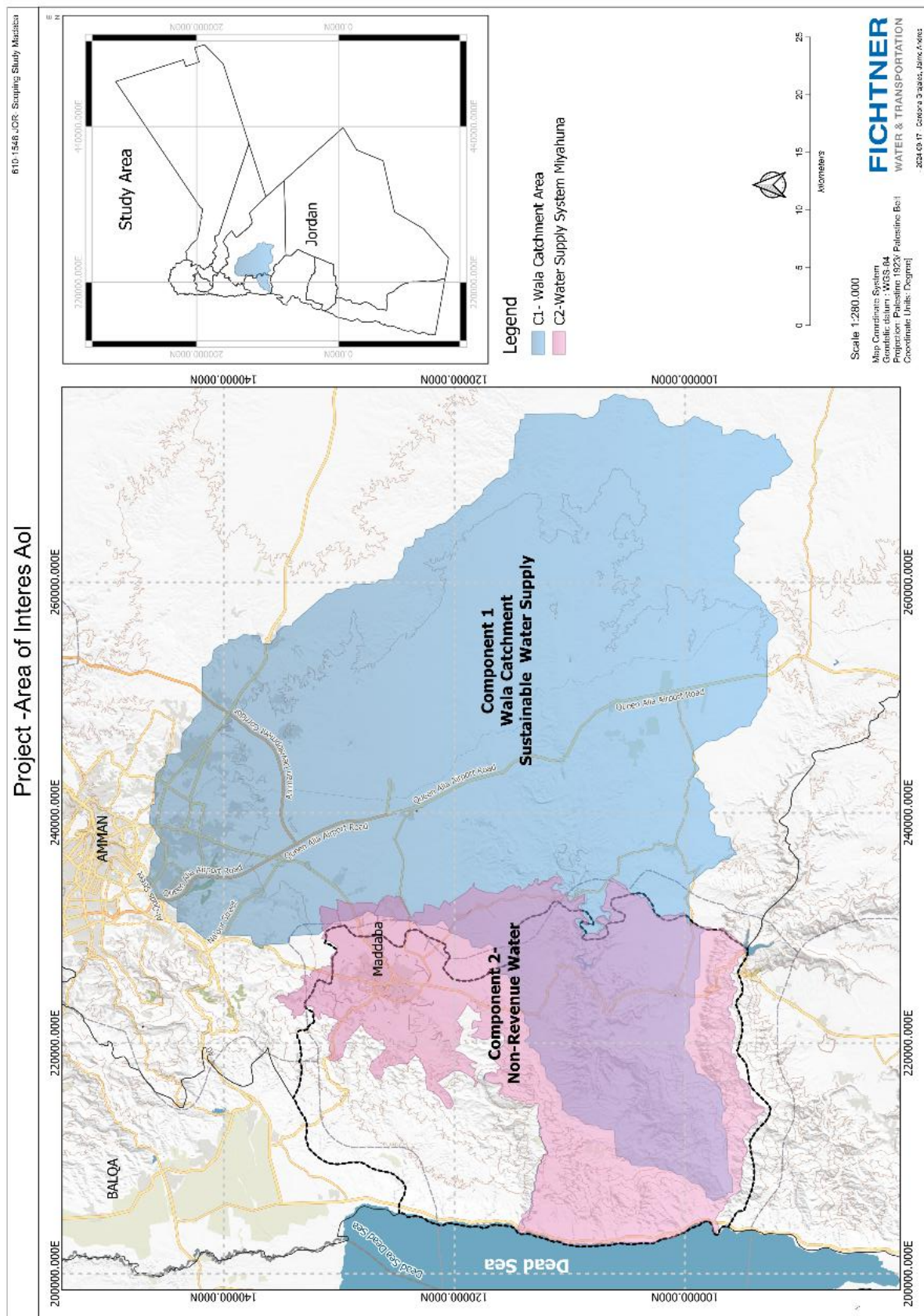


Figure 1 Project Area of Interest Aol

