

Hashemite Kingdom of Jordan



MINISTRY OF
WATER AND IRRIGATION



Ministry of Water and Irrigation

Jordan Water Sector Efficiency Project

Environmental and Social Management Framework

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List of Acronyms

ACM	Asbestos Containing Material
AFD	French Development Agency
a.s.l	Above Sea Level
AWC	Aqaba Water Company
b.s.l	Below Sea Level
CBO	Community-Based Organization
CIS	Customer Information Systems
CSS	Comprehensive Subscribers' Survey
DMA	District Metered Area
DZ	Distribution Zone
E&S	Environmental and Social
EA	Environmental Audit
EE	Energy Efficiency
EEF	Energy Efficiency Framework
EHS	Environment, Health, and Safety
EIA	Environmental Impact Assessment
E&S	Environmental and Social
ERP	Enterprise Resource Planning
EHSGs	Environmental Health and Safety Guidelines
EMP	Emergency Management Plan
ESCP	Environmental and Social Commitment Plan
ESF	Environmental and Social Framework
ESHS	Environmental, Social, Health and Safety
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standard
ESSD	Environmental and Social Standards Directorate
FSR	Financial Sustainability Roadmap
GBV	Gender-Based Violence
GHG	Green House Gases
GIS	Geographic Information System
GIZ	German Agency for International Cooperation
GM	Grievance Mechanism
GRM	Grievance Redress Mechanism
HAZMAT	Hazardous Material
HR	Human Resources
JICA	Japanese International Cooperation Agency
JSCs	Joint Services Councils
JVA	Jordan Valley Authority
MEMR	Ministry of Energy and Mineral Resources
LA	Land Acquisition
LTI	Lost Time Incident

LMP	Labor Management Procedure
LS	Load Shifting
MNF	Minimum Night Flow
MoA	Ministry of Agriculture
MoEnv.	Ministry of Environment
MoL	Ministry of Labor
MSWM	Municipal Solid Waste Management
MWI	Ministry of Water and Irrigation
NGO	Non-Governmental Organization
NPPs	Negative Performance Points
NRW	Non-Revenue Water
OE	Owner Engineer
OHS	Occupational Health and Safety
PAP	Program Action Plan
PBC	Performance Based Contract
PforR	Program for Results
PIU	Project Implementation Unit
PMD	Projects Management Directorate
PMU	Projects Management Unit
POM	Project Operations Manual
PPE	Personal Protective Equipment
PPPs	Positive Performance Points
RAP	Resettlement Action Plan
REL	Real Estate Law
RPF	Resettlement Policy Framework
SEP	Stakeholder Engagement Plan
SOP-1	Series Of Projects -1
TBT	Tool Box Talk
TMP	Traffic Management Plan
TOC	Table of Content
TOR	Terms of Reference
USAID	U.S. Agency for International Development.
WAJ	Water Authority of Jordan
WB	World Bank
WCs	Water Companies
YWC	Yarmouk Water Company

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0. Executive Summary

This ESMF has been developed as the E&S instrument for assessing, managing and monitoring E&S risks and impacts of the project given that the full nature, scope and geographical locations were not known at the time of preparing the ESMF. The ESMF establishes the screening processes and tools to be directly implemented by Implementing Agencies (IAs) to define further assessment management needs to be performed by sub-projects

The first project in the series, (SOP1) will focus on improving water sector efficiency. Proposed interventions are grouped around five components:

Component 1. Sustainable non-revenue water reduction. Efficiency will be improved by reducing waste of the available water resources (financial and commercial) and overall improvement in operational systems in the water sector, in support of adaptation to climate change impacts on water availability. The component will be implemented through (i) NRW reduction activities in prioritized areas, nationwide; (ii) Improved systems for sustaining NRW reduction. Identification of sub-projects under this Component will follow a framework approach, where support for specific sub-projects will be agreed after the Capital Investment Master Plan is finalized based on criteria agreed during preparation. Actions will primarily entail rehabilitation activities including network replacement and rehabilitation of pipes, household connections and meter rehabilitation or replacement, network zoning, installation of Supervisory Control and Data Acquisition (SCADA) system and Geographic Information System and other technical actions needed to lay the foundation for NRW reduction at the level of the three water companies in Jordan. This component will also finance the preparatory studies (feasibility, design, environmental and social assessment and management plans, development of bidding documents) required for investments to be implemented by the three water companies. This component will strengthen NRW systems in the country to improve planning, operationalization, and help sustain NRW reduction over time.

Component 2: Increased energy efficiency (EE) and reduced energy supply costs.

The water sector in Jordan requires significant energy for operation - energy costs represent over half of the water utilities' operational costs - due largely to pumping costs associated with the extraction of deep groundwater, and conveyance of water from the source to population centers. Energy efficiency improvements in the water sector are a national priority for more sustainable management of the water sector in Jordan and will have a direct impact on the financial sustainability of the water sector by reducing operational costs. This component will improve the efficiency of the water sector by reducing energy used, costs, and GHG emissions.. This component will improve efficiency of the water sector by reducing energy used, costs and GHG emissions by (i) improving energy efficiency of existing water systems through pump and generators rehabilitation/replacement, installation of renewable energy system, and (ii) mobilizing policy and operational measures to enable energy load shifting to reduce the cost of energy in the water sector.

Component 3: Drought management and informed water allocation

Given Jordan's extreme water scarcity and frequent and intense droughts, improved water allocation will support different mechanisms to enable efficient and fair management of water shortages. Tools

that underpin the assessment of water availability and decision-making related to water allocation, particularly monitoring, and forecasting under drought conditions when water availability becomes increasingly scarce, are necessary to ensure that allocation responds to changing conditions, improving beneficial use. Strengthening institutions responsible for planning and allocation of water at the farm level will increase opportunities for participation and negotiation with different stakeholders to enable a more efficient and fair management of the risks of shortages. Water storage systems play an important role in an efficient response to highly variable precipitation, such as minimizing water spilling water during high-flow years can help maximize its use during drought years and maintaining storage for blending and timing of deliveries of treated wastewater facilitates its use in agriculture. Continued safe and competent operation of storage facilities will underpin an efficient response to variable water availability. This component will strengthen drought management with aims to apply a comprehensive drought risk management approach to increase capacity to monitor, forecast, plan for, and respond to droughts in the water sector. This component will also support preparation of studies for rehabilitation water storage systems.

Component 4: Project management and implementation support

This Component will focus on project management required to implement this Project and to strengthen systems for the planned SOP.

Component 5: Contingency Emergency Response

A Contingency Emergency Response Component (CERC) with zero allocation will be created and made implementation-ready to allow the GoJ to respond quickly in case of an eligible emergency. The mechanism will be defined in a specific CERC Operational Manual that will clearly outline the triggers, eligible expenditures, procurement thresholds, and procedures for using part of IBRD resources of the project to respond quickly in the event of an eligible emergency.

Project Implementing Arrangements

The project implementation arrangements are aligned with the current institutional architecture of the water sector in Jordan led by the Ministry of Water and Irrigation (MWI), supported by the Water Authority of Jordan (WAJ) Project Management Department (PMD), the Jordan Valley authority and the municipal water supply services providers: (i) Miyahuna Water Company (MWC) for the central areas, including greater Amman; (ii) Yarmouk Water Company (YWC) in the north; and (iii) Aqaba Water Company (AWC) in the south. The project will be overseen by a steering committee that will provide strategic guidance during the implementation. The existing Environmental and Social Standards Directorate within (ESSD) WAJ will support the PMD and is assigned responsibility for the overall management of environmental and social risks and impacts (including health and safety) for the project

The relevant national regulations and standards with which the project activities and components must comply, were identified. The following standards and guidance notes of the World Bank are also applicable to the project.

- The World Bank Environmental and Social Framework sets out the World Bank's commitment to sustainable development, through a Bank Policy and a set of Environmental and Social Standards that are designed to support Borrowers' projects, with the aim of ending extreme poverty and promoting shared prosperity. There are ten Environmental and Social Standards (ESSs). The applicable ESSs to the project are ESS 1 to ESS 10 except ESS 7.
- The WBG General EHS Guidelines that contain the performance levels and measures that are acceptable to the WB. Where the national regulations differ from the levels and measures presented in these guidelines, the Project will aim for whichever is more stringent.
- Operational Policy 7.50 Projects in International Waterways: This policy applies to the following types of projects: hydroelectric, irrigation, flood control, navigation, drainage, water and sewerage, industrial, and similar projects that involve the use or potential pollution of international waterways; and detailed design and engineering studies of projects, including those to be carried out by the Bank as executing agency or in any other capacity
- EHS Guideline for Water and Sanitation: According to the project scope and design, water distribution guidelines are relevant to the project activities under component1. The most significant environmental issues associated with operation of water distribution systems include: Water system leaks and loss of pressure and Water discharges

According to the project description, the following ESSs are relevant to the project:

- 1- ESS1: Assessment and Management of Environmental and Social Risks and Impacts
- 2- ESS2: Labor and Working Conditions
- 3- ESS3: Resource Efficiency and Pollution Prevention and Management
- 4- ESS4: Community Health and Safety
- 5- ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement
- 6- ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- 7- ESS8: Cultural Heritage
- 8- ESS10: Stakeholder Engagement and Information Disclosure

A Gap Analysis was performed to compares local relevant regulations to the project with WB ESS requirements, along with MWI strategy to address gaps identified through this analysis.

The anticipated major environmental and social risks and impacts (positive and negative) associated with the implementation including construction and operation of the proposed project were presented. The overall environmental risks of the project are classified as **Substantial**, while social risks of the project are classified as **Moderate**, where both risks need to be managed properly according to this ESMF guidance and requirements.

Project implementation will result in potential positive and negative environmental and social risks and impacts . Some significant positive impacts are: preserving water resources through repair and replacement of damaged water networks; contributing to the reduction of GHG emissions by applying energy saving measures; improving the hygiene and livelihood of beneficiary communities;, ensuring

that environmental and social aspects are well considered at Performance Based Contracts (PBCs); Enhance community awareness and capacity to control water demand and, creating job opportunities, especially during the construction phase.

The project will also have some negative environmental and social impacts and most of these will be experienced during the construction phase under components 1 &2. These include: **Air Pollution by Dust and Exhaust Emissions** where the overall significance of this impact is Low to Moderate because the excavation works will be for relatively small trenches of secondary and tertiary water pipes. **Noise Pollution**, The significance is expected to be Moderate as the construction works will mainly be done during the day time. **Soil and Groundwater Pollution / Contamination**, The significance of this impact is expected to be Low because the major construction works will be in component 1 at the RoW or at paved roads, in addition to the relatively small excavated areas for water networks. **Soil Erosion by Flood Hazards**, the significance of this impact is Low to Moderate as these excavations will be less in numbers comparing with those for secondary and tertiary water networks. **Waste Generation and Management**: different types of waste are expected to be generated during the construction works: Solid Waste, Liquid Waste, and Hazardous Waste. The overall project impact of waste generation is considered Moderate, as the different types of waste are restricted inside work locations, and expected to be in small quantities. **Asbestos Management**: Asbestos Contained Material (ACM) where historically present at water networks at Jordan Valley, most of these ACM pipes were replaced. Although unlikely to happen but it is considered a Substantial risk that need to be considered under component 1 of the project. **Biodiversity and Natural Habitats Related Impacts**, are divided into several categories: (i) Wildlife Hunting / Killing by Workers: a risk of killing or hunting wildlife by workers is possible, however this risk is considered Low because construction works for water networks is mainly at RoW of public roads, and construction works for solar PV plants will not be for a long period. (ii) Wood Collection for Fire: This impact is of Low significance because construction works for component 1 is mainly at RoW of public roads, with short construction periods at the site. (iii) Accidental Killing by Traffic: This impact is expected to be Low due to the high disturbance at construction sites which reduces the presence of wildlife species at these sites in component 1 , while Low to Moderate in Component 2. **Public Traffic Disturbance and Management**: This impact is considered Moderate because construction work duration is expected to be short at each work location especially inside residential areas, it becomes Low to Moderate in component 2. **Community Health & Safety**: This impact is considered Moderate as construction works would be close to pedestrians and residents of work areas, but the number of workers at each work location is expected to be low. **Disruption of Water Supply**: This impact is considered Moderate especially if works may last longer than the water supply cycle at the work area. **Disturbance of Other Utilities Services (electricity, communication and municipal)**: This impact is Moderate and depends on the cut periods of these services within the community and the level of damages made. **Land Acquisition (LA)**: Since construction works under project components will be at government or WAJ owned lands. This impact is Low to Moderate due to the small potential of land acquisition required **Economic Displacement of Commercial and Trade Activities**: This impact is Moderate in significance because construction works in front of commercial centers and shops will be completed in short period and contractors are required by law to provide alternative access. **Socio-economic and Hygiene of Reliant on Illegal Connections**: This impact is Moderate to Substantial and will depend on the economic status of the households with illegal connections. **Occupational Health and Safety Impacts on Labor**: The major OHS risks and impacts related to labor during construction phase are: Eye irritation and respiratory system allergic reactions, Fall from Height, Lifting operations and

falling objects, Confined Space Entry, Muscle Fatigue and Backbone Injuries during Manual Handling and or Excavation, Cuts and Wounds by Sharp Objects, Electrocution by Electrical Tools, Heat & Cold Stress, Traffic Accidents, Infection during Community Transmittal Diseases Outbreak, Exposure to Hazardous Material & Waste. The overall significance of these impacts is Moderate to Substantial based on the specific activity performed by the labor. **Cultural Heritage Risk:** The impact is considered Low since the probability of this chance find is very unlikely because local regulations prohibit excavation in the vicinity of known archaeological sites, and that will be considered at the planning and design. **Social unacceptance for women participation at plumbing training:** The impact is low to Moderate. **Low participation of women at the plumbers training program:** The impact is Moderate since there is a social resistance for women engagement at what was before a purely men job market.

Environmental and social screening has been performed for the project components during the planning phase. This screening has resulted with identification of project level ES mitigations and instruments. The purpose of the E&S screening stage, is to determine the sub-projects eligible for Project's financing and to identify the Project's potential adverse impacts and risks on the environment, society, consequently to determine the appropriate safeguard instruments and mitigation measures to manage those impacts.

The Implementing Agency shall ensure assessing the sub-projects in reference to all the relevant standards and ensure the requirements addressed in the other Project ESF Instruments are complied with in planning and drafting of the sub-project E&S management plans

1- MWI has developed a Resettlement Framework for the project as a standalone document, although land acquisition is not anticipated at this project, but RF also considers economic displacement that might be significant if not properly managed and mitigated during project implementation. The RF will be shared with WB and will be communicated on MWI website once approved by WB. The RF will be part of the contracts for relevant sub-projects where initial ES screening has shown potential resettlement risks, Contractors will be responsible for implementation and will develop further site-specific resettlement management measures according to RF.

2- MWI has developed a Stakeholder Engagement Plan for the project as a standalone document that will be consulted and will be disclosed on World Bank and MWI website, once cleared by World Bank. The SEP aims to provide a framework for appropriate and timely manner consultation and information disclosure for project affected parties (PAPs). Also SEP has identified projects stakeholders who will be part of the contracts for subprojects, where contractors will be responsible for implementing and will develop further site-specific stakeholder engagement measures when needed.

3- MWI has developed a Labor Management Procedure for the project as a standalone document that will be shared with WB and communicated on MWI website once approved by WB. LMP will be part of the contracts for sub-projects where contractors will be responsible for implementation, and will develop further relevant management measures as needed.

Based on the results of screening, ESMP shall be developed for project activities that are classified as **Moderate** risks. The ESMP consists of the set of mitigation, monitoring, and institutional measures to be taken during implementation and operation to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. Stakeholder consultation shall be conducted as per the Stakeholder Engagement Plan, as part of the preparation of ESMP, and the feedback will be reflected in the design of the mitigation and monitoring measures

The Environmental and Social Mitigating measures are indicated to avoid, mitigate, manage and monitor the identified environmental and social risks and impacts associated the sub-project types . While the risk levels and the proposed mitigations presented are indicative. Based on the environmental and social screening findings, these mitigation measures should be reviewed, adapted, and incorporated as relevant, into the site specific conditions during the preparation of site-specific instruments

The objectives for monitoring are: to record environmental and social impacts resulting from the sub-project activities and to ensure compliance with e the World Bank ESF requirements through the proper implementation of the “mitigation measures” ,to alert project authorities by providing timely information about the success or otherwise of compliance with ES requirements as outlined in this ESMF in such a manner that changes to the system can be made in a timely manner, if required; and to make a final evaluation in order to determine whether the mitigation measures designed into the sub-projects have been effective in such a way that the environmental and social conditions have been restored, improved or if these mitigation measures need to be reviewed and improved. The monitoring will cover all stages of the project including Pre-construction , Construction Phase and Post construction phase.

According to ESMF and projects implementation arrangements, ES performance of the project must be documented and reported to the World Bank. That requires a systematic hierarchy following bottom-up approach in reporting between the contractors, supervision consultants, IAs and World Bank. This section defines the required ES reporting will be applied in the project

The proposed implementation arrangements for the ESMF based on the roles and responsibilities is identified at the initial Institutional and Implementation Arrangements. The project and to implement ESMF will ensure that ES staffing needs are adequately assigned and mobilized. An ESMF organization structure is prepared.

In order to ensure proper implementation and compliance with ESMF and its requirements, and based on the current ES capacity of the implementing agencies, the required capacity building needs for ESMF implementation were identified.

ESSD will be responsible for the overall management of the E&S management including capacity development requirements, through assigning tasks to the ESSD team members, the Environmental Specialist and the Socials Specialists, the construction consultancy firms, and the contractors as per assigned in their respective TOR's

The cost for implementation of ESMF is mainly related to the cost of ESMP implementation and proposed capacity building and training. As the final number and locations of sub-projects are not yet defined, the ESMP implementation cost estimated at this stage represents the following: Cost for hiring one Environmental Specialist and one Social Specialist to support the E&S management, cost of ES trainer , cost of ES training venues and associated expenses, cost for PPEs that ESSD and ES consultant needs to perform site visits and audits, cost of preparation of ESIA required as ES management instruments for specific sub-projects and or requested by MoEnv. In addition to ESMF Consultation with Stakeholders, Equipment for ES management and monitoring and reporting, i.e laptops. And Contingency cost.

1. Introduction

This Environmental and Social Management Framework (ESMF) is prepared for Jordan Water Sector Efficiency Project (named SOP-1) to set out the framework for avoiding, reducing, mitigating and managing any residual impacts, in accordance with the environmental and social standards (ESSs) of the World Bank and national Jordanian regulations.

SOP-1 is in line with The Financial Sustainability Roadmap (FSR), a process under the Government’s “Action Plan to Reduce Water Sector Losses” that outlines actions to close the operational deficit in the water sector by 2030. SOP-1 will have broad environmental and social benefits, it will finance activities that preserve scarce water resources, and contribute to reduction of Green House Gases (GHG) emissions.

The project SOP1 will cover the following areas: (1) Loss reduction and service delivery; (2) Energy efficiency and cost reduction; (3) Water security and drought management; and (4) Institutional strengthening for water sector efficiency (5) Contingency Emergency Response.

SOP-1 is a World Bank-supported Investment Financing Project and will be implemented over a 3-year period. The Implementing agencies will be Ministry of Water and Irrigation (MWI), Water Authority of Jordan (WAJ), Jordan Valley Authority (JVA), Miyahuna Water Company, Aqaba Water Company (AWC), and Yarmouk Water Company (YWC).

1.1 Background

Jordan is one of the most water scarce countries in the world, which poses severe limits on both agriculture and water supply to cities. Water resources are concentrated in the northern highlands and the Jordan River Valley, with over 92 percent of the land in Jordan classified as semi-arid or arid and receiving less than 200 mm of rainfall per year. With only 97 m³ per capita per year, available water is well below the absolute water scarcity threshold of 500 m³ per capita per year¹. Jordan has seen its population grow through a combination of organic growth and refugee influxes from 2 million in 1975 to around 10.3 million in 2021² – reducing the amount of water per person available as an economic input. As Jordan’s population has grown and become increasingly urbanized (92 percent in 2021)³ around half of Jordan’s available water is used for domestic water supply (including industry) and the other half is allocated to

¹ Rapid Assessment of the Consequences of Declining Resources Availability and Exploitability for the Existing Water Supply Infrastructure (2020). MWI | WAJ | JVA | GIZ

² <https://data.worldbank.org/country/jordan>

³ <https://data.worldbank.org/country/jordan>

agriculture (compared with a global average of 70 percent of water for agriculture). The National Water Strategy 2016-2025 estimated that water demand would exceed available water resources by more than 26 percent by 2025.⁴

The Financial Sustainability Roadmap (FSR), a process under the Government's "Action Plan to Reduce Water Sector Losses" which is linked to accessing the EEF, outlines a Consensus Policy Scenario that outlines actions to close the operational deficit in the water sector by 2030, thus reducing the accumulation of debt in the sector and improving overall financial sustainability and operational performance of the sector. The government action plan, along with the FSR outline the importance of reducing water losses as a tool to move the water sector towards financial sustainability.

1.2 ESMF Objectives

This ESMF has been developed for SOP-1 in order to:

- Avoid or mitigate adverse impacts to people and the environment;
- Conserve or rehabilitate biodiversity and natural habitats, and promote the efficient and equitable use of natural resources and ecosystem services;
- Promote worker and community health and safety;
- Ensure that there is no prejudice or discrimination toward project-affected individuals or communities and give particular consideration to vulnerable groups, especially where adverse impacts may arise or development benefits are to be shared;
- Address project-level impacts on climate change and consider the impacts of climate change on the selection, siting, planning, design and implementation and decommissioning of projects
- Maximize stakeholder engagement through enhanced consultation, participation and accountability.

This ESMF has been developed as the E&S instrument for assessing, managing and monitoring E&S risks and impacts of the project given that the full nature, scope and geographical locations were not known at the time of preparing the ESMF. The ESMF establishes the screening processes and tools to be directly implemented by Implementing Agencies (IAs) to define further assessment management needs to be performed by sub-projects

The ESMF describes the policy and legal framework in which the E&S Standards are embedded, including national laws and regulations, and the World Bank Environmental and Social Framework (ESF). It further lays out an environmental and socio-economic baseline; classifies the E&S risks and outlines mitigation measures. The document then explains the institutional and implementation arrangements for the project and for the ESMF and lays out the Monitoring Plan for the ESMF. It also lists the Project Grievance Mechanisms (GM) and explains anticipated training and capacity development initiatives.