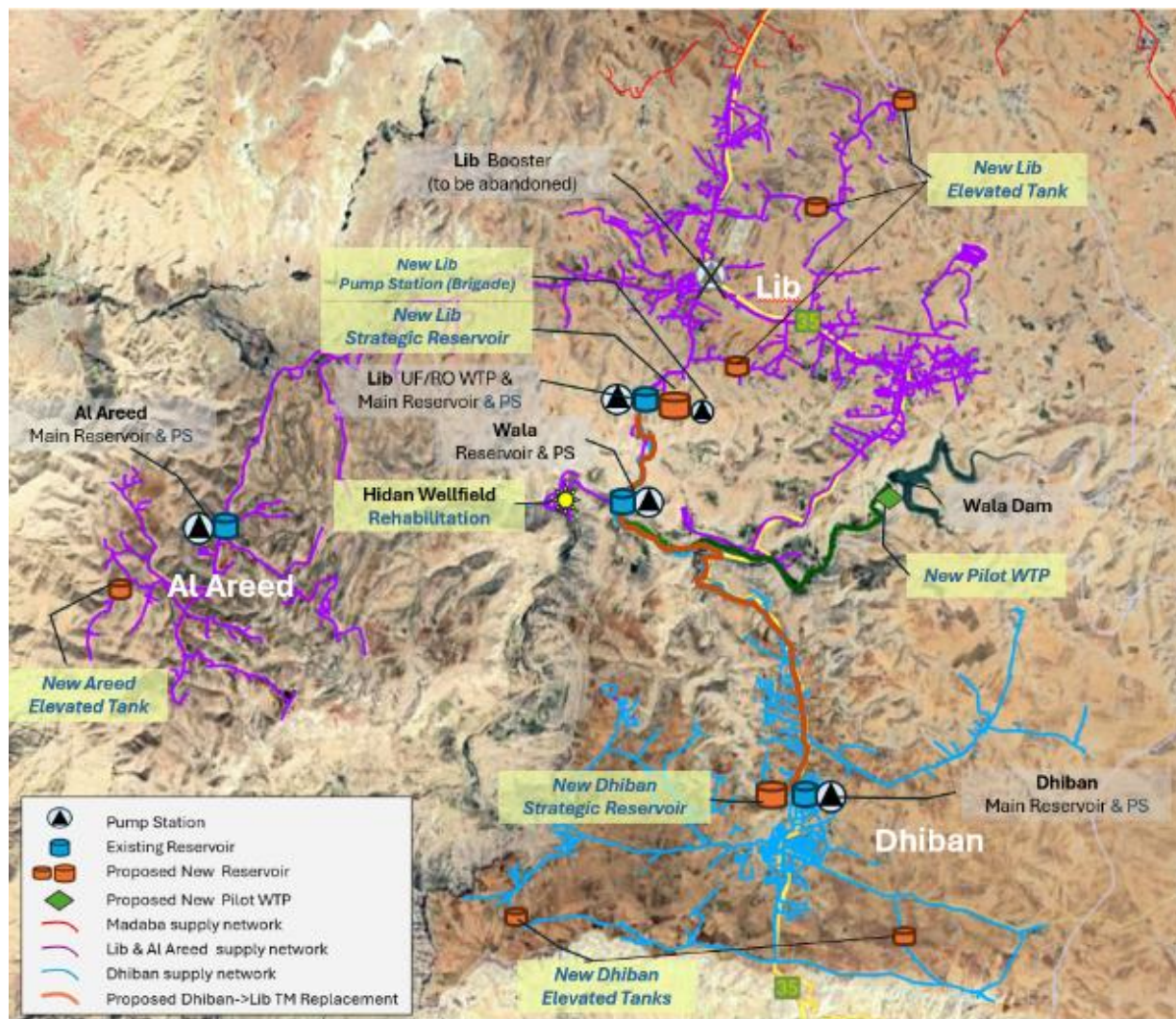


Figure 2 Proposed measures within Component 1 & Component 2