⁴ Ministry of Water and Irrigation. National Water Strategy: 2016 – 2025.

2. Project Description and Implementation Arrangements

The proposed Series of Projects (SOP) provides the investment support and long-term approach needed for full implementation of the Water Sector Financial Sector Roadmap and to improve the efficiency and resilience of the water sector. Through the SOP, multiple projects financed by the World Bank contribute to the Government's objectives to improve efficiency, service delivery and financial sustainability of the water sector. The SOP is expected to be implemented between 2023 and 2032, through three proposed investments beginning with the proposed project, followed by two further investments in sector efficiency. Presentation to the Board of subsequent projects in the SOP will be staggered by approximately 1.5 years, allowing for preparatory works to be carried out in earlier phases. The program is aligned with, and will contribute to, the new Vision for Economic Modernization, Government's National Strategy for the Water Sector, and Non-Revenue Water Reduction and Energy Efficiency Strategies.

The first project in the series, (SOP1) will focus on improving water sector efficiency. Proposed interventions are grouped around five components:

2.1 Project Components

2.1.1 Component 1. Sustainable non-revenue water reduction.

Component 1. Sustainable non-revenue water reduction. Efficiency will be improved by reducing waste of the available water resources (financial and commercial) and overall improvement in operational systems in the water sector, in support of adaptation to climate change impacts on water availability. The component will be implemented through (i) NRW reduction activities in prioritized areas, nationwide; (ii) Improved systems for sustaining NRW reduction. Identification of sub-projects under this Component will follow a framework approach, where support for specific sub-projects will be agreed after the Capital Investment Master Plan is finalized based on criteria agreed during preparation. Actions will primarily entail rehabilitation activities including network replacement and rehabilitation of pipes, household connections and meter rehabilitation or replacement, network zoning, installation of Supervisory Control and Data Acquisition (SCADA) system and Geographic Information System and other technical actions needed to lay the foundation for NRW reduction at the level of the three water companies in Jordan. This component will also finance the preparatory studies (feasibility, design, environmental and social assessment and management plans, development of bidding documents) required for investments to be implemented by the three water companies. This component will strengthen NRW systems in the country to improve planning, operationalization, and help sustain NRW reduction over time.

Following good practice, NRW reduction investment will entail restructuring the water network into hydraulically isolated District Metered Areas (DMAs), rehabilitation or replacement of the network, replacement of household connections, installation of customer and bulk meters, followed by regulating and maintaining pressure within the network within acceptable parameters. DMA is a normal practice, water from one Elevated Storage Tank is supplied to a specific region. If one such region is broken down into multiple smaller sub-regions where we can monitor water input to and consumption in each of such sub-regions, these sub-regions will be called District Metered Areas.

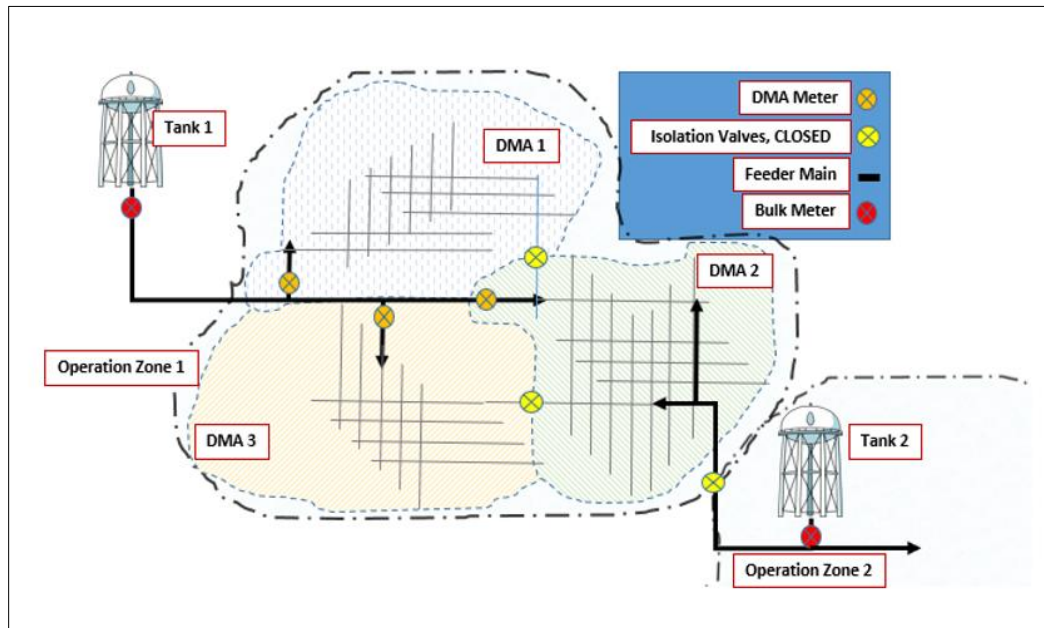


Figure 1: Illustration of a Typical DMA

In short, district metered areas are small clusters of water users with a provision to individually monitor the water supplied and consumed. Each DMA can be isolated from others in two manners - either with use of isolation valves at its boundary or by cutting off the pipes connecting that DMA to other DMAs. Procuring, installing, programming, and commissioning a new local Supervisory Control and Data Acquisition (SCADA) system for the primary, and secondary water supply network up to the level of the newly established District Metering Areas (DMAs). This will include the monitoring and control of the wells, reservoirs, actuated flow control valves, resources smart bulk meters, DMAs smart meters, and Pressure-reducing Valves (PRVs).

Water networks are of different type including: Primary networks are usually comprised of 300mm – 1200mm diameter pipes which mainly convey water from pump stations to water distribution reservoirs. Secondary networks are comprised of 150mm – 300mm diameter pipes and mainly used

to convey water from storage reservoirs to tertiary distribution networks. Tertiary distribution networks comprise of pipes less than 150mm diameter and they distribute water to households.

Once a DMA has undergone these steps and has achieved an acceptable level of NRW, systematic leakage identification and repairs will be undertaken to maintain the NRW within the acceptable levels. There may also be rehabilitation or replacement of the transmission pipelines based on identified leaks to reduce water losses as well as augmenting the storage capacity in the network that will aid the identification of leaks

2.1.2 Component 2. Increased energy efficiency (EE) and reduced energy supply costs.

The water sector in Jordan requires significant energy for operation - energy costs represent over half of the water utilities' operational costs - due largely to pumping costs associated with the extraction of deep groundwater, and conveyance of water from the source to population centers. Energy efficiency improvements in the water sector are a national priority for more sustainable management of the water sector in Jordan and will have a direct impact on the financial sustainability of the water sector by reducing operational costs. This component will improve the efficiency of the water sector by reducing energy used, costs, and GHG emissions.. This component will improve efficiency of the water sector by reducing energy used, costs and GHG emissions by (i) improving energy efficiency of existing water systems through pump and generators rehabilitation/replacement, installation of renewable energy system, and (ii) mobilizing policy and operational measures to enable energy load shifting to reduce the cost of energy in the water sector.

2.1.3 Component 3. Drought management and informed water allocation

. Given Jordan's extreme water scarcity and frequent and intense droughts, improved water allocation will support different mechanisms to enable efficient and fair management of water shortages. Tools that underpin the assessment of water availability and decision-making related to water allocation, particularly monitoring, and forecasting under drought conditions when water availability becomes increasingly scarce, are necessary to ensure that allocation responds to changing conditions, improving beneficial use. Strengthening institutions responsible for planning and allocation of water at the farm level will increase opportunities for participation and negotiation with different stakeholders to enable a more efficient and fair management of the risks of shortages. Water storage systems play an important role in an efficient response to highly variable precipitation, such as minimizing water spilling water during high-flow years can help maximize its use during drought years and maintaining storage for blending and timing of deliveries of treated wastewater facilitates its use in agriculture. Continued safe and competent operation of storage facilities will underpin an efficient response to variable water availability. This component will strengthen drought management with aims to apply a comprehensive drought risk management approach to increase capacity to monitor, forecast, plan for, and respond to droughts in the water sector. This component will also support preparation of studies for rehabilitation water storage systems.

2.1.4 Component 4. Project management and implementation support .

This Component will focus on project management required to implement this Project and to strengthen systems for the planned SOP.

2.1.5 Component 5. Contingency Emergency Response.

A Contingency Emergency Response Component (CERC) with zero allocation will be created and made implementation-ready to allow the GoJ to respond quickly in case of an eligible emergency. The mechanism will be defined in a specific CERC Operational Manual that will clearly outline the triggers, eligible expenditures, procurement thresholds, and procedures for using part of IBRD resources of the project to respond quickly in the event of an eligible emergency.

2.2 Institutional Capacity and Implementation Arrangements

2.2.1 Implementing Agencies Environmental and Social Capacity

The MWI, WAJ, JVA, and WCs have significant technical experience implementing similar NRW and energy efficiency projects funded by several development agencies (USAID, GIZ, AFD, JICA, KfW), in accordance with national and international environmental and social standards of these agencies. These entities use third-party technical consultants to prepare the environmental assessment reports, and to monitor project implementation. WAJ supported by the KfW, has recently established an Environmental and Social Standards Directorate (ESSD-PMU) at PMD, staffed with a Director and an ESIA Department Head, while the MWI and JVA do not have any dedicated environmental and social staffing or functions under their organizational structure. However, WCs each has HSE division that is responsible for the management and monitoring of operational environmental, health and safety activities.

The water sector has an existing institutional capacity for managing select social risks in the sector, WAJ has extensive experience regarding land acquisition at relevant projects according to National Law. The water sector has experience in stakeholders' engagement at large scale projects through the ESIA process, in addition to stakeholder engagement strategies through media and communication departments with a focus on messaging about water services to the public. There is a centralized GM system in the sector where all complaints should be registered with a unified call center (one central number 117116), and each entity has additional complaints uptake channels. The GM system is managed through a set of handling procedures (Service Recipient GM Handling Procedures) depending on the source of the complaint. However, the sector operates a major call center with a hotline (117116) which receives thousands of complaints on a daily basis. All three water companies are connected to the system and WAJ monitors their performance in relation to complaints handling (time of response, resolution, unresolved complaints, etc.). The Call Center also hosts the Maintenance and Control Directorate for Miyahuna in Amman which manages several Maintenance Teams that are deployed once a complaint is received. The complaints received are mainly related to water disruption, breakages in the network, pollution, etc. A citizen could file a complaint from anywhere in the country through this hotline and it will be handled according to a set of procedures and a defined timeline. The call center covers all Jordan and coordinates with 41 Maintenance and Control Offices around the country (which operates under the three water companies).

MWI has a Gender Studies Section focusing on implementing the gender mainstreaming policy among the IA's. None of the entities have previous experience implementing the World Bank's Environmental and Social Framework (ESF).

2.2.2 Project Implementing Arrangements

The project implementation arrangements are aligned with the current institutional architecture of the water sector in Jordan led by the Ministry of Water and Irrigation (MWI), supported by the Water Authority of Jordan (WAJ) Project Management Department (PMD), the Jordan Valley authority and the municipal water supply services providers: (i) Miyahuna Water Company (MWC) for the central areas, including greater Amman; (ii) Yarmouk Water Company (YWC) in the north; and (iii) Aqaba Water Company (AWC) in the south. The project will be overseen by a steering committee that will provide strategic guidance during the implementation.

The existing Environmental and Social Standards Directorate within (ESSD) WAJ will support the PMD and is assigned responsibility for the overall management of environmental and social risks and impacts (including health and safety) for the project, including oversight of activities undertaken by all implementing agencies. The Project will support : hiring or assign additional dedicated support, including a minimum of one dedicated environmental specialist, and one dedicated social specialist, with qualifications satisfactory to the Bank, who will support management and oversight of ESHS risks and impacts throughout Project implementation, including activities implemented at WAJ, the WCs, JVA and MWI.

To support the water companies (MWC, AWC, and YWC) implementing Components 1 and 2, each company will establish a PIU that will be responsible for project implementation of their respective activities, including compliance with the environmental and social requirements.

The project will support enhanced capacity within the Water Companies to deliver on Components 1 and 2, where an Environmental and Social Focal Point for each Water Company, with knowledge of the national environmental laws and regulations, and experience managing environmental, health and safety and social risks, will be necessary to support implementation.

The JVA and MWI will be responsible for implementing activities under their lines of responsibility (components 3), while MWI will be the responsible for implementing activities of component 4, once these activities defined, and then other implementing agencies may be involved. Focal points with relevant expertise will be responsible for implementing the environmental and social requirements of their agency's actions under the project and reporting to the central E&S team. The specific staffing arrangements and capacity-building measures including a training program are defined at section 10 of ESMF. Additional details and timelines for the ES organization structure will be defined in the Project's Environmental and Social Commitment Plan (ESCP).

3. Regulatory Framework

This section outlines the ES policies, law and regulations relevant to the project in addition to the WB ESSs that the project must abide with.

3.1 Institutional Framework

Various governmental institutions are involved in one way or another in environmental protection, where the prime responsibility is assigned to the Ministry of Environment, but also other governmental institutions that hold substantial involvement including management or monitoring responsibilities in accordance with the national laws and regulations

Similar to environment protection, responsibilities for implementation of socially related regulations fall within the mandate of many governmental organizations including the Ministry of Social Affairs, Ministry of Labor, the National Centre for Human Rights (NCHR), and others. The table below lists the relevant agencies and their mandate.

Institution	Responsibility	Relevant Role to Project
Ministry of Environment (MoEnv)	Responsible for protecting the environment through setting policies and legislation as well as ensuring enforcement, through licensing, monitoring and inspection processes. It is responsible for designating and supervising the management of national parks, reserves and other protected areas although it may delegate these tasks to other bodies. The Ministry is also responsible for developing relevant information management programs, raising public awareness, and promoting co-operation with relevant national, regional and international parties. The MoEnv chairs two national committees that relate to project planning and approval decisions, namely: the 'Central Licensing Committee' and the 'EIA Committee'	<ul style="list-style-type: none"> - Define the required assessment level required to obtain environmental approvals for sub-project based on project's environmental and social risks - Issue environmental approvals for sub-projects as per environmental licencing and classification regulation - Issue approval and manifest for hazardous waste disposal - Inspect sub-projects that have approved through EIA process during construction and operation
Ministry of Agriculture (MoA)	Responsible for managing public rangelands and forests, protecting soil resources, pastureland and flora, permitting pesticides, protecting and managing wildlife, issuing fishing and hunting licenses, determining capacity and setting 'take' limits.	<ul style="list-style-type: none"> - Receive and review applications by contractors for removal of unavoidable trees at roads right of way - Member of land acquisition and resettlement valuation committee to valuate crops and trees at acquired lands.
Local Municipalities	Municipalities are independent and elected civil society institutions established under Local Administration Law No. 22 of 2021. They have several responsibilities including strategic urban and development planning, management of all municipal services including road and municipal waste management, implementing sustainable	<ul style="list-style-type: none"> - Issue construction permits for water networks at roads right of ways - Issue construction license for in-network water reservoirs - Issue approvals for traffic diversions in coordination with traffic department

	programs with community participation, protecting the environment and public health and issue of construction approvals and licenses	<ul style="list-style-type: none"> - Define construction dump sites for construction waste - Inspect construction sites regarding public safety, traffic safety, and environmental protection applied measures - Inspection and approval for construction site reinstatement
Ministry of Public Works and Housing	Responsible for connecting cities, villages, human settlements and economic clusters, and with neighboring countries through constructing and maintaining high quality and safe roads.	Same role of local municipalities for construction works at main roads under responsibility of the ministry (roads connects governorates)
Ministry of Health (MoH)	Responsible for the health sector in Jordan, and for community health and safety. It operates most hospitals and clinics and collects data on health indicators.	<ul style="list-style-type: none"> - Issue medical fitness certificates for migrant labor
Ministry of Labour (MoL)	Responsible for the protection of workers' health and safety and has requirements on health checks, provision and use of protective equipment and operational procedures for employees in different types of industry.	<ul style="list-style-type: none"> - Inspect construction for applied OHS management and workers protection applied measures and working conditions - Define OHS management requirements according to local regulations
The Royal Department for Environment and Tourism Protection	The Royal Department for Environment and Tourism Protection is one of the PSD units followed to the assistant of public security director for judiciary. The department has been restructured by order of the Director of Public Security on 3/9/2020. The Department is followed in a technical side with the Ministry of Environment, the Ministry of Tourism and Antiquities and a number of partners related to environment and tourism affairs under agreements and memoranda of understanding. Among the departments roles are contributions to the implementation of national plans and strategies related to the environment, Enforcement of laws and all legislation related to the environment, supporting the authorities concerned with the environment and follow up on environmental and issues, accidents, reports and complaints	<ul style="list-style-type: none"> - Inspection of construction site in collaboration with MoEnv. - Enforcement of environmental regulations if any violation observed at construction site - Issue of environmental fines for Project machineries and vehicles that generate excessive emissions
Joint Services Councils (JSCs)	Responsible for MSWM upon JSCs Regulation of 2016 dealing with management of municipal waste landfills and construction	Receive generated municipal and construction waste by the project

	waste dump sites	
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Table 1 : Responsible local agencies and their mandates in relation to project scope

3.2 Project Relevant Environmental and Social Regulations

This section presents at table 2 below the relevant national regulations and standards to the project that the project must comply with during implementation.

Table 2 : Key Laws and Regulations Relevant to the project

Project Component	Relevance to Regulation	Relevant Project Sub-component / Activity
The Environment Protection Law No. 6 of 2017 This law promotes sustainable development and environment protection where all projects or activities that might have environmental effects must conduct environmental impact assessment		
Component 1. Improving the efficiency of water supply services	NRW activities include physical construction and operation activities that would have potential environmental and social impacts that need to be addressed in compliance with law, such as rehabilitation of water system network, construction of in-network water reservoirs and construction of new warehouses	NRW reduction indifferent governorates
Component 2. Increased energy efficiency (EE) and reduced energy supply costs	Implementation of energy efficiency measures like installation of new energy saving equipment, reduce energy demand by pumping load shifting and increased dependence on renewable energy sources would protect the environment by contribution for emissions reduction	- Improving energy efficiency in the existing water systems. - Renewable Energy/Photovoltaics (PV) - Enabling Energy-Load Shifting in the Water Sector
	Construction and operation of solar PV plants would have potential environmental and social impacts that need to be addressed in compliance with law	Renewable Energy/Photovoltaics (PV)
Component 3. Drought management and informed water allocation	This component will include rehabilitation assessment and detailed design for selected water storage dams. This assessment must consider potential environmental and social impacts of the rehabilitation activities. Also, this component will include rehabilitation of water wells which usually is associated with environmental and social impacts that needs proper assessment and mitigation	Assessment of water storage system rehabilitation needs.

Environmental Classification and Licensing System No. 69 of 2020:

This regulation elaborates the classification of all development, economic and infrastructure projects based on its likely impact on the environment into 4 categories; high risk projects that have significant adverse impacts which require a comprehensive ESIA, medium risk projects that have medium impacts and require preliminary EIA, limited risk projects that may have limited impacts and require environmental approval without performing an assessment, and low risk impacts that have low risks and do not need MoEnv.'s approval but just to comply with legally required mitigation measures. The regulation provides a list of sectors and projects under each category in the annexes of the regulation. The regulation describes requirements for comprehensive and preliminary ESIA process and the content of ESIA reports that must be submitted for obtaining the environmental approval. Projects that are not listed at each of these annexes must apply for the MoEnv. to define requirements to obtain environmental approval.

The Jordanian Environmental Classification and Licensing No. 69 of 2020 has annex 1 the risk classification of projects in order to determine the required ES assessment and management tool to mitigate potential risks of these projects. In general, there are 4 classifications of projects:

- (a) High Risk Projects: projects that have adverse impacts on environment and environmental services, or cause a complicated impacts and have an adverse impact on human health, or require a special mitigation measures. These projects require a full ESIA to obtain environmental permit
- (b) Medium Risk Projects: Projects has potential medium risks on environment, or environmental services, or on human health, and require special mitigation measures. These projects require preliminary ESIA to obtain environmental permit
- (c) Limited Risk Projects: Projects that have limited impacts on environment and or environmental services and limited to the location of the project. These projects require to obtain environmental approval from the ministry of environment without performing any assessment.

Low Risk Projects: Projects that have low environmental risks or impacts and do not need MoEnv approval or permit The link below includes the regulation No 69 of 2020 and the projects classification lists.

http://moenv.gov.jo/ebv4.0/root_storage/ar/eb_list_page/%D9%86%D8%B8%D8%A7%D9%85_%D8%A7%D9%84%D8%AA%D8%B5%D9%86%D9%8A%D9%81_%D9%88_%D8%A7%D9%84%D8%AA%D8%B1%D8%AE%D9%8A%D8%B5_%D8%A7%D9%84%D8%A8%D9%8A%D8%A6%D9%8A_%D8%B1%D9%82%D9%85_69_%D9%84%D8%B3%D9%86%D8%A9_2022_%D8%A7%D9%84%D9%85%D8%B9%D8%AF%D9%84.pdf

Component 1. Improving the efficiency of water supply services	<ul style="list-style-type: none"> -New water supply networks for more than 250,000 inhabitants are considered high risk projects -Construction of structures to convey 20,000 cubic meters at considered high risk projects -Construction of warehouses for water meters repair and spare parts are considered low risk projects and does not require MoEnv. Approval 	NRW reduction indifferent governorates
Component 2. Increased energy efficiency (EE) and reduced energy supply costs	-Construction of solar PV plants of more than 20MW capacity are considered high risk projects and require a comprehensive ESIA	Renewable Energy/Photovoltaics (PV)

	<ul style="list-style-type: none"> -Construction of solar PV plants of 5 - 20MW capacity are considered medium risk projects and require a preliminary ESIA -Construction of solar PV plants of less than 5MW capacity are considered limited risk projects and require an approval from MoEnv. 	
Component 3. Drought management and informed water allocation	Dam projects are considered high risk projects and require a comprehensive ESIA, however, rehabilitation of dams is not listed at projects risks categories	Assessment of water storage system rehabilitation needs.
	Groundwater extraction is considered high risk projects and require a comprehensive ESIA, however, rehabilitation of wells is not listed at projects risks categories	
<p>Nature Reserves and National Parks Regulation No. 29 of 2005</p> <p>This regulation sets the nature reserves and national parks definitions, reasons for being established, the buffer zones around the nature reserves, and the management requirements for nature reserves and national parks. It request to define the management approach for the ecosystem services that nature reserves and national parks provide including grazing, collection of medicinal plants, and ecotourism.</p>		
Component 1. Improving the efficiency of water supply services	Major construction works are not allowed nature reserves and its buffer zone. Hunting, wood collection, disturbance of habitats is not allowed within nature reserves and its buffer zones.	Large diameter water conveyer systems between governorates need to be assessed and not to pass through nature reserves and its buffer zones
<p>Waste Management Framework Law no. 16 for the year 2020</p> <p>This law governs solid waste management in Jordan, the law consider the waste generator is the ultimate responsible for waste handling and disposal (extended responsibility principal), explains the roles and responsibilities of all related management authorities, explains the overall governance of solid waste management at national, regional and local levels, stipulate waste management planning and implementation frameworks, specifies pollution prevention measures which might occur by or due to waste management, and detail the inspection frameworks and penalties for non-compliance.</p>		
Component 1. Improving the efficiency of water supply services	<ul style="list-style-type: none"> -Construction activities at this component will generate waste (municipal and construction) -Water meters replacement may result in old meters that can't be repaired and will become waste metal. 	<ul style="list-style-type: none"> - PPP for NRW Reduction in Amman - NRW reduction in Amman, Balqa, Jerash, Ajloun and other governorates
Component 2. Increased energy	-Construction activities for solar PV plants will	- Improving energy efficiency in the existing water

efficiency (EE) and reduced energy supply costs	generate municipal and construction waste -Replacing equipment with energy efficient equipment will generate municipal waste (packaging material) and other types of waste relevant to other regulations.	systems. - Renewable Energy/Photovoltaics (PV)
Component 3. Drought management and informed water allocation	-Rehabilitation of water wells will generate municipal and inert waste (dry bentonite) that need to be managed according to this law -Waste management planning must be considered at the assessment of dams rehabilitation	Assessment of water storage system rehabilitation needs.
The Municipalities Law No. 41/2015		
The law defines municipalities roles in waste management, issuing construction permit, roads and traffic safety, and public health		
Component 1. Improving the efficiency of water supply services	-NRW construction for water networks to be performed will require construction permits from relevant municipality -NRW construction for water networks at roads right of way would affect roads and pedestrians' safety -NRW construction for water networks may require traffic diversion that require relevant municipality approval -Disposal of construction waste result from NRW water networks construction need approval from relevant municipality on disposal site	NRW reduction indifferent governorates
Component 2. Increased energy efficiency (EE) and reduced energy supply costs	-Construction of solar PV power plants require construction license from relevant municipality -Construction and municipal waste generated from construction of solar PV power plant require relevant municipality approval for disposal.	- Renewable Energy/Photovoltaics (PV)
Public Health Law No. 47 of 2008		
Ministry of Health is responsible for monitoring drinking water and water supply networks to ensure that the quality of drinking water meets the relevant Jordanian standards. The ministry perform monitoring program for water quality by testing samples from water resources and supply network at Ministries labs.		

Component 1. Improving the efficiency of water supply services	-NRW operational works will supply drinking water, and maintain water networks that may be contaminated and impact public health	- Replacement of old or damaged water networks will eliminate and or reduce potential contamination of drinking water supplied for households
<p>Hazardous Materials and Waste Management Regulation No.68 of 2020: This regulation sets the responsibility of monitoring hazardous waste management under MoEnv., and defines the classification of hazardous waste and the disposal method at hazardous waste landfills in the country. Handling and transporting of hazardous materials and waste., prohibit random disposal of hazardous material and waste into soil and water resources, defines requirements for temporary storage of hazardous waste prior disposal to hazardous landfill.</p>		
Component 1. Improving the efficiency of water supply services	-NRW construction works may generate hazardous waste by construction machinery oil spills -Although areas that may still have asbestos or asbestos contained materials (ACM) were excluded from the project but there is still a chance to find hazardous material which need to be considered	NRW reduction indifferent governorates
Component 2. Increased energy efficiency (EE) and reduced energy supply costs	-Construction and operation of solar PV power plants may result in damaged PV panels during installation or maintenance -Operation of solar PV power plants includes use of lubricants and oils for tracking systems and invertors which may generate hazardous waste	- Renewable Energy/Photovoltaics (PV)
Component 3. Drought management and informed water allocation	-Rehabilitation of water wells includes use of chemical materials (acids) that need to be handled and disposed according to the law -Hazardous materials and waste must be considered at the assessment of dam rehabilitation	Assessment of water storage system rehabilitation needs.
<p>Labor Law No. 8 for the year 1996 and its amendments The law defines work obligations and rights for employees as well as the obligations of the employer in terms of providing safe work environment, wages, working hours, paid annual and sick leaves, adequate code of conduct and suitable welfare for employees. The Jordanian Labor Law protects women from discrimination with additional maternity rights.</p>		
All Project Components	Except for civil servants, this law applies for all types of workers and their contractual relations with the project	All activities

Component 1. Improving the efficiency of water supply services	Construction and maintenance work for NRW reduction measures include OHS risks for workers that need to be managed according to the law OHS risk on workers in case of asbestos chance find shall	- NRW reduction indifferent governorates
Component 2. Increased energy efficiency (EE) and reduced energy supply costs	Construction and maintenance work for solar PV plants include OHS risks on workers that need to be managed according to the law	Renewable Energy/Photovoltaics (PV)
Social Security Law No. 1 of 2014 and its amendments		
This law regulates the national insurance system for all labor in Jordan who must be above 16 years old regardless of nationality and gender. This law provisions the types of insurance that laborers and their inheritors are entitled to, for work injuries, retirement, disabilities, death, maternity, unemployment and health.		
All Project Components	Except for civil servants, this law applies for all types of workers and their contractual relations with the project	All activities
The Real Estate Law (REL) No. 13 of 2019:		
The aim of this law was to create a stable legal framework for the real estate sector that comprises 60% of fixed assets in the country, and directly impacts the national economy. This new law will have economic and social benefits that previous laws have not considered including incentivizing the investment in the real estate sector. However, for the land acquisition process, the major differences between the previous law and the new one is to define properly the time frame for implementing the acquisition process, and to expedite the compensation process.		
Component 1. Improving the efficiency of water supply services	Construction activities for NRW reduction measures may result with economic displacement and restrictions for access to assets	- NRW reduction indifferent governorates
The Antiquities Law No.23 of 2004 and its amendments, simultaneously read with The Antiquities Law No. 21 for the year 1988		
Component 1. Improving the efficiency of water supply services	Construction works for NRW reduction may result in chance find of archaeological findings	NRW reduction indifferent governorates

3.3 Other Relevant Regulations to the Project:

In addition to the above-mentioned regulations, and due to the wide variety of activities involved in the project, other regulations and standards are still applied for the project to be considered during implementation. Annex 1 contains list of additional regulations and their relevance to the project

3.4 World Bank Environmental and Social Management Framework and Relevant Standards (ESSs)

3.4.1 Environmental and Social Framework (ESF)

The World Bank Environmental and Social Framework sets out the World Bank's commitment to sustainable development, through a Bank Policy and a set of Environmental and Social Standards that are designed to support Borrowers' projects, with the aim of ending extreme poverty and promoting shared prosperity. There are ten Environmental and Social Standards (ESSs). The ESSs set out the requirements for borrowers relating to the identification and assessment of environmental and social risks and impacts associated with projects supported by the Bank through Investment Project Financing. The application of these standards, focusing on the identification and management of environmental and social risks, will support borrowers in their goal to reduce poverty and increase prosperity in a sustainable manner for the benefit of the environment and their citizens. The ESSs are:

- ESS1: Assessment and Management of Environmental and Social Risks and Impacts.
- ESS2: Labor and Working Conditions.
- ESS3: Resource Efficiency and Pollution Prevention and Management.
- ESS4: Community Health and Safety.
- ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement.
- ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources.
- ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities.
- ESS8: Cultural Heritage.
- ESS9: Financial Intermediaries.
- ESS10: Stakeholder Engagement and Information Disclosure.

Details of ESSs can be found at WB website,

<https://thedocs.worldbank.org/en/doc/837721522762050108-0290022018/original/ESFFramework.pdf>

These relevant WB ES standards are discussed in section 3.5.1 below.

3.5 Operational Policy 7.50 Projects in International Waterways

This policy applies to the following types of international waterways:

(a) any river, canal, lake, or similar body of water that forms a boundary between, or any river or body of surface water that flows through, two or more states, whether Bank¹members or not;

(b) any tributary or other body of surface water that is a component of any waterway described in (a) above; and

(c) any bay, gulf, strait, or channel bounded by two or more states or, if within one state, recognized as a necessary channel of communication between the open sea and other states-- and any river flowing into such waters.

2. This policy applies to the following types of projects:

(a) hydroelectric, irrigation, flood control, navigation, drainage, water and sewerage, industrial, and similar projects that involve the use or potential pollution of international waterways as described in para. 1 above; and

(b) detailed design and engineering studies of projects under para. 2(a) above, including those to be carried out by the Bank as executing agency or in any other capacity.

3.6 World Bank Group General Environmental, Health, and Safety (EHS) Guidelines and Technical Note

The project will further apply the World Bank Group General EHS Guidelines (2007), and EHS guidelines for water and sanitation which are guidelines that contain the performance levels and measures that are acceptable to the WB. Where the national regulations differ from the levels and measures presented in these guidelines, the Project will aim for whichever is more stringent.

The General EHS guidelines contain information on cross-cutting environmental, health, and safety issues potentially applicable to all industry sectors, where details on content (environment, community health and safety, workers health and safety, construction, demolition) is included in the link:

<https://www.ifc.org/wps/wcm/connect/29f5137d-6e17-4660-b1f9-02bf561935e5/Final%2B-%2BGeneral%2BEHS%2BGuidelines.pdf?MOD=AJPERES&CVID=nPtguVM>

The following Good Practice Notes will also be consulted to ensure that mitigation measures developed are aligned with best industry practices: Addressing sexual exploitation and abuse and sexual harassment (SEA/SH) in Investment Projects Financing involving in major civil works, 2020; Addressing Gender based violence in Investment Project Financing involving major civil works, 2018; Gender, 2019; Road safety, 2019; and managing the risks of adverse impacts on communities from temporary project induced labor influx, 2016.

The WB Technical Note “Public Consultations and Stakeholder Engagement in WB-supported operations when there are constraints of conducting public meetings” (2020), will also be applied. This Technical Note makes due reference to the WHO technical guidance in dealing with COVID-19, including: Risk Communication and Community Engagement Action Plan Guidance Preparedness and Response; Risk Communication and Community Engagement (RCCE) readiness and response; COVID-19 risk

communication package for healthcare facilities; Getting your workplace ready for COVID-19; and a guide to preventing and addressing social stigma associated with COVID-19.

EHS Guideline for Water and Sanitation

According to the project scope and design, water distribution guidelines are relevant to the project activities under component1. The most significant environmental issues associated with operation of water distribution systems include:

- Water system leaks and loss of pressure:

Water system leaks can reduce the pressure of the water system compromising its integrity and ability to protect water quality (by allowing contaminated water to leak into the system) and increasing the demands on the source water supply, the quantity of chemicals, and the amount of power used for pumping and treatment. Recommended measures to prevent and minimize water losses from the water distribution system include:

- Ensure construction meets applicable standards and industry practices
- Conduct regular inspection and maintenance;
- Implement a leak detection and repair program (including records of past leaks and unaccounted-for water to identify potential problem areas);
- Consider replacing mains with a history of leaks or with a greater potential for leaks because of their location, pressure stresses, and other risk factors.

- Water discharges

Water lines may be periodically flushed to remove accumulated sediments or other impurities that have accumulated in the pipe. The major environmental aspect of water pipe flushing is the discharge of flushed water, which may be high in suspended solids, residual chlorine, and other contaminants that can harm surface water bodies. Recommended measures to prevent, minimize, and control impacts from flushing of mains include:

- Discharge the flush water into a municipal sewerage system with adequate capacity;
- Discharge the flush water into a separate storm sewer system with storm water management measures such as a detention pond, where solids can settle and residual chlorine consumed before the water is discharged;
- Minimize erosion during flushing, for example by avoiding discharge areas that are susceptible to erosion and spreading the flow to reduce flow velocities.

Further details on EHS Guidelines for water and sanitation sector :
<https://www.ifc.org/wps/wcm/connect/Od8cb86a-9120-4e37-98f7-cfb1a941f235/Final%2B-%2BWater%2Band%2BSanitation.pdf?MOD=AJPERES&CVID=nPtk0wW>

3.7 Relevant World Bank ESSs to the Project

According to the project description in section 2, and the proposed activities under project's components, the following ESSs are relevant to the project:

9- ESS1: Assessment and Management of Environmental and Social Risks and Impacts:

This standard is relevant to components 1 where NRW reduction activities require to be assessed for potential environmental and social impacts result from these activities. Also, the standard is relevant to component 2 that includes construction of solar PV plants that has environmental and social impacts that need to be assessed and mitigated. Component 3 will have assessment for rehabilitation of existing dams and development of detailed design and tender document. This assessment shall include environment and social assessment for proposed rehabilitation plan and proposed design. In addition, this component aims for rehabilitation of existing water wells which requires physical works and use of chemicals that need to be assessed according to ESS1.

10- ESS2: Labor and Working Conditions:

This standard is relevant to the project. As per ESS2 categorization of workers, the project workforce will include direct workers in PIUs and PMD, contracted workers, and primary suppliers. The most significant project labor risks are related to the various civil works, particularly for vulnerable workers, and at sub-contractor level

Construction works of NRW reduction under component 1, and solar PV plants under component 2 are associated with labor related risks such as OHS and other labor and working conditions. Any assessments for water storage structures (dams) shall also consider labor related risks.

11- ESS3: Resource Efficiency and Pollution Prevention and Management:

Component 1 aims to preserve water resources by applying NRW physical reduction measures, energy efficiency at component 2 contribute to reduced emissions and energy conservation. Physical works under components 1, 2 and 3 are expected to produce construction, domestic and hazardous waste that need to be managed and mitigated. Additionally, the rely on using water tankers during rehabilitation of networks, impacts related to quality of water tankers used under the project which should be monitored by the water service providers to ensure reducing hygiene impact.

12- ESS4: Community Health and Safety:

Construction works for NRW reduction under component 1 at residential areas would have potential risks on public and surrounding communities that need to be properly avoided and managed.

13- ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement:

Land acquisition is unlikely but NRW reduction construction activities under component 1 would cause economic displacement risks especially in populated areas with commercial activities.

14- ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources:

Component 3 of the project must consider applying mitigation hierarchy of biodiversity conservation under the environmental and social impact assessment process for all studies including dams' rehabilitation due to the importance of the dams surrounding habitats for biodiversity. On the other hand, low risk of biodiversity during

the construction of water transmission lines may be expected under component 1 for NRW reduction where works will be implemented of areas of less biodiversity values will have potential impacts such as impacting wildlife due traffic and machinery, interim disturbance to natural habitat, inappropriate workers acts as hunting

killing of wildlife, wood collection for fire, etc. .

15- ESS8: Cultural Heritage:

Construction work under components 1 & 2 may result with chance find of some archaeological remains especially at governorates of Amman and Jerash that are relatively rich with cultural heritage.

16- ESS10: Stakeholder Engagement and Information Disclosure:

All project components involve stakeholders that IAs need to engage and consult with based on their relationship with the project implementation activities in order to consider their concerns and, interest in the project.

3.8 Gap Analysis of Local Regulations Relevant to World Bank ESSs

This section compares local relevant regulations to the project with WB ESS requirements, along with MWI strategy to address gaps identified through this analysis. Table 7 below presents this analysis.

WB ESS	Local Regulations	Gap Identified	MWI Strategy to Fill Gap
ESS1: Assessment and Management of Environmental and Social Risks and Impacts	<ul style="list-style-type: none"> - The Environment Protection Law No. 6 of 2017, Environmental Classification and Licensing System No. 69 of 2020 meet with most of the standard requirements related to environmental assessment and protection. - Environmental Classification and Licensing System No. 69 of 2020 requires assessment and management are required only for for high and medium risks projects or activities through EIA process 	<ul style="list-style-type: none"> - ESMF is not legally required - No legal obligations for assessing limited or low risk projects and activities - Social impacts not well addressed at EIA process - EIA processes have weak stakeholder engagement requirements - There are no environmental and social assessment requirements for limited and low risks projects - 	<ul style="list-style-type: none"> - ESMF provide E&S guidance on the overall E&S management for the Project lifecycle (screening until closure) is developed - IAs will conduct environmental and social screening for all performed activities, to identify required risks management tool - Social aspects are integrated into the ESMF. Issues related to working conditions resettlement have been addressed at developed LMP and RF respectively. - ESMPs and associated checklists will be management tools applied at the project, proportionate to the risk - A Stakeholder Engagement Plan has been prepared for the project -
ESS2: Labor and Working Conditions	<ul style="list-style-type: none"> - Labor and working conditions are legally addressed at Labor Law No. 8 for the year 1996 and its 	<ul style="list-style-type: none"> - Enforcement of labor regulations is an issue in Jordan which lead to poor working conditions at 	<ul style="list-style-type: none"> - LMP has been developed to address all labor issues consistent with ESS2 including

WB ESS	Local Regulations	Gap Identified	MWI Strategy to Fill Gap
	<p>amendments</p> <ul style="list-style-type: none"> - Random inspection for working conditions performed - Major accidents are legally investigated especially those related to social security compensation 	<p>construction sites, non-payment or delay in wages payments, child labor, excessive overtime, and unclear employment terms and conditions especially for migrant and refugees workers</p> <ul style="list-style-type: none"> - Part time and daily /casual workers who work less than 16 days a month insured at social security according to Social Security Law No. 1 of 2014 and its amendments Labor rights disputes are not illegible to be claimed in court after 2 years of dispute date - MOL directorates are not supported with sufficient number of inspectors to provide effective geographic coverage at their regular inspection programs. 	<p>risks for vulnerable workers (especially for migrants and refugees). Measures include but are not limited to:</p> <ul style="list-style-type: none"> -All aspects of employment including recruitment and payment should respect the principles of non-discrimination and equal opportunities. - All workers shall be provided with clear terms and conditions of employment. - All Contractors and Sub-contractors shall have insurance to cover accidental injury and death for all project workers. - Worker’s grievance mechanism has been developed to address any dispute at the project at early stage - Specific competency for OHS staff assigned under construction supervision consultants and contractors, will be required within tender document - Construction supervision consultants will be at site to monitor all activities including

WB ESS	Local Regulations	Gap Identified	MWI Strategy to Fill Gap
			those related to labor
<p>ESS3: Resource Efficiency and Pollution Prevention and Management</p>	<ul style="list-style-type: none"> - Waste Management Framework Law no. 16 for the year 2020 in general promote pollution prevention and management - Hazardous material and waste are well addressed in regulations - Hazardous waste landfill available in the country - Efficient resource use is nationally encouraged especially for water and energy 	<ul style="list-style-type: none"> - Specific procedures do not cover all types of hazardous waste - One hazardous landfill at the country may result with non-compliance practices by waste generators due to relatively high transporting cost and disposal - No waste segregation and recycling regulations - Although different regulations present, however, no integrated or clear guidelines to handle the management process of the hazardous waste specifically the Asbestos, where MoEN, MoH, MoL are all responsible and all have regulatory guidance that no integration of the multi-institutional requirements set on national or project level 	<ul style="list-style-type: none"> - ESMF of the project requires addressing pollution prevention mitigation measures at ESMPs including waste management, hazardous waste management, water takers quality monitoring,, consideration of ESHS guidelines of the WB to implement the project safely with consideration of the Good International Industrial Practices (GIIP). - Due weakness in preparation and implementing Asbestos Management Plans, where burying of asbestos of pipes has been the case under many projects implemented through WAJ, the Bank advised preparation of clear actions and guidance for handling and management of asbestos if incidentally uncovered at aby sub-project, prepared under the Annex 10 Asbestos Management Plan. - Hazardous waste management plan

WB ESS	Local Regulations	Gap Identified	MWI Strategy to Fill Gap
			<ul style="list-style-type: none"> - will be developed for each specific sub-project - Waste management records of collection and disposal are required by the project's ESMF
<p>ESS4: Community Health and Safety</p>	<ul style="list-style-type: none"> - Environmental Classification and Licensing System No. 69 of 2020 requires assessment and mitigation of risks on project's surrounding communities through the EIA process. - Hazardous Materials and Waste Management Regulation No.68 of 2020 prohibit pollution of soil and water resources with hazardous waste that also affects public health The Municipalities Law No. 41/2015 define road and traffic safety requirements through the regulating construction permit system - Public Health Law No. 47 of 2008 give the mandate to MoH to monitor drinking water quality at water sources and supply networks - 	<ul style="list-style-type: none"> - No well-defined legal provisions emergency preparedness and response - No well-established legal procedures for public safety at construction activities - Overlap of responsibilities of different institutions, may affect proper enforcement of relevant regulations. - SEA/SH are not legally considered as potential risk on public during projects implementation, although its legally considered as criminal act once occurred - No specific regulations for dams safety, although JVA has a dam safety committee in addition to The National Dams Safety Committee that include experts from different sectors in dams structural 	<ul style="list-style-type: none"> - ESMF outlines mitigation measures for community health and safety. - ESMPs for specific sub-projects must include adequate mitigation measures for relevant risks consistent with ESS4 such as traffic and road safety (including vehicles), measures to protect workers and the public from SEA/SH - daily supervision by supervision consultant will be applied for mitigation measures application at site - SEA/SH are considered as potential labor risk, and proportionate mitigation measure will be implemented - TA in the project will include specialized experts in dams' safety to ensure related risks are considered and mitigated properly.

WB ESS	Local Regulations	Gap Identified	MWI Strategy to Fill Gap
	<ul style="list-style-type: none"> - - Labor Law No. 8 for the year 1996 and its amendments protects workers from occupational diseases arising at their place of work and may requires medical check for communicable diseases for certain jobs. 	<p>safety.</p>	
<p>ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement</p>	<ul style="list-style-type: none"> - Regulations well addressed compensation process for land acquisition - Economic displacement is partially covered by local regulations, however, there are caps for compensation are set by the courts and the amounts are typically not sufficient for replacement cost, particularly for tenants. PAPs can appeal in the court. - Negotiation process with PAP is performed according to the law - Regulations encourage avoidance of land acquisition as much as applicable 	<ul style="list-style-type: none"> - Eligibility criteria for compensation considers landowners and officially contracted tenants - Economic displacement is not well considered by law and mainly defined by court - PAP engagement is not at early planning stage of the process - Ecosystem services are not considered by local regulations 	<ul style="list-style-type: none"> - Land acquisition and resettlement avoidance principle will be adopted for the project - RF has been developed for the project that meets ESS5 requirements - RPs will be developed for sub-projects when needed according to RF - PAPs engagement must be performed during RPs development as per RF and SEP.
<p>ESS6: Biodiversity Conservation and Sustainable Management of</p>	<ul style="list-style-type: none"> - Nature Reserves and National Parks Regulation No. 29 of 2005.Regulates 	<ul style="list-style-type: none"> - Biodiversity outside nature reserves is not well protected, where biodiversity 	<ul style="list-style-type: none"> - ESMF of the project requires application of mitigation hierarchy including

WB ESS	Local Regulations	Gap Identified	MWI Strategy to Fill Gap
Living Natural Resources	<p>biodiversity protection at nature reserves and parks, in addition to biodiversity special conservation areas outside nature reserves and national parks.</p> <ul style="list-style-type: none"> - Wildlife hunting regulations are nationally developed - Land use master planning is existing at the national level 	<p>protection is enforced at protected areas or national parks as defined at Nature Reserves and National Parks Regulation No. 29 of 2005.</p> <ul style="list-style-type: none"> - Conservation of important areas like important bird areas and wetlands is not legally recognized - No legal protection measures for proposed protected areas defined at the national level - Access to ecosystem services and natural resources is not well regulated although local communities dependence on these resources is quite low 	<p>proper mitigation measures for ecosystem services and biodiversity conservation at sub-projects ESMPs</p> <ul style="list-style-type: none"> - Biodiversity conservation will be assessed under ESIA prepared for specific sub-projects
ESS8: Cultural Heritage	<ul style="list-style-type: none"> - Cultural heritage regulations are well established - Chance find procedure is generally considered at regulations 	<ul style="list-style-type: none"> - Intangible heritage is not well considered at regulations and at ESIA process - Regulations enforcement for unprotected heritage sites is an issue in Jordan 	<ul style="list-style-type: none"> - A chance find procedure developed under ESMF and will be included in each sub-projects ESMPs in the project and included in bidding documents.
ESS10: Stakeholder Engagement and Information Disclosure	<ul style="list-style-type: none"> - Engagement of stakeholders is nationally encouraged at policy and strategic level levels - Consultation with stakeholders is legally required for comprehensive ESIA 	<ul style="list-style-type: none"> - No defined regulations for stakeholder engagement during project implementation - Only comprehensive ESIA requires stakeholder engagement 	<ul style="list-style-type: none"> - ESIA developed for specific sub-projects will be publically disclosed at MWI website - SEP is developed for the project to ensure proper engagement of all relevant stakeholders

WB ESS	Local Regulations	Gap Identified	MWI Strategy to Fill Gap
	<ul style="list-style-type: none"> process - Well established grievance mechanism for water sector in Jordan - Public grievances are mainly resolved by court at different sectors 	<ul style="list-style-type: none"> - No public disclosure requirements at ESIA process - No legal requirements to develop grievance mechanism at projects level - Vulnerable groups do not have special engagement considerations. 	<ul style="list-style-type: none"> including vulnerable groups - Public grievance mechanism for the project has been established (ref. SEP) - Specific sub-project ESMPs will include proper measures for community engagement and information disclosure

Table 3: Analysis of Local Regulations vs. World Bank

4. Environmental and Social Baseline Conditions

Project activities will take place throughout the kingdom of Jordan, This section provides background information about Jordan. Site specific baseline data will be analyzed once the proposed sub-project locations are identified.

In order to discuss the environmental and social baseline conditions, an overview of the water sector in Jordan is prepared to create a better understanding of the situation against the current status. The overview describes the current status of the water sector, Sources of water (Surface water including rivers and dams, Ground water and nonconventional sources of water), water quality, water sector utilities, water uses and challenges and the management of the water sector.

The physical environment including location, topography, climate and rainfall, the Social and demographic status, Cultural Heritage and the Nature and Biodiversity of the country are discussed in Annex 2.

5. Assessment of Environmental and Social Impacts

This section presents the anticipated major environmental and social risks and impacts (positive and negative) that are likely to be associated with the implementation including construction and operation of the proposed project. The overall environmental risks of the project are classified as **Substantial**, while social risks of the project are classified as **Moderate**, where both risks need to be managed properly according to this ESMF guidance and requirements. Table 4 below presents the potential impacts of the project.

On the other hand, while the project includes rehabilitation of water network and wells, the project is not expected to result in extra abstraction of water quantities from national or international water aquifers. The consumption of water is not expected to increase, considering that the available water quantities in Jordan are limited, and the project will enhance water supply for beneficiaries by reducing physical losses in NRW without increasing water abstraction from the aquifers. ES requirements will follow the requirements in legal agreements in terms of shared water resources. On the other hand, studies under component 3, the terms of reference will include the international waters considerations be included in relevant studies

Project Component	Impact / Risk	Type of Impact / Risk	Negative Impact / Risk Rating
Component 1: Sustainable non-revenue water reduction			
Improved service delivery and NRW reduction	Preserve water resources through repair and replacement of damaged water networks and stop the physical loss of water	Positive	-
	Improve the hygiene and livelihood of beneficiary communities by maintaining a proper supply of water for households	Positive	-
	Create job opportunities for locals especially during the construction phase	Positive	-
	Air Pollution by Dust and Exhaust Emissions during construction by excavation works and machineries movement	Negative	Low – Moderate The major excavation works will be for relatively small trenches of secondary and tertiary water pipes and at the RoW of public roads and for short distances where the generated excavation materials are not large in volume. At same time, large excavation machineries that that may produce excessive exhaust emissions at are expected to be limited
	Noise Pollution by construction and maintenance works	Negative	Moderate The construction works will mainly be done during in the day time and construction works areas for secondary and tertiary water networks is relatively limited in area and time to complete
	Soil and Groundwater Pollution / Contamination by oil and fuel leaks during construction and operation works	Negative	Low The major construction works will be at the RoW or at paved roads, in addition to the relatively small excavated areas for water networks and in-network storage tanks
	Soil Erosion by Flood	Negative	Low to Moderate

	Hazards at large excavated trenches		Excavations will be less in numbers comparing with those for secondary and tertiary water networks, and open trenches are not allowed by law to be for long distances and for long period
	Waste Generation and Management	Negative	Moderate Construction waste comprise of excavated materials and debris will be generated from trenches, manholes pits. Domestic solid waste comprises of office and site trash or letters and food waste. Domestic liquid waste is mainly water leak during network pipes replacement. Hazardous waste is mainly by used oil and lubricants containers. All types of construction waste above are expected to be limited to construction sites and in limited quantities at each location
	Asbestos (ACM) Management	Negative	Substantial None of the potential work location under this sub-component has a proven ACM pipes at the existing water network. According to local regulations ACM materials are banned from use and importing, and previous existing ACM are considered hazardous and must be disposed hazardous landfill once being damaged. Jordan has no specific ACM handling procedure, however, Ministry of Environment must be notified once such material is discovered to advise and monitor disposal process. This risk has been considered as may old networks could contain ACM pipes, and for this very low probability the risk is rated as substantial and not high.
	Biodiversity and Natural Habitats	Negative	Low- Construction works are manly on RoW of public road in areas of low biodiversity values. However, potential Biodiversity Risks include: - Wildlife Hunting / Killing by Workers: Construction works may have risk of killing or hunting wildlife by workers,

			<p>however this risk is considered Low because construction works for water networks is mainly at RoW of public roads.</p> <ul style="list-style-type: none"> - Wood Collection for Fire: Construction activities may occur at locations that have natural vegetation and trees where workers may collect wood for fire. This impact is of Low significance because construction works are mainly at RoW of public roads, with short construction periods at the site. Same applied for wells rehabilitation, where rehabilitation work will be limited at exiting water wells sites. - Accidental Killing by Traffic: The movement of construction vehicles and machineries may result in wildlife killing. This impact is expected to be Low as most of the works is expected in area of low biodiversity value and , however, potential high disturbance at construction sites might cause temporary impact of reducing the presence of wildlife species at these sites, . 	
	Public Disturbance Management	Traffic and	Negative	<p>Moderate</p> <p>Construction and maintenance will be mainly at RoW of public roads which may cause disturbance and diversion for public traffic. However construction work duration is expected to be short at each work location especially inside residential areas, that would reduce the likelihood of traffic disturbance</p>
	Community Health & Safety		Negative	<p>Moderate</p> <p>Construction activities will be at residential areas and at RoW of public roads would expose locals for health and safety risks including traffic accidents, fall at deep excavations, and falling of lifted objects. Communicable transmittal diseases are also a risk due to the recruitment of migrant workers. SEA/HS is a risk that the project may be create at the females within project communities during construction</p>

			works. These risks are generally managed by the existing systems related to construction permit system by relevant authority where mandatory safety precautions are required to obtain construction permit. Work permit system for migrant workers requires medical check prior issuing permit for migrant workers. Migrant workers are well exist at construction sector and those workers are aware of community and social values , even most of these migrants and refugees are from neighbour countries that have community culture very close to that in Jordan. The number of workers at each work location is expected to be low at work locations close or within project communities and for short periods, therefore, the likelihood of these risks are low which reduced the overall risk rating
	Disruption of Water Supply	Negative	Moderate Construction works for NRW reduction under component 1 at residential areas may cause distribution of water supply due to replacement of damaged networks. This impact is considered Moderate to Substantial especially ifs works may last for duration longer than the water supply cycle at the work area.
	Disturbance of Other Utilities Services (electricity, communication and municipal):	Negative	Moderate - Excavation during construction works at public roads may cause damages for underground utilities services which will disturb the service supply to the community. Local regulations and through the court force workers to compensate these utilities with any damages and losses they make by their construction works, which the issue contractors avoid by consultation with these utilities at the design and planning phase. The rate of this risk depends on the cut periods of these services within the community and the level of damages made.

	Land Acquisition and physical displacement	Negative	<p>Low to Moderate</p> <p>All construction works will be at government or WAJ owned lands. However, There is a small potential of land acquisition required for in-network reservoirs based on the results of hydraulic modelling that will determine the locations for these reservoirs. Temporary physical displacement may applied for some kiosks or portable vegetable shelters that are illegally located at the RoW of public. This risk would trigger the preparation of RAP to be managed according to the RF of the project</p>
	Economic Displacement of Commercial and Trade Activities:	Negative	<p>Moderate</p> <p>This impact is temporary by construction works where distribution limitation of access for commercial centers and shops may cause economic losses and reduction of income for owners. Construction works in front of commercial centers and shops will be completed in short period and contractors are required by law to provide alternative access for these centers and shops. This risk will be managed through development of RAP and C-ESMP.</p>
	Socio-economic and Hygiene of Reliant on Illegal Connections:	Negative	<p>Moderate to Substantial</p> <p>Prior to construction, the contractor will perform Comprehensive Subscribers Survey to define physical water losses among which are illegal connections at targeted areas, Illegal connections can be identified by different approaches:</p> <ul style="list-style-type: none"> -Significant drop in water bill comparing with previous records without change in household use or family size -installation of a bypass before the water meter by the subscriber -Intentional damage of water meter by subscriber <p>These illegal connections are subjected</p>

			<p>to financial and jail penalties according to WAJ law. The current WCs response to these actions is to estimate quantities of water utilized by subscriber without charge, estimate the cost of these quantities, and to issue a bill with the total cost of utilized water, request the subscriber to pay the cost either at one or more instalment as agreed to close the case after signing a written commitment by the subscriber not to repeat such act. If subscriber refused to pay or can't pay, then water supply disconnected, and WC issue a case in the court against the subscriber.</p> <p>That may create economic pressure on these households who need to bring water by wells' tanker in a high price. That would force these households, especially the poor, to reduce water consumption in a way that may impact their hygiene and livelihood. The significance of this impact depends on the economic status of the households with illegal connections. Vulnerable groups among these reliant will be considered at early engagement to be informed prior the construction works with the proposed mitigations alternatives.</p> <p>(See annex # 15 and #16)</p> <p>MWI /</p> <p>Water Authority Law shall apply to all subscribers without discrimination.</p> <p>Employees adhere to the code of ethics to ensure that there is no bribery or corruption in the procedures, and there are awareness bulletins and advice on illegal use that are published on the websites.</p> <p>The Internal Control Unit implements the instructions to ensure integrity and transparency</p>
	Occupational Health and Safety (OH) impacts on Labor	Negative	<p>Moderate to Substantial</p> <p>Potential health and safety risks varies from those may cause minor injuries or</p>

			<p>harm to workers to those may cause imminent danger on workers lives. These risks include:</p> <ul style="list-style-type: none"> ○ Eye irritation and respiratory system allergic reactions by dust generated during excavation works ○ Fall from Height especially during construction and maintenance of elevated in-network water storage reservoirs (tanks) and at deep excavations. ○ Lifting operations and falling objects during construction and maintenance of water networks and in-network storage tanks under component 1. Rehabilitation of wells also includes lifting of drilling shafts which also may fall and comprise a risk on labor at site. ○ Confined Space Entry Construction of in-network storage reservoirs and excavation of deep trenches for primary networks or transmission pipelines would be associated with the risk of access and egress of these confined spaces and the need for adequate preparedness measures especially at emergency situations. ○ Muscle Fatigue and Backbone Injuries during Manual Handling and or Excavation. The construction manual handling and lifting for laying tertiary networks pipes, communication cables and warning tapes, and manual excavation may also be required for household connections are common practice that may cause muscle fatigues and or backbone injuries by malpractices. ○ Cuts and Wounds by Sharp Objects. Construction works for proposed activities under this component may include the use of sharp objects and tools for cutting and fitting pipes and other construction materials which could cause injuries
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			<p>with cuts and wounds for workers.</p> <ul style="list-style-type: none"> ○ Electrocution by Electrical Tools. Construction works will include using electrical tools for grinding cutting, in addition, upgrading of pump stations includes installation of pumps, and these activities have electrical shock risk for works. ○ Heat & Cold Stress. Construction works under this component will be performed outdoor under different weather conditions that could be extreme that impact labor working under such conditions ○ Traffic Accidents. Construction and rehabilitation works for water networks are mainly executed at the right of way of public roads and highways. Also construction works may involve traffic diversion when this activity is executed across or within these roads. The location of works can result in risk of collusion by mobile vehicles and construction machineries if no proper prevention and protection measures were applied. ○ Infection during Community Transmittal Diseases Outbreak. The outbreak of community transmittal diseases is a risk on workers during outbreaks as locations of the construction works for networks are within urban areas where the risk of infection of workers is high during outbreaks. ○ Exposure to Hazardous Material & Waste. Exposure of workers to hazardous waste is a potential risk during handling of hazardous materials including lubricants and during major spilled chemicals, ie machineries oil. Such hazards may cause eye and skin irritation
	Cultural Heritage Risk	Negative	<p>Low Excavation works may reveal underground archaeological remains especially at governorates that are rich</p>

			<p>with archaeological heritage sites such as Amman and Jerash. The probability of this chance find is very unlikely because local regulations prohibit excavation in the vicinity of known archaeological sites, and that will be considered at the planning and design where the known cultural sites will be avoided.</p> <p>Chance Find of cultural resources in any of the project locations still may be expected, therefore chance find procedures (Annex 14) shall be included in the ESMP's and bidding documents</p>
: Modernized systems for sustaining NRW reduction	Ensure that environmental and social aspects are well considered at Performance Based Contracts (PBCs) to implement environmental and social sound operations	Positive	-
	All Negative Impacts during construction and maintenance applied for Sub-component 1.2		
: Community engagement to improve financial sustainability, collections efficiency, and demand control	Increase the employability of women in household-related jobs and access to resources	Positive	-
	Enhance community awareness and capacity to control water demand	Positive	-
	Social unacceptance for women participation at plumbing training program and involvement at plumbing businesses	Negative	<p>Low to Moderate</p> <p>Plumbing is historical is a male restricted job due to the local culture, and the physical fitness this work requires. This would also reduce the availability of work opportunities for women, as time is needed to transform community perception in accepting women plumbers in the sector. The rate of this risk increases at rural areas where communities are more preservative than urban areas at main</p>

			cities.
	Low participation of women at the plumbers training program	Negative	Moderate Women who had less opportunities to obtain higher education to be involved at job market are more at rural areas, however, such areas also are more culturally resistant for women engagement at what was before a purely men job market. The project will present success stories from previous similar initiatives in order to encourage women participation.
Component 2: Increased energy efficiency and reduced energy supply costs			
Improving energy efficiency in the existing water systems	Contribute to the reduction of GHG emissions by applying energy saving measures	Positive	-
	Create job opportunities for locals especially during the construction phase	Positive	-
	Air Pollution by Dust and Exhaust Emissions during construction by excavation works and machineries movement	Negative	Low – Moderate The major excavation works will be for land levelling and foundations of mounting structures of solar PV pomdules, where the generated excavation materials are not large in volume. At same time, large excavation machineries that that may produce excessive exhaust emissions at are expected to be limited
	Soil and Groundwater Pollution / Contamination by oil and fuel leaks during construction and operation works	Negative	Low The construction activities that needs heavy machineries will be limited in number and duration of use due to the relative small size of solar PV plants at each construction location.
	Waste Generation and Management	Negative	Moderate Construction waste comprise of excavated materials and debris will be generated from civil works. Domestic solid waste comprises of office and site trash or letters and food waste. Domestic liquid waste is mainly water leak of rest room septic tank at site. Hazardous waste is mainly damaged

			<p>solar PV panels during construction, in addition to minor leaks of oil from construction machineries.</p> <p>All types of construction waste above are expected to be limited to construction sites and in limited quantities at each location</p>
	Biodiversity and Natural Habitats	Negative	<p>Low to Moderate</p> <p>Construction activities relate to construction of solar PV power plants and may be located within the vicinity of operating facilities, near or at natural landscape areas and are likely to affect biodiversity through creating disturbance during construction phase. However, no habitats fragmentation or ecosystem services related impacts are expected due to relative small land required to build these plants. Potential Biodiversity Risks include:</p> <ul style="list-style-type: none"> - Wildlife Hunting / Killing by Workers: <p>Construction works may have risk of killing or hunting wildlife by workers, however this risk is considered Low to Moderate because construction works for solar PV plants will be mainly at WAJ premises and lands</p> <ul style="list-style-type: none"> - Wood Collection for Fire: <p>Construction activities may occur at locations that have natural vegetation and trees where workers may collect wood for fire. This impact is of Low significance because construction works are mainly at WAJ premises and lands which also of limited sizes.</p> <ul style="list-style-type: none"> - Accidental Killing by Traffic: <p>The movement of construction vehicles and machineries may result in wildlife killing. This impact is expected to be Low to moderate as most of the works is expected in area of low biodiversity value and , however, potential high disturbance at construction sites might cause temporary impact of reducing the presence of wildlife species at these sites,.</p>
	Public Traffic	Negative	Low to Moderate

	Disturbance and Management		This risk if occurs will be limited to construction of solar PV plants that located at the exiting premises of WAI at populated areas and or close to public roads. The disturbance of traffic might be during the entrance and exist of vehicles and construction machineries to construction sites. This risk will be mitigated and managed by the site specific C-ESMP.
	Occupational Health and Safety Impacts on Labor	Negative	<p>Moderate to Substantial</p> <ul style="list-style-type: none"> ○ Eye irritation and respiratory system allergic reactions by dust generated during excavation works ○ Fall from Height especially during construction and maintenance of elevated mounting structure for solar PV plants. ○ Lifting operations and falling objects during construction and maintenance of solar PV panels. ○ Muscle Fatigue and Backbone Injuries during Manual Handling and or installation of solar PV panels. ○ Cuts and Wounds by Sharp Objects. Construction works for proposed activities under this component may include the use of sharp objects and tools for cutting and fitting which could cause injuries with cuts and wounds for workers. ○ Electrocutation by Electrical Tools. Construction works will include installation of electrical cables, panels and invertors, in addition to using electrical tools for grinding cutting, these activities have electrical shock risk for works. ○ Heat & Cold Stress. Construction works under this component will be performed outdoor under different weather conditions that could be extreme that impact labor working under such conditions ○ Infection during Community Transmittal Diseases Outbreak. The outbreak of community transmittal

			<p>diseases is a risk on workers during outbreaks as locations of the construction works for solar PV plants within urban areas where the risk of infection of workers is high during outbreaks.</p> <ul style="list-style-type: none"> ○ Exposure to Hazardous Material & Waste. Exposure of workers to hazardous waste is a potential risk during handling of hazardous materials including lubricants and during major spilled chemicals, ie machineries oil. Such hazards may cause eye and skin irritation
	Cultural Heritage	Negative	<p>Low</p> <p>Excavation for solar PV modules mounting system may needed depends on the design and location of the solar PV plant,</p> <p>Chance Find of cultural resources in any of the project locations still may be expected, therefore chance find procedures (Annex 14) shall be included in the ESMP's and bidding documents</p>
: Enabling energy management in the water sector	Contribute to the reduction of GHG emissions by applying energy saving measures	Positive	-
Component 3: Water security measures to underpin efficiency measures			
Strengthening drought management systems	Enhance climate change adaptation and resilience of refugees and hosting communities	Positive	-
	Support refugees working at agriculture sector to maintain livelihood adequate livelihood during drought periods	Positive	The activity will provide farmers with advance and informed tool with water availability for irrigation to improve advance planning of employment needs at the sector. This will notify in advance the refugees work in agriculture to seek work opportunity in other sectors
Safeguarding existing water storage	Ensure environmental and social impacts and risks related to dams rehabilitation are well	Positive	ESIA process will provide proper planning for ES risks elimination / mitigation and management The terms of reference for studies

	addressed and mitigated		under component 3 include the international waters considerations be included in relevant studies
Component 4. Project management and implementation support			
Project management and implementation support	Enhance management of ES aspects of SOP1 by IAs	Positive	
: PBC Verification support			
Component 5. Contingency Emergency Response			
		Positive	

Table 4: The potential impacts of the project.

5. Environmental and Social Screening Procedure

Environmental and social screening has been performed for the project components during the planning phase. This screening has result with identification of project level ES mitigations and instruments. Further Screening will be performed for each activity by each IA where further activities ES management and mitigation instruments shall be defined. Therefore, this section present the ES screening procedure that will be followed in the project.

5.1 E&S Screening Procedure

The identification of sub-projects and activities will follow a framework approach, where support for specific sub-projects will be agreed on an annual basis, accordingly the ESMF The ESMF has been developed to set the framework for managing related ES risks once sub-project and activity locations have been identified.

The purpose of the E&S screening stage, is to determine the sub-projects eligible for Project’s financing and to identify the Project’s potential adverse impacts and risks on the environment, society, consequently to determine the appropriate safeguard instruments and mitigation measures to manage those impacts. Environmental screening will be carried out at the stage of identification and selection of subprojects.

Each implementing agency will be responsible for screening their respective activities using the Procedure set out in this section. MWI will provide oversight and quality assurance for all sub-project screenings. The screening procedure will use the sub-project-specific E&S Screening Form (Annex 4), the E&S Screening template will be revisited once of the Project implementation starts to ensure it covers all aspects relevant for all components during construction and operation.

The E&S screening will be performed for all project components, as including works under component 1, 2 & 5 (CERC) that will be defined during implementation. Once these activities are defined, then it will be screened in order to ensure that activities are not under the exclusion criteria set out below. Project component 3 activities will be screened to ensure all activities proposed to be included under the studies doesn't fall in the exclusion criteria, and also activities will be screened to ensure including assessment requirements as per the ESS's and in accordance with the requirements of the international waters under the TOR's prepared for those assessment studies

5.2 The Project Exclusion (Eligibility Screening)

Consistent with World Bank ESF and guidelines requirements, the project will exclude any activities or expenditures that are likely to have adverse significant, sensitive, diverse, or unprecedented impacts to the environment and/or affected people. Such activities include significant land acquisition, economic or physical displacement or changes in land use, and significant impacts to critical cultural heritage sites or natural habitats.

The IA will apply the ES Screening Form at **Annex 4 (Section 4-SUBPROJECT ELEGIBILITY SCREENING)** to screening the subproject activities under Components 1,2, and 5 (the CERC) against the project exclusion list including but not limited to:

- a. Sub-projects with high ES risks according to Environmental Classification and Licensing System No. 69 of 2020
- b. Sub-projects that with high ES risk classification as per the World Bank ESF:
- c. The Sub-project is likely to generate a wide range of significant adverse risks and impacts on human populations or the environment. This could be because of the complex nature of the Project, the scale (large to very large) or the sensitivity of the location(s) of the Project. This would take into account whether the potential risks and impacts associated with the Project have the majority or all of the following characteristics: (i) long term, permanent and/or irreversible (e.g., loss of major natural habitat or conversion of wetland), and impossible to avoid entirely due to the nature of the Project; (ii) high in magnitude and/or in spatial extent (the geographical area or size of the population likely to be affected is large to very large); (iii) significant adverse cumulative impacts; (iv) significant adverse transboundary impacts; and (v) a high probability of serious adverse effects to human health and/or the environment (e.g., due to accidents, toxic waste disposal, etc.);
- d. The area likely to be affected is of high value and sensitivity, for example sensitive and valuable ecosystems and habitats (legally protected and internationally recognized areas of high biodiversity value), lands or rights of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities and other vulnerable minorities, intensive or complex involuntary resettlement or land acquisition, impacts on cultural heritage or densely populated urban areas.
- e. Some of the significant adverse ES risk and impacts of the Project cannot be mitigated or specific mitigation measures require complex and/or unproven mitigation, compensatory measures or technology, or sophisticated social analysis and implementation.
- f. d. There are significant concerns that the adverse social impacts of the Project, and the associated mitigation measures, may give rise to significant social conflict or harm or significant risks to human security.

- g. Sub-projects with excavation activities at areas known with water networks containing ACM pipes
- h. Sub-projects include activities within or affecting protected areas this includes *(a) sites of the Alliance for Zero Extinction (AZE), (b) natural and mixed sites on the UNESCO World Heritage List and (c) legally protected areas (IUCN categories) and, (ii) Any operation leading to an adverse and irreversible residual impact on a critical habitat; (iii) Any forest project or agricultural project with broad coverage (>100 ha) that does not implement a methodology ensuring zero-deforestation.*
- i. Sub-projects that will cause adverse significant degradation or pollution of the water resources.
- j. Sub-projects that have a high probability of serious adverse effects to human health and/or the environment (e.g., due to accidents, toxic waste disposal, etc.)
- k. Sub-projects that include any removal or impact on archaeological remains or cultural heritage sites

Eligibility Screening Findings:

- A. If the subproject has been screened and determined to be ineligible as per criteria above, the sub-project will be rejected without prior processes.
- B. If the sub-project doesn't fall under the ineligible list, the IA will proceed with the next step of the sub-project environmental and social screening and risk classification.

5.3 Subproject environmental and social risk classification criteria

National categorization

According to environmental classification and licensing regulation, MoEnv classifies projects according to their potential environmental risks into 4 categories:

- (a) High Risk Projects / Activities: Projects / Activities that can cause severe negative impacts on environment elements and services, and well as to human health, and they require to develop mitigation and control measures to eliminate or reduce these impacts. Such project must have a comprehensive EIA as part of the approval process. In relevance to SOP1, the following sub-projects / activities can be under this category:
 - 1. Any NEW activity under component 1 that serves more than 250,000 inhabitants, and /or include construction of water storage tanks of more than 20,000 cubic meter
 - 2. Any Solar PV power generation activity under component 2 of more than 20MW
 - 3. Where High Risk Activities are excluded unless they fall under the Substantial Risk Rating of the World Bank ESF.
- (b) Medium Risk Projects / Activities: Projects / Activities that have potential medium negative impacts on environment elements and services, and on human health, and they require to develop mitigation and control measures to eliminate or reduce these impacts. Such projects require preliminary EIA as part of the approval process. In relevance to SOP1, the

- following sub-project / activity can be under this category, any Solar PV power generation activity under component 2 of capacity between 5 MW and 20MW.
- (c) Limited Risk Projects / Activities: Projects / Activities that have potential impact on environment elements and services, and on human health limited to the project location. Such projects require environmental approval from MoEnv without going through EIA process. In relevance to SOP1, the following sub-project / activity can be under this category, any Solar PV power generation activity under component 2 of capacity less than 5 MW, which already a defined activity under component 2.
 - (d) Low Risk Projects / Activities: Projects / Activities that have potential low impact on environment elements and services, and on human health and limited to the project location. Such projects / activities do not require environmental approval from MoEnv. In relevance to SOP1, all activities under the project except those mentioned at points a, b and c above are under this category, in addition to those will be identified during implementation under component 5.

World Bank's categorization

Under the ESF, the WB classifies the projects based on the extent and potential magnitude of the impacts, projects are classified into:

- (a) High Risk Projects: are those can cause significant adverse environmental impacts that are diverse, irreversible and unprecedented; these projects are not eligible for finance and must be excluded.
- (b) Substantial Risk Projects: are those can cause adverse environmental impacts but can risks can be mitigated and managed. These projects require full ESIA.
- (c) Moderate Risk Projects: are those can cause medium risk that can be mitigated and managed through development of ESMP
- (d) Low Risk Projects: are those have low risks that require monitoring through a development of ESMP checklist

Similarly, the national regulations as identified under section 3.2.

The screening process shall be conducted in accordance with the qualitative approach described at the table below which provides guidance to determine the rating of the environmental and social risks. Environmental risks and impacts, include: (i) those defined by the EHSs; (ii) those related to community safety (including dam safety and safe use of pesticides); (iii) those related to climate change and other trans-boundary or global risks and impacts; (iv) any material threat to the protection, conservation, maintenance, and restoration of natural habitats and biodiversity; and (v) those related to ecosystem services and the use of living natural resources, such as fisheries and forests.

Social risks and impacts, including: (i) threats to human security through the escalation of personal, communal, or interstate conflict, crime, or violence; (ii) risks that project impacts fall disproportionately on individuals and groups who, because of their particular circumstances, may be disadvantaged or vulnerable (iii) any prejudice or discrimination toward individuals or groups in providing access to

development resources and project benefits, particularly in the case of those who may be disadvantaged or vulnerable; (iv) negative economic and social impacts relating to the involuntary taking of land or restrictions on land use; (v) risks or impacts associated with land and natural resource tenure and use, including (as relevant) potential project impacts on local land use patterns and tenure arrangements, land access and availability, food security and land values, and any corresponding risks related to conflict or contestation over land and natural resources; (vi) impacts on the health, safety, and well-being of workers and project-affected communities; and (vii) risks to cultural heritage.

For technical Assistance Studies under component 3, activities will be screened to ensure all activities proposed to be included under the studies doesn't fall in the exclusion criteria, and also activities will be screened to ensure including assessment requirements as per the ESS's and in accordance with the requirements of the international waters under the TOR's prepared for those assessment studies

Parameter	Evaluation Description	Rating
Spatial Influence	Within the project site	Low (1)
	Impact beyond site boundary; Local	Medium (2)
	Widespread impact beyond site boundary; Local	Substantial (3)
	Impact widespread far beyond site boundary; Regional/national	High (4)
Duration	Quickly reversible, less than project life, short term (0-2 years)	Low (1)
	Reversible overtime; medium term to life of project (2-4years)	Medium (2)
	Of difficult reversibility overtime; medium term to life of project (4-6years)	Substantial (3)
	Beyond closure; permanent; irreplaceable or irretrievable commitment of resources	High (4)
Intensity	Minor deterioration, nuisance or irritation, minor change in species/habitat/diversity or resource or very little quality deterioration; very little improvement	Low (1)
	Moderate deterioration, discomfort. Partial loss of habitat biodiversity/resource or slight or alternation, moderate improvement.	Medium (2)

	Alteration or disturbance is significant	Substantial (3)
	Habitat/diversity or resource, severe alteration or disturbance important processes; severe improvement	High (4)
Probability	Unlikely, low likelihood, No known risk or vulnerability to natural or induced hazards. Unlikely, low likelihood, Seldom No known risk or vulnerability to natural or induced hazards.	Low (1)
	Possible, distinct possibility, frequent Low to medium risk or vulnerability to natural or induced hazards.	Medium (2)
	Possible, distinct possibility, frequent substantial risk or vulnerability to natural or induced hazards.	Substantial (3)
	Definite (regardless of prevention measures), highly likely, continuous high risk or vulnerability to natural or induced hazards.	High (4)
Significance	Deduced from the summation of the ratings with the range defined as follows: Below 4 low Risk , (Risk is acceptable and can be managed easily by the IA & Contractor) 4-7 Low to moderate , (Risk can be managed, but need mitigation based on ESMP checklist) 7-9 Moderate Risk , (Risk can be managed, but need further management (mitigation measures and monitoring plan and other ESHS plans proportionate to the risk) 10-12 Substantial Risk , (risk can be managed, but need further detailed and comprehensive management of proposed mitigation measures, monitoring plans and other ESHS plans. 13-16 High Risk , (screened of high, irreversible risk as identified in the Project exclusion criteria, and will be excluded at the pre-screening stage)	

Table 5: Rating criteria to assess risks of subproject

5.4 Environmental and Social Screening

These steps below comprise the procedure for the ES team or consultant at IAs to implement for screening the impact significance of the proposed subprojects that will be implemented by his / her agency:

- 1- Collect information about the proposed subproject from the technical and design team (Use ES Screening Form at Annex 4 for data collection guidance and documentation) including screening against the project exclusion list identified in section 6.2.
- 2- Verification of collected data: the verification can be performed through different methods were more than one method can be used for data verification for same sub-project. These methods include:
 - a. Site Visit
 - b. Consultation with professional specialists at ES fields
 - c. Consult with NGOs or CBOs at sub-project community
- 3- Fill the ES screening form with data collected and verified
- 4- Analyze the collected data at the ES screening form where the below matrix is applied to define the required ES safeguard instrument for the screened subproject to meet both World Bank and national legislation. This matrix is built upon principle “more stringent requirements apply. ” :

Subproject Category in World Bank	Subproject Classification in Regulation No.69 of 2020	Required ESF Instrument	Responsible IA
High Risk Project	High, Risk Project	Excluded from financed activities	Excluded from financed activities
Substantial Risk Project	High, Medium, Limited or Low Risk Project	Full ESIA including ESMP	WAJ / ESSD JVA
Moderate Risk Project of large scale	High Risk Project	Full ESIA including ESMP	WAJ /ESSD JVA
Moderate Risk Project	Medium Risk Project	Preliminary ESIA including ESMP	WAJ /ESSD
Moderate Risk Project of limited scale	Limited or Low Risk Project	ESMP ESMP Checklist	WC / PIU
Low Risk Project	Limited or Low Risk Project	ESMP Checklist	WC/PIU

Table 6: Application matrix for Required Instruments upon Risks

- 5- Based on the identified specific potential risk and impacts assessed in accordance with each ESS., further instruments and management plans might be required . These might include Resettlement Plan, OHS Plan, Waste Management Plan, Traffic Management Plan, Asbestos Contained Material Management Plan, Chance Find Procedures .
- 6- ES team and consultant at IAs must be aware these instruments must be identified as result of the E&S screening and shall be reflected in the environmental and social management plans (ESIA/ESMP, ESMP. ESMP Checklist)and shall be properly addressed under the

environmental and social clauses of the WB bidding documents or by adding environmental and social clauses to the national bidding documents where applicable.

5.5 Screening Documentation

MWI/WAJ would complete the environmental and social screening Procedure 2 for all subprojects in terms of nature of the subproject location and subproject activities. MWI/WAJ will be filling in the “Environmental and Social Screening Forms presented in (Annex 3) for all subprojects once defined. Based on the evaluation results, MWI/WAJ should follow the ESMF procedure to recommend suitable measures and instruments to be prepared to avoid or minimize the environmental and social risks of the subproject.

Implementing agencies (WAJ / JVA/ WCs) will be responsible for the preparation of further required ES instruments documents through assigning ES consultants and the contractors and operators who will be requested to develop site-specific documents under the tender process.

Additionally, as Ministry of Environment has a role in review and approval of specific documents at subproject level under the process of issuing environmental approval and permit for the subproject.

Following the E&S Screening identifying the subproject risk level, WAJ will submit application to Ministry of Environment. The Terms of reference for the ESIA and the ESMP’s will be prepared in accordance with the World Bank ESS’s and shall be acceptable for the Bank prior submitting to Ministry Environment

5.6 Review and Approval

Implementing agencies will report the E&S screening outcomes to the E&S Specialists at PMD of WAJ which currently acts on behalf of MWI for review, quality control, monitoring and reporting purposes. Sub-project ESIA/ ESMPs, will be reviewed and cleared by the PMD prior to submission to the Bank for clearance. Subproject ESIA/ESMPs will warrant clearance by the Bank. The MWI will then disclose the instruments.

Instrument subject to review and approval from Ministry of Environment are the Full ESIA Report and Preliminary ESIA Report. Clearance process by MoEnv. is presented at Annex 3.

All ESIA/ESMPs will be submitted and cleared by the World Bank prior to tendering the sub- project, ensuring the Bank receive first draft for review and comments in addition to the revised documents following MoEnv comments for final review .

The ESMPs and ESIA/ESMPs shall be included in the procurement and contracting process including bidding documents, for civil works, as well as other WB standard EHS terms and conditions for procurement and any subproject-specific requirements. Compliance with LMP and Codes of conduct shall be required for contractors, subcontractors, primary suppliers, and their workers.

5.7 Consultation and Disclosure

The ESF instruments (ESMF, SEP, LMP, RF) will be consulted and disclosed prior to project appraisal on MWI website. All ESF instruments will be made available to project affected communities and groups, local NGOs, and the public through disclosing ESMF and relevant document at MWI website. All sub-project ESIA and ESMPs will be consulted, translated into Arabic and also publicly disclosed. on MWI website. IAs and contractors will provide necessary relevant information within affected communities by posting this information at their site offices, in addition to direct communication through distribution of printed materials and through local governor and community leader. The SEP further defines the stakeholder engagement with affected communities required throughout the project cycle.

- MWI has organized a consultation session on draft ESF instruments on 16.05.2023 after disclosing these documents at MWI website. MWI has invited multi- stakeholders to the meeting that was held at MWI building in Amman, in addition to online participants where MWI has made an access to participants who cannot attend physically from far governorates. The attendees were representatives of ministries, local municipalities, civil society organizations, environmental associations, women associations and the Higher Council for the Rights of Persons with Disabilities. WAJ –PMD / ESSD team has presented the project components, and the draft ESF instruments purpose and mitigation measures and strategies that the project will apply to eliminate and or reduce potential environmental and social risks according to relevant local regulations and to meet World Bank ES standards. Issues raised by participants included: [xxxxxx] MWI has organized a consultation session on draft ESF instruments on 16.05.2023 after disclosing these documents at MWI website. MWI has invited multi- stakeholders to the meeting that was held at MWI building in Amman, in addition to online participants where MWI has made an access to participants who cannot attend physically from far governorates. The attendees were representatives of ministries, local municipalities, civil society organizations, environmental associations, women associations and the Higher Council for the Rights of Persons with Disabilities. WAJ –PMD / ESSD team has presented the project components, and the draft ESF instruments purpose and mitigation measures and strategies that the project will apply to eliminate and or reduce potential environmental and social risks according to relevant local regulations and to meet World Bank ES standards. Relevant key Issues raised by participants included:
 - The Language of ESF documents disclosed by MWI are in English
 - The Engagement of municipalities to in the planning and implementation for roads restoration
 - To provide work opportunities in the project for persons with disabilities, and Ministry of Labor can facilitate this issue
 - The project to ensure proper health and safety measures are applied during construction, and to request HSE supervisors to be assigned for project implementation by contractors.
 - Is there a defined percentage for the employment of refugees from the total expected employment during project implementation
 - Number of women targeted in plumping training is limited, can then be expanded
 - Preservation of environment and natural habitats, and the competency of supervision staff in developing effective mitigation measures

- Water supply by WCs is already not efficient, subscribers not treated equally in water distribution and supply

Notes from the session and how stakeholders views were taken into account, and list of participants are found in Annex 14. Final ESF instruments will be disclosed at MWI website upon World Bank approval on these documents.

6. The Project Level Instruments

The Implementing Agency shall ensure assessing the sub-projects in reference to all the relevant standards and ensure the requirements addressed in the other Project ESF Instruments are complied with in planning and drafting of the sub-project E&S management plans.

6.1 Resettlement Framework (RF)

The Resettlement Framework (RF) is a standard instrument used to clarify resettlement principles, eligibility criteria, compensation entitlement, organizational arrangements and guidelines for carrying out census surveys and subsequent Resettlement Action Plans (RAPs).

MWI has developed RF for the project as a standalone document, although land acquisition is not anticipated at this project, but RF also considers economic displacement that might be significant if not properly managed and mitigated during project implementation. The RF will be shared with WB and will be communicated on MWI website once approved by WB. The RF will be part of the contracts for relevant sub-projects where initial ES screening has shown potential resettlement risks, Contractors will be responsible for implementation and will develop further site-specific resettlement management measures according to RF.

6.2 Stakeholders Engagement Plan (SEP)

A stakeholder engagement plan is a document which outlines the plan to communicate with stakeholders who are directly and indirectly affected by the project, or who hold interest or potential interest in the project. SEP identifies potential stakeholders, how they are affected, their interest levels and, power and influence.

MWI has developed SEP for the project as a standalone document that will be consulted and and will be disclosed on World Bank and MWI website, once cleared by World Bank. . The SEP aims to provide a framework for appropriate and timely manner consultation and information disclosure for project affected parties (PAPs). Also SEP has identified projects stakeholders who are presented at table 9 below. will be part of the contracts for subprojects, where contractors will be responsible for implementing and will develop further site-specific stakeholder engagement measures when needed.

Several stakeholders consultations were carried out for the project during initial stages and scoping of project preparation. These consultations are summarized in the SEP. During the development of project's ESMF and other ESF instruments, MWI has performed further consultations that with implementing agencies and other stakeholders at water sector. Further consultation will with stakeholders will be on ES instruments developed during project implementation including consultation sessions during ESIA preparation. . All stakeholders' consultations and engagement will be presented in the SEP.

Project Component	Type of Stakeholder	Identified Stakeholder	
Component 1: Sustainable non-revenue water reduction	Project Affected Parties	Residents of the water service areas	
		Residents at governorates where component activities will be performed	
		Business owners and workers	
		Lands owners and tenants including farmlands	
		Utilities services companies (communication and electricity)	
		Municipalities	
		Ministry of Public Works and Housing	
		Vulnerable Groups / Elderly People / Women / Poor households / Students and Children / Persons with disabilities / Refugees	
		Other Interested Parties	Ministry of Environment
			Ministry of Labor
	Ministry of Health		
	Ministry of Finance / Department of Land and Survey		
	Ministry of Agriculture		
	Social Security Corporation		
	Traffic Departments		
	Local communities/labor within sub-project areas		
	Chamber of Commerce and Industry		
	Civil society: CBOs, Env. NGOs, Women associations, Farmers associations, labor unions, engineers association, contractors association, Humanitarian local and international NGOs, etc.		
	IFIs and Donor Agencies (USAID, KfW, JICA, AFD, EU, EBRD, IFC, GIZ, etc.)		
Media and local press			
Suppliers of construction materials and equipment			
Component 2: Increase energy efficiency and reduced energy supply costs	Project Affected Parties	Residents and community members surrounding or close to construction sites	

		Livestock owners (if any) near the construction site	
		Vulnerable Groups / Children at surrounding communities	
	Other Interested Parties	EMRC / NEPCO	
		Ministry of Environment	
		Ministry of Labor	
		Ministry of Health	
		Social Security Corporation	
		Local communities/labor within project's area	
		Media and local press	
Component 3: Drought management and water storage for water security	Project Affected Parties	Farmers	
		Agribusiness owners	
		Seasonal labor including Women and refugees and migrants	
	Other Interested Parties	Water users associations and farmers	
		Farmers Union	
		Ministry of Agriculture	
		General Public	
	Component 4: Institutional strengthening for water sector efficiency	Project Affected Parties	Women involved at "Women's Plumber Initiative"
			Community members involved at demand control trainings
		Vulnerable Groups / Women associations	
Other Interested Parties		Donors agencies	
Component 5: Contingency Emergency Response	No stakeholders can be defined as this component aims to mobilize fund allocated for other components upon triggered emergency situation regarding the scope of each component.		

Table 7: Project Identified Stakeholders

6.3 Labor Management Procedure (LMP):

The purpose of the Labor Management Procedures is to facilitate the planning and implementation of the Project by identifying the main labor requirements, the associated risks, and the procedures and resources necessary to address the project-related labor issues.

MWI has developed LMP for the project as a standalone document that will be shared with WB and communicated on MWI website once approved by WB. LMP will be part of the contracts for sub-

projects where contractors will be responsible for implementation, and will develop further relevant management measures as needed.

7. Preparation of Environmental and Social Management Instruments

This section outlines the specifications for commissioning and preparing site-specific ES instruments, once its determined through screening (See Section 6), which instruments are needed. .

7.1 Environmental and Social management Plan (ESMP)

Based on the results of screening, ESMP shall be developed for project activities that are classified as **Moderate** risks. ESMP shall be prepared by ES staff and consultant(s) at IAs including ESSD-PMD at WAJ and PIUs in WCs.

A project's environmental and social management plan (ESMP) consists of the set of mitigation, monitoring, and institutional measures to be taken during implementation and operation to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. Stakeholder consultation shall be conducted as per the Stakeholder Engagement Plan, as part of the preparation of ESMP, and the feedback will be reflected in the design of the mitigation and monitoring measures.

Annex 5 provides the ESMP template as per the World Bank requirements.

7.2 Environmental and Social management Plan Checklist (ESMP Checklist)

ESMP checklist is an abbreviated and simplified form of the Environmental and Social Management and Monitoring Plan, for sub-projects . , classified as **Low** or limited Moderate risks.

Stakeholder consultation shall be conducted as part of the preparation of the sub-project, as per the Stakeholder Engagement Plan, and the feedback will be reflected in the design of the mitigation and monitoring measures in the checklist as appropriate.

Annex 6 provides a templated for preparing an ESMP Checklist

7.3 Environmental and Social Impact Assessment (ESIA) with integrated ESMP (ESIA/ESMP)

The subproject screening might identify a substantial risk activity or moderate risk activity with wide-range of impacts. Sub-projects with and of **Substantial risk classification**, or the national requirements may require preparation of an ESIA. Environmental and social impact assessment (ESIA) is an instrument to identify and assess the potential environmental and social impacts of a proposed project, evaluate alternatives, and design appropriate mitigation, management, and monitoring measures. ESIA includes an ESMP (i.e. ESIA/ESMP). ESIA/ESMPs are prepared commensurate with the risks and impacts of the sub-project. Table of Contents for a typical ESIA/ESMP is provided in Annex 5.

Stakeholder consultation in accordance with the Stakeholder Engagement Plan (SEP) shall be conducted as part of the preparation of ESIA/ESMP and the feedback will be reflected in the design of the mitigation and monitoring measures.

7.4 Other Mitigation Plans and Instruments

Based on proposed activities under project components and the potential risk and impacts assessed in accordance to each ESS., this section provides indicative ES management instruments for guidance and to anticipate the required instruments as a result of E&S screening. ES Instruments to be prepared by IAs

1. ES instruments that IAs shall prepare based on the ES screening results or findings (ES Screening Form at Annex 4).are:
2. Environmental and Social Impact Assessment (ESIA) when the ES screening results with substantial risks at WB category and / or high risk at national category. IA will follow the national EIA clearance and review process described at Annex 3. Annex 5 provides a generic sample for TOC of ESIA report
3. Preliminary ESIA including ESMP when the ES screening results with Moderate risks at WB category and / or medium risk at national category. IA will follow the national EIA clearance and review process described at Annex 3. Annex 6 presents (ESMP) template
4. ESMP Checklist when the ES screening results with low risks at WB category. ESMP checklist provided at Annex 8

7.4.2 ES Instruments to be prepared by ContractorsIn addition to the identification of the main E&S Instruments (ESIA, ESMPs, ESMP checklists), the E&S screening results will advise the preparation of different set of plans and measures in relevance to the ESS's including ES instruments that contractors shall prepare based on the ES screening or shall be requested under ES instruments prepared by IAs. The instruments, plans or measures may include one or more of the following:

- 1- Work Code of Conduct. Guidelines of code of conduct provided at Annex 1 of Labor Management Procedure (LMP)
- 2- Site specific Construction ESMP
- 3- Occupational Health and Safety Plan and procedures
- 4- Traffic Management Plan
- 5- Hazardous Waste Management Plan (Template at Annex 9)
- 6- Site specific Asbestos Management Plan based on Project's Asbestos Management Plan at Annex 10
- 7- Site specific Archaeological Chance Find Procedure based on Project's Archaeological Chance Find Procedure at Annex 13
- 8- Resettlement Action Plan (RAP). Sample content of RAP has been provided at Annex 2 of Resettlement Framework (RF)

7.5 Environmental and Social Mitigation Measures

This section outlines indicative environmental and social mitigation measures aimed to avoid, mitigate, manage and monitor the identified environmental and social risks and impacts associated the sub-project types . While the risk levels and the proposed mitigations presented are indicative. Based on the environmental and social screening findings, these mitigation measures should be reviewed, adapted, and incorporated as relevant, into the site specific conditions during the preparation of site-specific instruments prepared in reference to Sections (7.1-7.4)

These measures are set out in Annex 7 that presents generic mitigation measures for relevant project activities. The table also sets out, responsibilities for Planning, implementation, supervision and monitoring of such measures.

A hazardous waste management plan will be developed as a separate document to define required mitigation measures that need to be applied to manage relevant anticipated risks. A template for hazardous waste management plan is included at Annex 9.

Asbestos Management Plan (Annex 10) has been prepared and should be adopted for all sub-project activities that include rehabilitation of distribution water networks under components 1 and 2

8. Environmental and Social Monitoring and Reporting

8.1 Monitoring and Evaluation

The objectives for monitoring are:

- To record environmental and social impacts resulting from the sub-project activities and to ensure compliance with the World Bank ESF requirements through the proper implementation of the “mitigation measures” identified under the Project/Sub-Project Environmental and Social Management instrument in order to reduce adverse environmental and social impacts and enhance positive environmental and social effects of project activities.
- To alert project authorities by providing timely information about the success or otherwise of compliance with ES requirements as outlined in this ESMF in such a manner that changes to the system can be made in a timely manner, if required; and
- To make a final evaluation in order to determine whether the mitigation measures designed into the sub-projects have been effective in such a way that the environmental and social conditions have been restored, improved or if these mitigation measures need to be reviewed and improved.
- The E&S monitoring reporting of each of the sub-project activities during the project implementation.

Environmental and social monitoring needs to be carried out during pre-construction, construction and post-construction of the sub-projects in order to measure the effectiveness of the recommended mitigation measures.

Pre-construction stage monitoring Ensure that:

- Proposed construction activities at each site(s), are subjected to environmental screening; plan and design for construction activities in compliance with the Environmental Guidelines of the WB and/or the Jordanian Environmental Laws and regulations
- Site specific Environmental Assessment (ESMP or ESIA) is prepared on time and incorporated into bidding documents.

Construction Phase: ESSD at WAJ will assign ES Consultant to conduct environmental and social performance monitoring, Monitoring reports will be prepared and should contain information with regard to environmental and social performance and compliance against the contractual requirements, site-specific instruments, and the ESF instruments. . A monitoring plan outlining the frequency of reporting should be prepared by the Consultant / ESSD. Sample template of monthly or quarterly ES performance report is provided at annex 12

Monitoring of mitigation / enhancement measures as outlined at ESMF should be reflected at ES requirements of tender documents. In addition, Contractors should also consider these mitigations and provide more details on these measures at relevant site specific instruments they have to develop, ie ESMPs, WMP, TMP, OHS plans etc.

. However, the requirement and frequency of monitoring would depend on the type of sub-project and site situation. For certain sub-projects (e.g., replacement of meters, installation of drought monitoring equipment), monitoring of these parameters is not critical; while monitoring

of some of these parameters (e.g., noise level) would be needed only if significant pollution is suspected. Table 10 presents generic indicators for monitoring of specific environmental and social parameters during the construction phase of different sub-projects. In addition Table 5 above describes the routine monitoring work that will be done by WAJ ESSD or ES Consultant to ensure that:

- Occupational Health and Safety Measures are in place
- COVID-19 prevention measures are in place.
- All personnel at work sites shall be provided with PPEs so that injuries to personnel are avoided or minimized.
- Workforce, likely to be exposed to noise and dust levels beyond regulatory stipulated limits, shall be provided with hearing protection devices (ear muffs), dust masks and eye protective goggles on regular basis
- Work at height is performed with physical fall protection and workers equipped with adequate full body harness and fall arrester
- Work sites are physically isolated with control of access to authorized personnel
- HAZMAT area at site is well established according to MoEnv requirements with proper isolation, shading, and controlled access.
- Information and warning signs are installed in sufficient numbers with visible communication contacts
- Emergency preparedness measures at site are according to EMP with defined escape routes, assembly points, firefighting extinguishers and emergency contacts displayed.
- Labor camps if relevant, must comply with approved LMP provided with adequate welfare facilities, emergency response setup and proper hygiene conditions.
- Contractor Public grievance mechanism procedure is applied, complaints resolved and records maintained
- Contractor workers grievance mechanism is applied, complaints resolved and records maintained.
- The project will develop a compliance disciplinary program that comprises of Positive Performance Points (PPPs) and Negative Performance Points (NPPs) system that include a checklist for ES and OHS issues to be considered during monthly or quarterly audit. According to the system, the contractors or implementing agency PPP and NPP score will determine if additional measures must be taken to improve the performance of contractor. Sample of PPPs and NPPs Checklist is provided at annex 10

Post-construction Phase: ES Consultant / ESSD will prepare a summary report for the implementation effectiveness of all environmental and social mitigation measures and share it with stakeholders, communities, implementing agencies (WCs) and the WB.

The following are some of the pertinent parameters and verifiable indicators that can be used to measure ESMF process, mitigation plans and performance.

- Has the project resulted in better living standards for the community?
- How has the adoption of the ESMF requirements improved the environmental health and biophysical state of the people?

- Has the project resulted in job creation?
- Has ESMF adoption resulted in sustainable use of energy and improved efficiency?
- Are periodic monitoring reports being completed?
- Are processes defined in the ESMF working well?
- How many complaints/grievances have been received regarding the project and how many have been resolved in a timely manner?

The following table shows some specific environmental and social indicators that need to be monitored and assessed by various institutions.

Table 8: Generic Environmental and Social Monitoring Indicators

Issue / Impact	Indicator	Information Source	Responsibility
Air Emissions	<ul style="list-style-type: none"> - Visual inspection during excavation, loading and unloading of excavated materials and debris - Records of water spray to suppress dust - Construction machineries maintenance log - Reduction in GHG caused by the project cumulative reduction in GHG emissions from project vehicles. (Calculation of GHG emissions can be through using work sheet for GHG emissions from transport and mobile sources at link below https://ghgprotocol.org/calculation-tools#sector_specific_tools_id)	Contractor / Construction Supervision Consultant	ESSD / ES Consultant
Noise Pollution	Number of Complaints on elevated noise during construction	Contractor Construction Supervision Consultant	ESSD / ES Consultant
Waste Management	<ul style="list-style-type: none"> - Logs for disposed waste and hazardous waste - Records and documents for removed and disposed ACM pipes (if any) including authorities approvals and disposal receipts from hazardous landfills, authorized transport contractor permits - Number of reported complaints on waste management, - Number of fines received on waste 	Contractor / Construction Supervision Consultant	ESSD / ES Consultant

	management		
Public Safety	Number of incident engaged with public	Contractor / Construction Supervision Consultant	ESSD / ES Consultant, Police Department
Employment	Number of technical and unskilled workers hired and contract duration.	Contractor / Construction Supervision Consultant	ESSD / ES Consultant MoL
Economic and livelihood impacts	Number of population benefit from water supply, savings made by applying EE measures, reduction % in NRW	WCs	ESSD / ES Consultant
Social Conflicts	Number of stakeholders consulted, Number of reported public complaints received on social exclusion	Contractor / Construction Supervision Consultant, WCs	ESSD / ES Consultant
Workers Welfare and Working Conditions	Number of reported workers complaints, Number of resolved complaints	Contractor / Construction Supervision Consultant	ESSD / ES Consultant
Occupational Health and Safety	Number of Lost Time Incidents (LTIs), Number of Man Hours without LTIs	Contractor / Construction Supervision Consultant	ESSD / ES Consultant, MoL
Biodiversity	Reported Number of incidents hunting and killing of wildlife.	Contractor / Construction Supervision Consultant	ESSD / ES Consultant, MoEnv
Cultural Heritage	Number of reported Chance Finds incidents.	Contractor / Construction Supervision Consultant	ESSD / ES Consultant, DoA

8.2 Environmental and Social Management and Monitoring Reporting

According to ESMF and projects implementation arrangements, ES performance of the project must be documented and reported to the ESSD, MWI and externally to World Bank. That requires a systematic hierarchy following bottom-up approach in reporting between the contractors, supervision consultants, IAs and World Bank. This section defines the required ES reporting will be applied in the project. Further enhancement of the reporting requirements will be identified during implementation

1- Contractor Reporting to Construction Supervision Consultancy Firm

The contractor is required to prepare and submit the following ES reports during work to the construction supervision consultant:

- ✓ Monthly ES Progress report in accordance to Annex 11 , presenting the ES performance at Work site. Monthly report must be submitted at within 1 week of the successive month to construction supervision consultant

- ✓ Site specific C-ESMP, TMP, Hazardous MP, Asbestos MP, Archaeology chance find procedure for approval
- ✓ Accident notification on immediate basis if accident result with fatality or serious injury cases.
- ✓ Accident Report must be submitted within 24 hours from time of accident.

2- The Construction Supervision Consultancy Firm Reporting to IA

Construction supervision consultancy Firm has to report the following reports to PIU at each IA that present the findings and results of the supervision and monitoring ES performance at work site:

- ✓ Monthly ES Progress report based on submitted monthly reports from the contractor(s). This report must include ES inspection and audit activities performed, result of inspections and audit, level of ES compliance based on checklists provided at Annex 12, and remedial actions and mitigations applied to manage ES risks. Report shall include information on consultation and information disclosure to local community and stakeholders at site. Status of workers and public grievances shall also be reported. Trainings performed at site must be included at the report. Monthly report must be submitted to IA within 1st half of the successive month
- ✓ Site specific C-ESMP, TMP, Hazardous MP, Asbestos MP, Archaeology chance find procedure for approval
- ✓ Accident notification on immediate basis of all incidents and accident occur at the projects site
- ✓ Accident Investigation Report must be submitted within 1 week from time of accident

3- The Reporting between the IA's

a. Water Companies E&S Monitoring activities and reporting to ESSD

PIU at each WC must have to report the following to ESSD at PMD of WAJ:

- ✓ Monthly ES progress report based on construction supervision consultant. The report must include similar progress information provided at the construction supervision consultant but from all work sites that IA implement under the project. In addition to permits and approvals obtained from relevant authorities and utilities services. Monthly report must be submitted to ESSD-PMD within 1st half of the success month
- ✓ Results of ES screening for activities / subproject that identified during implementation and will be performed by WC for review and approval
- ✓ Site specific C-ESMP, TMP, Hazardous MP, Asbestos MP, Archaeology chance find procedure for approval.
- ✓ Accident notification within 24 hours for all incidents and accident occur at the projects site. Accident Investigation Report must be submitted within 1 week from time of accident

b. MWI and JVA Activities Reporting to the ESSD-PMD

MWI and JVA shall report to ESSD-PMD ES progress regarding implementation of component 3, which is mainly limited to dams' rehabilitation assessment activity: However, MWI/JVA shall report the following during performing the dams rehabilitation assessment.

- ✓ Progress in EIA process including activities performed at the EIA including consultations performed. This must be reported on quarterly basis and within 1st month of the successive quarter.
- ✓ Accident notification within 24 hours all incidents and accident occur at the projects site Accident Investigation Report must be submitted within 1 week from time of accident

c. ESSD-PMD Environmental and Social Report to the Bank

While MWI is the main responsible entity for reporting to the World Bank, its advised the E&S Progress reporting for the ESCP, ESMF, RF, LMP and SEP to be done through the ESSD –PMD, where MWI reporting responsibility is mentioned in other documents, the ESSD-PMD will prepare the relevant E&S Progress reporting. Further details to be included in the Project Operation Manual (POM).

- ✓ The ESSD-PMD shall be responsible to report the following to the World Bank:
- ✓ Quarterly ES progress report that provide information of ES performance of the project and the level of compliance with Bank's ESSs. Report shall summarizes major findings of ES monitoring and inspection / Audit performed by ESSD-PMD, in addition to those defined at IAs monthly progress reports. Report will include summary on permits and approvals the project obtained from relevant authorities, summaries of consulations performed with stakeholders. Major workers and public grievance cases shall be included at the report. This report must be submitted to the Bank within 1st month of the successive quarter.
- ✓ ES screening results for identified activities / sub-projects that identified during implementation for review and approval
- ✓ Draft EIAs or Preliminary EIAs / ESMPs for review and approval
- ✓ Hazardous waste MP and Asbestos MP for review and approval
- ✓ Accident notification within 48 hours of all incidents and accident occur at the projects sites.
- ✓ Accident Investigation Report must be submitted within 1 week from time of accident and validation of others AI investigation report prior submitting to MWI, who is responsible for submitting in time addressed in the ESCP to the World Bank.

8.3 ES Indicators Monitoring Frequency

In addition to the regular monitoring of ES performance by Construction Supervision Consultant on behalf of WAJ and as described at the ESMP for each sub-project, monitoring for ES indicators will be performed by ES Consultant on monthly or quarterly basis. It's also possible that WAJ will request Construction Supervision Consultant to assign ES Consultant under his organization who will then be responsible to perform monitoring on ES indicators accordingly.

9. ESMF Implementation Arrangement

This section will present the proposed implementation arrangements for the ESMF based on the roles and responsibilities identified at the initial Institutional and Implementation Arrangements described in section 2.2 for SOP-1. The project and to implement ESMF will ensure that ES staffing needs are adequately assigned and mobilized. ESMF organization structure is presented at Figure 2 below.

Strengthening the E&S organizational structure through building proper capacity of staff designated to manage the E&S requirements under SOP-1 is important to ensure smoother transition and implementation of the next iteration of the Project, further details on the capacity development is included under Chapter 10.

9.1 Water Authority of Jordan (WAJ) – Environmental and Social Standards Directorate (ESSD):

The ESSD is under PMD of WAJ is the overall responsible for the implementation of the ESMF of the project. , ESSD-PMD is newly established to manage the overall environmental and social projects and activities performed by WAJ, including international financed projects. The ESSD has overall responsibility for implementing the Environmental and Social Management of the Project (SOP-1) including the implantation of the ESMF and for ensuring the project complies with the the environmental and social requirements. Where water companies are implementing sub-projects or activities, ESSD will provide oversight and guidance for the assigned E&S Focal Points to fulfill the E&S requirements of the project. Similarly ESSD will provide oversight and guidance for the Focal Points at JVA for their activities. ESSD includes EIA Section Head, and ESSD Director. The Project will support hiring one Senior Environmental Specialist and one Senior Social Specialist of adequate qualification to join the ESSD, to manage the E&S requirements under the Project.

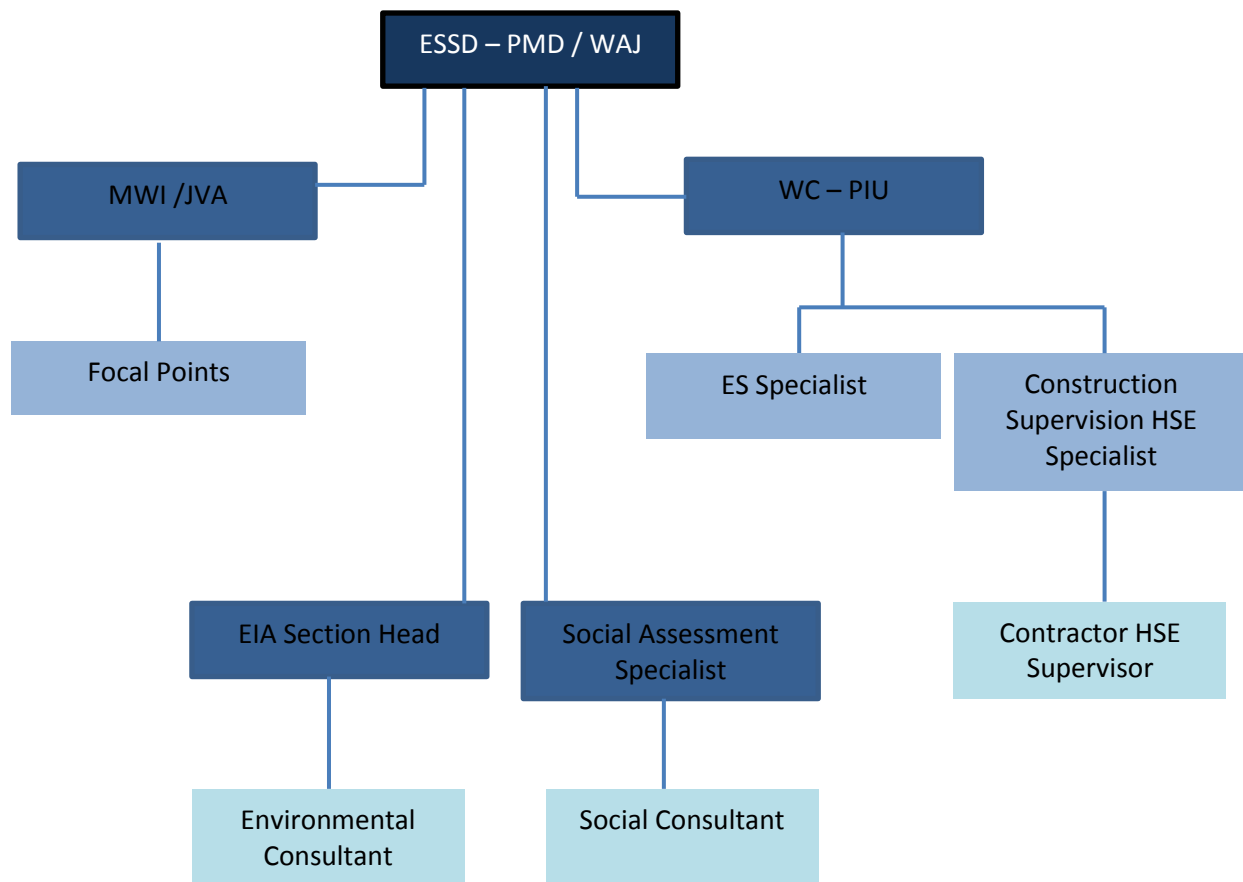


Figure 2: The proposed organizational chart for ESMF

The role of ESDD vis a vis project implementation will be:

- 1- Preparing ES Screening of Sub-projects WAJ is implementing, in accordance with ESMF and RF, under Comp 1, 2,3, and 5 once activated.
- 2- Review and approve screening conducted by Water Companies or other IAs for sub-projects or activities they are implementing.
- 3- Based on screening results, prepare Terms of Reference for E&S instruments consistent with all ESF instruments, the ESCP and the ESF, and ensure deliverables are completed according to TORs. And where applicable, ,prepare the ESMPs and ESMP’s checklist, and address the E&S instruments and mitigation measures under the bidding documents are part of ESDD role under Comp 1 and 2.
- 4- Define ES requirements at the tender documents for each sub- project according to the ESF instruments, the ESCP and ESF, and ensure these requirements are incorporated into tender documents. Contractually require contractors to apply the relevant aspects of the ESCP and ESF instruments including appropriate and effective non-compliance remedies

- 5- Review the national bidding document templates and integrate the Project ESF requirements for all subprojects that will be tendered using the national bidding forms, and apply the ES&S requirements once the Bank SPD is used. Define relevant ES clauses that need to be included in each contract for each sub-project along with required ES documents to be shared with the contractor such as SEP, ESMP, RF and LMP. And to share these clauses with PIUs to be adopted
- 6- Assist the Tenders Evaluation Committees in evaluating bidders' compliance with the ES requirements were fully filled at bidders' proposals and ES required competency has been achieved. The ESSD will also review ES evaluations made by PIUs of WCs for comments and approval prior to awarding of contracts.
- 7- Set ToRs for ES & OHS competency required to be at the organization of the Construction Supervision Consultancy Firms who will be contracted by WAJ to supervise the implementation of each sub-project. And to share the required competencies with PIUs to be adopted.
- 8- Integrate the World Bank ESF standards in all the terms of reference prepared under the Project.
- 9- Review, comment and approve monthly progress reports provided by Construction Supervision Consultancy Firms or PIUs.
- 10- To coordinate with ES Focal Points and PIUs at WCs to ensure the ES requirements of each sub-project are met
- 11- Perform periodic spot check, (monthly or quarterly) ES inspection and audit with ES Consultant to monitor and verify the reported ES performance at site by Construction Supervision Consultancy Firms. (Sample performance report TOC provided in annex 9)
- 12- Prepare quarterly project's ES performance report to be submitted to the World Bank.
- 13- Prepare additional project's ES documents may needed prior project implementation such as Resettlement Plans (RPs) in accordance with the project's RF and ESS5
- 14- Notify the Bank promptly of any incident or accident relating to the project which has or is likely to have a significant adverse effect on the environment, the affected communities, the public or workers. And conduct investigation, and submit subsequent report as described in the ESCP.
- 15- To represent MWI at any ES technical discussion and communication with WB.
- 16- Communicate, support and provide training on E&S requirements for E&S Focal Points at other IAs.

9.2 Ministry of Water and Irrigation (MWI):

MWI will be responsible for implementing actions under Component 3 on hydro-informatics and drought risk management. Focal points with relevant expertise will be responsible for implementing ESMF requirements of their agencies' actions under the project. Focal points will monitor ES performance and report ES management documents to ESSD-PMD described at section 7.

9.3 Jordan Valley Authority (JVA):

JVA, through the dam management unit, will lead the development of studies that characterize water storage rehabilitation needs. JVA, focal points with relevant expertise will be responsible for implementing ESMF requirements of their agencies' actions under the project. Focal points will monitor ES performance and report ES management documents to ESSD-PMD described at section 7.

9.4 Water Companies (WCs):

1. PIU at each WC must have an ES Focal Point t who will be responsible for the following during ESMP implementation: To adopt relevant ES requirements made by ESSD and defined under points (1-5) at section 9.2 above.
2. Preparing ES Screening and ESMPs are part of their role under Comp. 1 and 2
3. Perform daily inspection on ES & OH performance of the contractor at site
4. Preform Monthly ES & OHS audit for ES performance at sub-project
5. Prepared monthly ES performance report and to submit to ESSD for review and comments in accordance to the subproject progress and the ESCP implementation

9.5 Construction Supervision Consultant:

Construction supervision consultant shall include under their team a qualified HSE specialist and social specialist with qualification identified under the TOR, those specialists will be responsible to ensure contractor implementation of the sub-project in compliance with the ES requirements under the bidding document, the ESMP and the ESCP. The specialist are expected to perform all tasks identified in their ToRs on behalf of ESSD-PMD and the PIUs. The following are non-exhaustive roles in Implementation of ES instruments

- 1- Review, comment and approve site-specific ES documents devlped by the contractor including Contractor's ESMP, containing all the required plans (Method Statement, HSE plan, OHS procedures, WMP, TMP, LMP, etc).
- 2- Technical Engineers and ESHS Specialist to conduct daily environmental, social, health and safety compliance in accordance with the ESF inspection on ,of the contractor at the work site
- 3- Perform monthly ES & OHS audit at site
- 4- Prepare monthly ES & OHS performance report and to submit for ESSD-PMD/WAJ
- 5- Review the contractor's accident/ incident reports and review/approve root cause analyses, and reports on corrective measures completed.

9.6 Contractor / Operator

Contractor staffing shall be identified in the Tender Documents, but at least, the Contractor shall hire an HSE supervisor , who will be responsible of ensuring the site safety in coordination with the Project Manager and the Construction Supervision Firm must perform the following tasks under ESMP and the clauses under the bidding documents including

- 1- Prepare site-specific E&S plans and procedures based on the requirements in the bidding documents and submit to Construction Supervision Firm for review and approval
- 2- Coordinate with relevant authorities to obtain required permits, approvals and NOCs
- 3- Perform daily HSE inspection on workers ES&OHS compliance with relevant plans and procedures
- 4- Conduct OHS requirements as per the ESMP and the OHS plan (including but not limited to the training, walk throughs, hazard risk assessment)
- 5- Prepare safety measures at construction method statements
- 6- Develop and implement HSE induction and training program at site
- 7- Prepare and implement SHE disciplinary program
- 8- Perform accident investigation and reporting
- 9- Prepare and maintain all required ES & OHS records and logs
- 10- Implement and document Workers GM at site
- 11- Prepare E&S report as part of the Project progress report.
- 12- Immediately inform incidents to the resident engineers and the respective Implement Agency

10. Capacity Building and Training

In order to ensure proper implementation and compliance with ESMF and its requirements, and based on the current ES capacity of the implementing agencies, Table 11 below represents the required capacity building needs for ESMF implementation.

ESSD will be responsible for the overall management of the E&S management including capacity development requirements, through assigning tasks to the ESSD team members, the Environmental Specialist and the Socials Specialists, the construction consultancy firms, and the contractors as per assigned in their respective TOR's. ESSD might also require hiring designated consultants with specified expertise that is not available at the above mentioned levels, terms of reference of the consultants will be prepared in accordance to the training objectives, and in accordance with the ESS's, the TORs' will be reviewed and cleared by the Bank.

ESSD will include capacity building activities under their annual planning and budget.

Required capacity building needs for ESMF implementation

Training Objectives	Training Scope	Training Method	Target Stakeholder	Responsible	Time frame	Cost (USD)
Institutional Strengthening on project's ESF	Induction for WB ESSs, WB ES policies and guidelines, ES Management instruments, required organization and competencies for ESF management	Presentation, Discussion	ESSD staff, PIUs E&S staff, Central NRW Unit, WAJ – procurement Dep., JVA-procurement Dep. Relevant local authorities (MoEnv, MoL, Municipalities)	MWI / ESSD,	Prior procurement and tendering process	20,000
Introduction of Project's ESMF and its content	Induction of project's ESMF, ES risks classification assessment, ES risks mitigation measures, Developing ES management instruments	Presentation, Working groups, Discussion	ESSD staff, PIUs staff, JVA, WAJ- OE, WCs- OE, Contractor – ES staff	MWI / ESSD,	Prior to Commencement of sub-projects	30,000
ESMF implementation	ES monitoring methods, Reporting ES performance, ES Screening	Presentation, Working groups, Discussion	ESSD staff, PIUs staff, Central NRW Unit, JVA, WAJ- OE, WCs- OE, Contractor – ES staff	MWI / ESSD,	Prior to Commencement of sub-projects	25,000

	Methodology ESMP drafting ESF requirements at bidding documents ES review and continual improvement					
Land Acquisition and Resettlement	Introduction of project's RF and RP process and requirements	Meeting, Presentation	ESSD staff, PIUs staff, WAJ Resettlement Dep., WAJ- OE, WCs- OE	MWI / ESSD,	Prior to Commencement of sub-projects	10,000
Stakeholders Engagement	Introduction of project's SEP, SEP implementation and monitoring Introduction of GM, GM implementation and monitoring	Meeting, Presentation	ESSD staff, PIUs staff, WAJ- Outreach Dep., JVA, WAJ- OE, WC- Outreach Dep., WCs- OE, Contractor-ES staff.		Prior to Commencement of sub-projects	10,000
Labor Management	Introduction of project's LMP, LMP implementation and monitoring Introduction of worker's GM, worker's GM	Meeting, Presentation	ESSD staff, PIUs staff, WAJ- HR Dep., JVA, WAJ- OE, WCs, -HR Dep., WCs- OE, Contractor-ES staff.	MWI / ESSD,	Prior to Commencement of sub-projects	15,000

	implementation and monitoring OHS requirements at site including OHS site golden rules					
SEA/SH	All workers must be aware and understanding the requirements code of conduct as presented at LMP	Induction presentation, Printed code of conduct material	All project workers	MWI / ESSD,	Prior to Commencement of sub-projects	2000

Table 9: required capacity building needs for ESMF implementation

11. ESMF Implementation Budget:

The cost for implementation of ESMF is mainly related to the cost of ESMP implementation and proposed capacity building and training. As the final number and locations of sub-projects are not yet defined, the ESMP implementation cost estimated at this stage represents the following:

- Estimated Cost for hiring one Environmental Specialist and one Social Specialist to support the E&S management of the Project.
- Estimated cost of ES trainer if ESSD- ES Consultant was not assigned at early stage of the project if needed
- Estimated cost of ES training venues and associated expenses.
- Estimated cost for PPEs that ESSD and ES consultant needs to perform site visits and audits
- Estimated cost of preparation of ESIA required as ES management instruments for specific sub-projects and or requested by MoEnv.
- ESMF Consultation with Stakeholders
- Equipment for ES management and monitoring and reporting, i.e laptops.
- Contingency cost for other requirements required during the project implementation, such as additional ES specialists, PEA or ESIA for decided large water networks rehabilitation of construction, additional capacity building activities, etc.

Other ESMF implementation costs by Construction Consultancy Supervision Firm or contractors will be included under the BOQs of relevant sub-project tenders to be priced by the bidding Construction Supervision Consultancy Firm and contractor. BOQ will detail as much as applicable ESMF implementation items required for that specific sub project, and it will include but not limited to:

- Assigning ES, OHS and EMP staff
- PPEs required to be provided for workers
- Physical mitigation measures need to be applied such as barriers, fall protection, warning and information signs, printed materials, welfare setup and facilities required, emergency preparedness measures, waste management and disposal including hazardous waste, etc.
- Economic displacement preventive measures such as access, walkways, signs, etc.
- Social assessments and surveys
- ES & OHS training
- Stakeholder engagement related costs
- ES & OHS Inspection program

ESSD will be responsible for other ES management and monitoring related expenses under the project administration cost items. Land acquisition costs (if required) will be financed by MWI, however, compensation for economic displacement when not avoided will be financed as applied ESMP mitigation measure and will be part of the project administrative or contingency cost item. .

Any further environmental and social related resources proven mandatory for the sustainability of the E&S management that may be required during the implementation of the project will be part of the project administration contingency cost item.

Table 12 presents an indicative budget for the actions of ESMF implementation by MWI as described above, and it's important to note that this budget is indicative based on types, numbers, and locations of sub-projects that will be implemented.

Item	Quantity	Unit Cost (USD)	Total Cost (USD)	Component / Source of Funding
ESSD- Environmental and Social Specialists	2	60,000/ Year	360,000	All components
Assigning Focal Points	5	24,000 / year	360,000	From their Institutional Charges
Capacity Building Activities over the Project period	1	110,000	110,000	All components
ES monitoring and reporting	LS	3,000	3,000	Under component 4 of the project Management
Total				833,000
ES management and monitoring Contingency	25% of Total		208250	
Grand Total				1,041,250

Table 10: ESMF Cost Estimate for the project

12. Annexes:

Annex 1: List of additional regulations and their relevance to the project

- Renewable Energy & Energy Efficiency No. 13 of 2012 and its amendments (Law No.33 of 2014)
- Law of Agriculture NO. 44/2002
- Water Authority Law and its amendments No. 18 for the year 1988.
- Climate Change Regulation No.79 of 2019
- Water Protection Regulation No. 85/2002.
- Forestry and Soil Protection Law No. 23 for the year 1972, issued in accordance with Article 31 of the Jordanian Constitution.
- Soil Protection Regulation NO. 25/2005
- Regulation of Development Zones NO. 2/2008
- Regulation No. (43) of the Year 1998 - Regulation of Protection and Safety from Industrial Tools and Machines and Work Sites
- Instructions on levying/fees for the treatment and final disposal of the hazardous waste 2004.
- Groundwater Control Regulation No. 85 of 2002, Issued pursuant to Articles 6 and 32 of Water Authority Law No. 18 or 1988.
- Regulations for Protection of Birds and Wildlife and rules covering their hunting (No. 113, 1973).
- Natural Reserves and National Parks Regulation No. (29) / Year 2005.
- Regulation of Regulating Energy Conservation Measures and Improving its Efficiency No 73 of 2012
- The Protection of the Environment from Pollution in Emergency Situations Regulation No. 26 for the year 2005.
- Instructions on the Protection of water Resources for the year 2011.
- Instructions for the Limitation and Control of Noise for the year 2003.
- Instructions for Disposal of Industrial and Commercial wastewater into the sewage network, issued in accordance with Water Authority Law No. 18 for year 1998 and Article No. 23 of the Sewage System Law No. 66 for the 1994.
- Instruction for Controlling the Use of Substances that Deplete the Ozone Layer for the year 2003, issued in accordance with Law No. (1) 2003 Articles 9-15; 'Law for the Protection of the Environment'.
- Instructions to prevent the occurrence of health damage related to the health damage caused by housing units for labor communities No. (1) for 2013
- General Health Conditions Instructions for Industries No. (2) for 2019
- Jordanian Standards for Ambient Air Quality Number JS 1140/2006
- Jordanian Standards for the Prevention and Elimination of Noise (2003)
- Jordanian Standard 202/1991 for industrial wastewater discharge

Annex 2: Environmental & Social Baseline Conditions

Overview of Water Sector in Jordan

In 2017, the Ministry of Water and Irrigation (MWI) estimated annual water availability at 1,054 million cubic metres (MCM). Of these, 288 MCM come from surface resources, 619 MCM from groundwater and 147 MCM from treated wastewater

Surface water in Jordan contributes about 28% of the total water supply. Surface water resources provided 288 MCM of water in 2017. The country's three main rivers, the Jordan, Yarmouk and Zarqa, are a major part of the country's surface water system. However, the available water supply from each has become highly unreliable.

In the 1930s, one of the main water resources was the Jordan River, with a flow of 1.3 billion cubic metres per year (BCM/yr). However, diversions of the river and its tributaries, including Israel's construction of the National Water Carrier in 1953 and water diversion from Lake Tiberias resulted in the flow of the Lower Jordan River dropping significantly. A 2010 study found that the Lower Jordan River has been reduced to 2% of its historic flow.

The Yarmouk River accounts for 40% of Jordanian surface water resources, its water is deemed to be of good quality. Jordan is challenged by the transboundary nature of the river. Due to Syrian overexploitation of groundwater resources, the flow of the river reaching the Jordanian side of the border and filling the Wahda Dam is much lower than expected. The Yarmouk is also an important source of water for the King Abdullah Canal, used in the Jordan Valley for irrigation purposes.

The Zarqa River, though completely within Jordanian borders, has experienced decreasing water quality due to industrial and domestic abstractions and discharges. Few if any of these industries have plans to treat contaminated wastewater before it is dumped in the river. At the same time, about 50% of the river's flow comes from the Samra wastewater treatment plant. Nevertheless, it still provides around 60 MCM/yr for the King Talal Dam, which is one of the major dams in the country.

Groundwater is the main source of water for the Jordanian population for its domestic water supply. However, the groundwater supply is also insufficient to satisfy growing domestic demand. Groundwater (renewable and non-renewable) accounts for about 60% of the annual water budget, or about 618 MCM/yr.

Renewable groundwater aquifers can be recharged by natural and artificial recharge. 12 groundwater basins have been identified in Jordan. It has been estimated that the safe yield that allows for recharge of the groundwater supplies of renewable groundwater resources across the country is about 275 MCM/yr.

Moreover, the groundwater resources are both within Jordan's borders as well as shared with neighboring countries. This is, for instance, the case for the Disi and Yarmouk aquifer. The shared resources' flow comes from the upstream countries. OP 7.50 is relevant, activities will be screened during project implementation to ensure compliance with OP and Legal Agreement.

Non-conventional resources like treated wastewater is becoming an increasingly important resource, contributing around 18% to the national water budget. Most of this water is used in the agricultural

sector. In 2017, this amounted to 144 MCM out of 147 MCM. This amount is forecasted to increase to 411 MCM in 2035.

Most of the treated wastewater is released from treatment plants near the major population centres in the middle of the country, into watercourses on the ridge of the Jordan Valley, where it flows into the valley for use in irrigation. The amount of wastewater has increased over the years, mainly due to the significant population increase (including refugees). This has resulted in the existing wastewater treatment plants (WWTPs) being used beyond their original design capacity.

Water quality

Water quality in the lower part of the Jordan River and the Zarqa River has severely deteriorated over the last 70 years, and the water from these rivers is no longer fit for human consumption. Untreated wastewater and agricultural fertilizer runoff continue to enter the Jordan River, while contamination of the Zarqa River from industrial discharge and illegal dumping of sewage, which is affecting the quality of the relatively small amount of water that is left. The quality of groundwater is also decreasing, mainly due to over-pumping, which often leads to increased salinity. Jordan has a national standard for drinking water (No. 286/2015) that providers of water for domestic use must comply with.

Water use

Water use varies per sector. The agricultural sector has always been the main water user (ranging from highs of over 70% at the beginning of this century to about 53% in 2013 and to 45% in 2017), followed by the domestic sector (rural and urban households) (about 52% in 2017) and the industrial sector (mainly potash and phosphate industries) (about 3%).

Almost 98% of collected wastewater in Jordan is treated at 28 wastewater treatment plants in the country. Treatment of wastewater is performed to meet the Jordanian standard (JS 893/2006), where effluents of treated wastewater must meet this criteria that align with WHO standards. However around 65% of Jordan population are served with sewer collection system where at urban areas this percentage increases to 71%.

Water challenges

- Experts predict that climate change will result in summer temperatures in the Mediterranean region rising between 2.2°C and 2.5°C. This will be accompanied by a 4% to 27% decrease in annual precipitation, increasing the risk of droughts. Increased evaporation and reduction in soil moisture will reduce surface and groundwater recharge. This will, in turn, lead to a higher need for crop irrigation. Climate change is also expected to increase the number of extreme weather events such as rain and snowstorms, which can result in flooding. It will also cause greater variability in annual temperature extremes.
- Jordan has limited financial capacity to implement major projects, so it largely depends on external funding sources (e.g. foreign private enterprise, NGOs, foreign aid, foreign governments). However, foreign funders' priorities are not necessarily in line with the government's goals.
- Leakage, water loss and water theft are a huge problem. An estimated 40% to 60% of the water supply is lost in the network, depending on the location. Inefficient administrative processes, outdated infrastructure and inadequate maintenance are the main culprits of this huge waste. In some areas, lack

of maintenance or poor quality of repair materials, limited penalties for illegal water use and a lack of public awareness and/or personal responsibility for water waste also play a role.

- Jordan's geography also forms a challenge to water supply. Jordan's key water resources (main rivers and aquifers) are generally situated at a considerable distance from the cities and agricultural areas, meaning that water needs to be transported between the source and the consumer, sometimes covering a great difference in altitude. Almost 80% of the population lives in cities in the northern part of the country, at elevations significantly higher than the main surface water sources. As a result, the Jordanian government has had to invest in an extensive and expensive water network, which needs to be constantly maintained and upgraded. The energy requirement and cost of transporting the water are also substantial.

- Most of Jordan's water resources (surface and groundwater) are shared with neighboring countries, and the majority of these shared resources originate outside the country. Shifting regional relationships have affected Jordan's access to these shared resources throughout the country's history. In several cases, Jordan has received less than its equitable share of the resource, as upstream neighbors overexploit rivers and groundwater sources through damming, diversions and pumping.

Management of water Sector

Ministry of Water and Irrigation (MWI) plays a central role in water governance and management, however different institutions are involved in the management of the water sector as follows:

1. Established in 1988, the **MWI** is the main public water institution. The ministry operates at policy-making level and is responsible for outlining the country's water strategy, creating the national master plan for water use, preparing water studies and monitoring water resources.
2. The Jordan Valley Authority also operates under the MWI. Its overall mandate is to create a plan and conditions for comprehensive development (farming, industrial, municipal and tourism) in the Jordan Valley and to protect all the valley's water resources.
3. The **Water Authority of Jordan** (WAJ) operates under the MWI and is responsible for the operational management of water resources and the organization of water supply and wastewater treatment in the highlands. For example, the authority has the mandate to manage threatened groundwater resources through its control of groundwater pumping licenses.

WAJ has developed a policy to allow private initiative in the water sector in the form of private water companies and public-private partnerships. Currently three water companies are responsible for management of water supply and wastewater collection through sewer system in the country, these companies are (i) **Aqaba Water Company**, responsible for water management at southern region that include governorates of Aqaba, Maan, Tafelah and Kerak (ii) **Miyahuna Water Company**, responsible for water management at middle region that includes governorates of Amman, Zarqa, Balqa and Madaba, and (iii) **Yarmouk Water Company**, responsible for water management at northern region that includes governorates of Irbid, Ajloun, Jerash and Mafraq.

Water Sector Utilities Services

Despite Jordan's severe water scarcity, more than 97% of Jordanians have access to safe water source and 93% have access to safely managed sanitation, however and according to WAJ, only 65% of the population are connected to the sewerage system but the rest of those having access to improved sanitation uses on-site sanitation solutions such as septic tanks. These septic tanks, if not lined properly, may leak into the groundwater aquifers and contaminate them. This is one of the highest rates in the Middle East and North Africa. However, the water supply is intermittent, and it is common to store water in rooftop tanks. The level of water lost through leakage, under-registration, and illegal connection in municipal water supply (non-revenue water) is approximately 51%. In urban areas, Jordanian households have intermittent access to water for around 12 to 36 hours each week, while in rural areas, that figure is much less, with these households receive water for 12 to 36 hours every three weeks. These utilities as described above, are managed through three water companies, who operate and maintain water sector infrastructure including water treatment facilities, water distribution networks, water transmission lines, water reservoirs and pump stations.

NRW Efforts in Jordan

While Jordan's traditional water sources are scarce and declining, around 50% of water supplied to urban systems is "lost" as "non-revenue water" (NRW). NRW is mainly comprised of leaks, theft, and metering errors. Past efforts to resolve this problem had not shown any success and did not measure the impact of various fixes. There was also a lack of reliable data on the problem and a lack of information on the location of many pipes and customers. Current NRW initiatives with the support of USAID are using a Collaborating, Learning & Adapting (CLA) approach to understand and address the challenge, rather than just replace assets and hope for the best.

The situation requires utility staff to work collaboratively with the consulting team and USAID. For example, the knowledge of utility personnel is being used to locate unregistered pipes, which are often leaky and confound system management. CLA approach also incorporates extensive quantification of NRW at a granular level, examines root causes, and measures the marginal impact of various upgrades on NRW levels and at what cost. These data gradually reveal optimal investments and management approaches and are used to modify the approach going forward.

Results to date are impressive. For example, a comprehensive approach in one Amman zone reduced NRW from 46% to 11% at a cost of about \$7 million. Then a simpler approach was tried, reducing NRW in several zones from about 43% to 26%, at a cost averaging \$3 million per zone. In another example, 7,000 old customer meters were replaced with more advanced meters in Aqaba, reducing NRW from 56% to 22%. Following this, USAID is funding the replacement of the other 34,000 old water meters.

Physical Environment

Jordan is of a relatively small size of 89,342 km², of which 88,802 km² land and 540 km² is water including a 27 km long coastline, with a population of 10 million, making it the eleventh-most populous Arab country

The topography of the country is highly contrasting; from more than 400 meter below sea level at the Dead Sea to 1,854 meter above sea level at the southernmost boundary in Um Addami Mountain. Most of Jordan is occupied by a plateau, which has an altitude between 700 and 1,200 meters. The plateau is interrupted only in the west by the narrow valley of the Jordan River, which goes even below sea level and has higher temperatures, with mild winters and very hot summers. This variation of physical environment is strongly reflected in the diversity of life in the country in terms of natural heritage along with its associated cultural values and in particular as related to biological diversity.

The climate in Jordan varies greatly. Generally, the further inland from the Mediterranean, there are greater contrasts in temperature and less rainfall. The climate of Jordan is mostly arid desert. It has quite cold winters due to the altitude. The winter, lasting from November to March, is relatively cool, with temperatures averaging around 11 °C. Winter also sees frequent showers and occasional snowfall in some western elevated areas.

Jordan has sunny summers, which are hot but partly tempered by the altitude as well. They last from May to September are hot and dry, with temperatures averaging around 32 C and sometimes exceeding 40 C between July and August.

Rainfall is generally scarce, and occurs from November to April, with a maximum in winter, between December and February. Total annual rainfall ranges between 250 and 450 millimetres in the north-western area, and it decreases to a desert level, below 100 mm per year in the rest of the country, that is, in the south-central Jordan Valley, and in the vast areas of the north-east and the south-east, which are offshoots of the Syrian and Arabian deserts. Therefore, most of the country is desert, while the north-western area is semi-desert, and some parts of it, located above 1,000 meters are even quite green. From November to March, rains are more intense than usual when the river beds (wadis), which remain dry most of the year, can suddenly fill up and make it difficult to get around.

The east of Jordan is an arid plateau irrigated by oases and seasonal water streams.<https://en.wikipedia.org/wiki/Jordan> Major cities are overwhelmingly located on the north-western part of the kingdom due to its fertile soils and relatively abundant rainfall. These include Irbid, Jerash and Zarqa in the northwest, the capital Amman and Al-Salt in the central west, and Madaba, Al-Karak and Aqaba in the southwest. Major towns in the eastern part of the country are Azraq and Ruwaished.

In the west, a highland area of arable land and Mediterranean evergreen forestry drops suddenly into the Jordan Rift Valley that contains the Jordan River and the Dead Sea. Jordan has a 26 kilometres shoreline on the Gulf of Aqaba in the Red Sea. The Yarmouk River, an eastern tributary of Jordan River, forms part of the boundary between Jordan and Syria to the north. The other boundaries are formed by several international and local agreements and do not follow well-defined natural features.

Social and Demographic Background

Jordan has a population around 11 million which is mostly concentrated in the middle and north of the country, mainly at the mountains range and high lands. In the vast area to the east and south of the

country, the population density is reduced to almost zero. Figure 3 shows the distribution of Jordan's population over 12 governorates.

Jordan is a young nation where around 54% of the population are below 25 years old, and the ratio of male/female in Jordan is almost 1:1. More than 84% of Jordanians are living at urban cities and towns which makes the sustaining an efficient water system and services is a challenge (see figure 3).

Jordan has a population growth through a combination of organic growth and refugee influxes which reduces the amount of water available per person. Jordan is also becoming increasingly urbanized, where around half of Jordan's available water is used for domestic water supply (including industry), while the other half is allocated to agriculture. According to the National Water Strategy, the water demand will exceed available water resources by more than 40% by 2025, with a projected deficit of 60% by 2040 without further intervention.

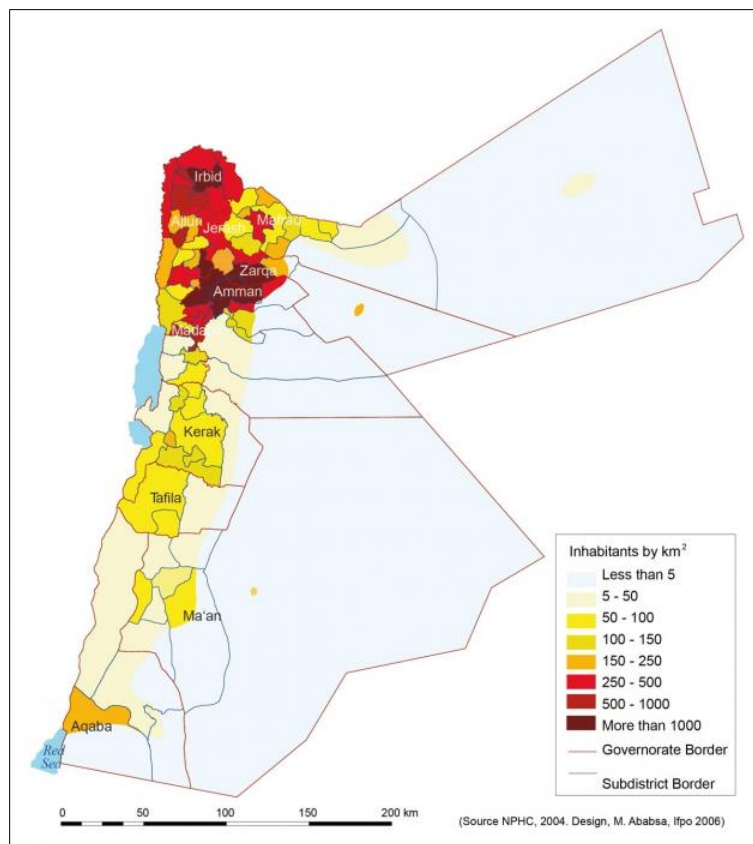


Figure 3: Population Density of Jordan

Jordan has labor regulatory system that for in overall align with ILO requirements in terms of contractual terms and conditions, child labor, wages, occupational health and safety, woman & GBV, and SAE/SH. The MoL has a big challenge to enforce labor regulations due to the limited resources in personnel who can inspect and monitor compliance with labor regulations over country. The issues related with SAE/HS is not clearly addressed at the contractual terms and conditions due to cultural aspects that may consider inclusion of such terms in explicate manner is sensitive and can be socially miss captured.

Natural Environment and Biodiversity

Jordan has diverse natural habitats, 3 ecosystems are identified; Scarp and Highland Ecosystem where more than 80% of Jordan's cities and villages exist, Desert Ecosystem, that extends along the eastern and southern desert with lowest population in the country. Sub-tropical Ecosystem exist at the upper middle of Jordan Valley at Balqa governorate to Aqaba at south.

Jordan has 4 main biogeographic zones and 13 main vegetation types (see figure 4), where forests cover less than 1% of total land, while Mediterranean Non-Forest Vegetation and Steppe Vegetation are the most dominant vegetation at populated areas of Jordan.

Although Jordan has a national biodiversity policies, and Jordan has regulations that protect natural habitats and biodiversity under environmental and agricultural regulations. These regulations are mainly focused to preserve habitats and species inside protected areas and national parks more than those outside these areas. Hunting regulations are exist but the enforcement is a major challenge. Economic situations has increased the pressure on vegetation coverage especially forests for wood collection, and on open forages that suffer from overgrazing impacts.

Jordan is one of the early Arab states that considers biodiversity conservation at mid 60's, through the establishment of Royal Society for Conservation of Nature, where first reserve has been established in 1975. Biodiversity conservation has been developed, and Nature Reserves and National Parks Regulation No. 29 of 2005, issued to regulate the network of protected areas in Jordan. Recently Jordan has 11 declared protected areas (Nature Reserves) that represent important natural habitats in the country in addition to other 10 special conservation areas that of protection priority through community ecological friendly management. According to BirdLife International, Jordan has 18 important bird (IBAs) areas where Jordan is a bottleneck for global birds migration at Middle East. (Figure 5). Environment Rangers Directorate has been established in 2006 under the Public Security to enforce implementation of environmental regulations including those related to biodiversity conservation.

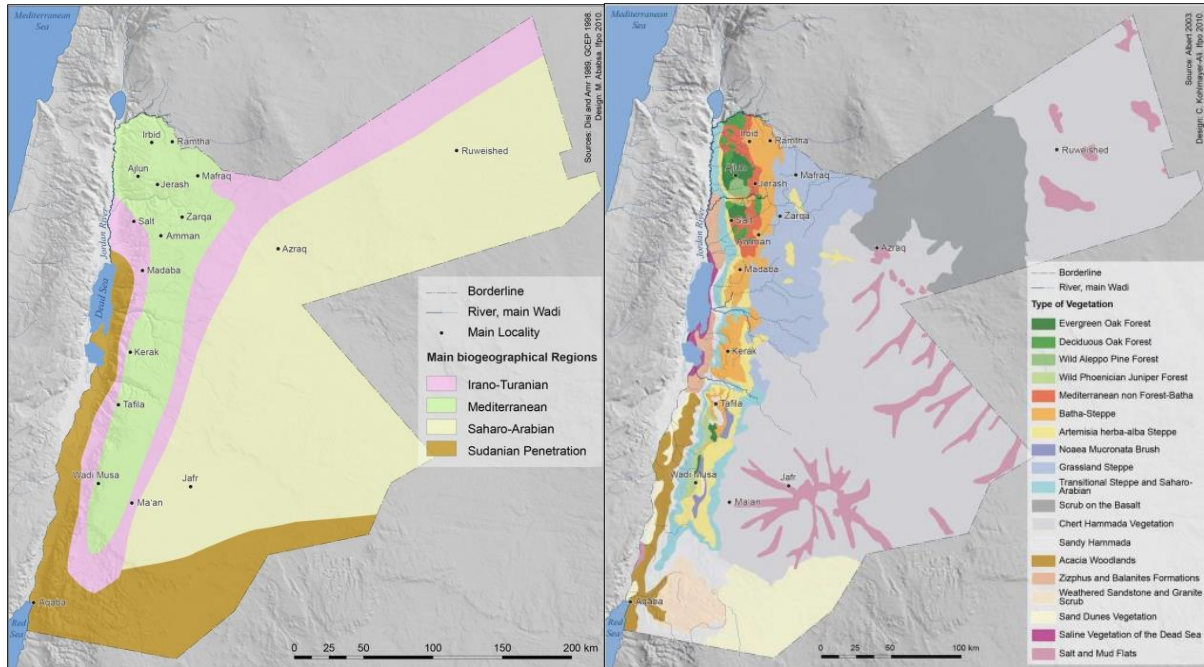


Figure 4: Biogeographic and Vegetation types in Jordan

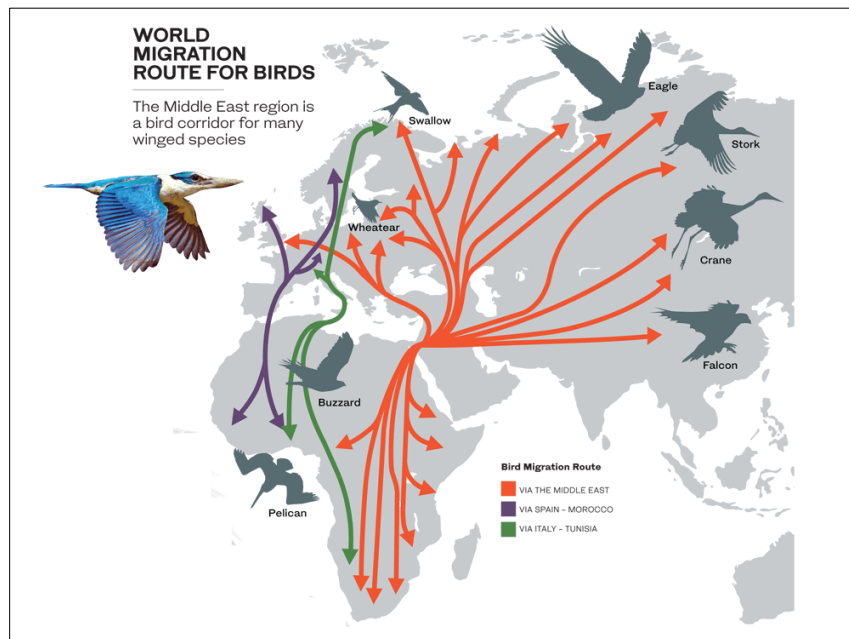


Figure 5: Main Global Birds Migration Routes in Middle East

Cultural Heritage

The culture Heritage is governed by **The Antiquities Law No.23 of 2004 and its amendments, simultaneously read with The Antiquities Law No. 21 for the year 1988.**

The oldest known evidence of human habitation in Jordan dates back at least 200,000 years due to its central location at the Levant in the heart of ancient world and civilizations.

Jordan has regulated cultural heritage at early stages of the country, where strict regulations were developed to protect archaeological and cultural remains. The major challenges for protection of cultural heritage are the enforcement of these regulations due to limited resources regarding the manpower (inspectors) and the financial capacity to develop effective protection measures especially for small size archaeological sites.

It is estimated that up to 100,000 archaeological sites exist in Jordan alone, although only 0.02% of them have been recorded, and Jordan has 5 declared world heritage sites by UNESCO. Jordan holds 6 out of 10 Decapolis Cities of Roman Empire where 5 of them are located in the north in addition to Philadelphia (currently Amman) in the middle. Both Amman and Jerash hold the Roman archaeological sites at the heart of these cities, while governorate of Irbid holds the other 4 Decapolis cities and close to some villages and towns. That would require due care during project implementation on the undiscovered archeological remains.

Annex 3: Ministry of Environment Clearance Process

This Annex provide overview of the Ministry of Environment Requirements in general. The IA's shall exclude high risk sub-projects without proceeding further with ESIA preparation. The terms of reference, Assessment and the reports will be prepared in accordance with the ESS and should be acceptable to the bank.

Based on environmental classification and licensing regulation No.69 of 2020, Subprojects that are defined with high, medium and limited ES risks must have environmental approval prior implementation. Upon the result of the subproject screening, the clearance process will depend on its risk and the required ES instrument. This Annex describe the clearance process for each type of ES instrument that legally requires MoEnv. Clearance.

Full ESIA Clearance Process:

- 1- Licensing technical information form about the subproject must be filled with the required information and attachments required. This form is available on this link http://moenv.gov.io/ebv4.0/root_storage/ar/eb_list_page/%D9%86%D9%85%D9%88%D8%B0%D8%AC%D8%AA%D8%B1%D8%A7%D8%AE%D9%8A%D8%B5-%D9%85%D8%B9%D9%84%D9%88%D9%85%D8%A7%D8%AA%D9%81%D9%86%D9%8A%D9%87%D8%B9%D9%86%D8%A7%D9%84%D9%85%D8%B4%D8%B1%D9%88%D8%B9.pdf
- 2- Filled form with attachments submitted to MoEnv. for review and approval of the subproject location, and to confirm the type of ESIA required (full or preliminary) to obtain environmental permit .
- 3- If MoEnv. required preliminary ESIA, and the ES screening classified project of substantial risk according to World Bank, then WAJ must notify MoEnv. that according to financier of the subproject, Full ESIA is required to be prepared. MoEnv. and local regulation accept to apply more stringent safeguards upon donor or lender request but not less.
- 4- WAJ and through authorized EIA consulting firm must prepare TOR in accordance with the ESS 's and acceptable to the Bank, WAJ then will submit preliminary ToRs of Full ESIA.
- 5- WAJ will prepare the EISA based on the TORS agreed with the Bank and the ministry, identifying the minimum requirement of the TOC as identified in Annex 5.
- 6- When Preliminary ToRs approved, then consultation of ESIA must be performed with stakeholders defined by MoEnv. Through scoping session under the umbrella of MoEnv.
- 7- Final full ESIA ToRs that include outcomes and concerns of consulted stakeholders, must be resubmitted to MoEnv. for review and approval.
- 8- Once final full ESIA ToRs approved by MoEnv., draft ESIA report must be prepared
- 9- Draft full ESIA report and after review and World Bank satisfaction with the review, must be submitted to MoEnv. for review and approval, the response to the comments and the final ESIA draft will be submitted for the world bank final review prior clearance.
- 10- The Bank will approve the ESIA and will request the IA to disclose in country including Ministry of Environment website
- 11- Once Full ESIA draft report approved then the subproject can proceed with implementation

Preliminary ESIA Clearance Process:

All steps required for clearance process of Full ESIA are requested for preliminary ESIA except the scoping consultation.

The coordination of Clearance between the World Bank and the National Requirements will be further addressed in the Project operation Manual, the following is an indicative summary the review and approval process for ES instruments on project and activity levels are as in table below, noting that MWI /WAJ clear the developed subprojects instruments to ensure it complies with local regulations and Bank requirements prior submitting them to the Bank :

ES Instrument	Prepared By	Reviewed / Approved By	When
Subprojects ES Screening	MWI / WAJ - ESSD-PMD	World Bank	Prior Implementation
Subproject ES Instruments (ESIA / Preliminary ESIA)	IAs (WAJ / WCs)	1- MWI / WAJ - ESSD-PMD 2- MoEnv. 3- Final Clearance by World Bank	During planning and design
Subproject ESMP / ESMP Checklist / RAP	IAs (WAJ / WCs)	1- MWI / WAJ - ESSD-PMD 2- World Bank	During planning and design

Table 11: Summary of Review and Approval Matrix for SOP1 ES Instruments

Annex 4: Environmental and Social Screening Form

SECTION 1: ACTIVITY OUTLINE

Component	
Sub-Project Name	
Location Governorate/City	
Implementing Agency	
Activities by the Sub-Project	
Expected Start Date and Expected Duration of Sub-Project Implementation Phase	
Environmental / Social Specialist:	

SECTION 2: SCREENING PROCESS

Objective of the Screening Process	
ESMF Risk Classification and Sub-Project Applicable ESSs per the ESMF	
Date and Day of Screening	
Description of Screened Site Location	
Coordinates of Site Location/s	"INSERT MAP IN ANNEX"

SECTION 3: PROJECT & ACTIVITY DESCRIPTION

Sub-Project Brief	
Activity Description	

SECTION 4: SUBPROJECT ELEGIBILITY SCREENING

Exclusion List	Yes	No
<ul style="list-style-type: none"> a. Sub-projects with high ES risks according to Environmental Classification and Licensing System No. 69 of 2020 b. Sub-projects that with high ES risk classification as per the World Bank ESF: c. The Sub-project is likely to generate a wide range of significant adverse risks and impacts on human populations or the environment. This could be because of the complex nature of the Project, the scale (large to very large) or the sensitivity of the location(s) of the Project. This would take into account whether the potential risks and impacts associated with the Project have the majority or all of the following characteristics: (i) long term, permanent and/or irreversible (e.g., loss of major natural habitat or conversion of wetland), and impossible to avoid entirely due to the nature of the Project; (ii) high in magnitude and/or in spatial extent (the geographical area or size of the population likely to be affected is large to very large); (iii) significant adverse cumulative impacts; (iv) significant adverse transboundary impacts; and (v) a high probability of serious adverse effects to human health and/or the environment (e.g., due to accidents, toxic waste disposal, etc.); d. The area likely to be affected is of high value and sensitivity, for example sensitive and valuable ecosystems and habitats (legally protected and internationally recognized areas of high biodiversity value), lands or 		

<p>rights of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities and other vulnerable minorities, intensive or complex involuntary resettlement or land acquisition, impacts on cultural heritage or densely populated urban areas.</p> <ul style="list-style-type: none"> e. Some of the significant adverse ES risk and impacts of the Project cannot be mitigated or specific mitigation measures require complex and/or unproven mitigation, compensatory measures or technology, or sophisticated social analysis and implementation. f. d. There are significant concerns that the adverse social impacts of the Project, and the associated mitigation measures, may give rise to significant social conflict or harm or significant risks to human security. Sub-projects with excavation activities at areas known with water networks containing ACM pipes g. Sub-projects include activities within or affecting protected areas this includes (a) sites of the Alliance for Zero Extinction (AZE), (b) natural and mixed sites on the UNESCO World Heritage List and (c) legally protected areas (IUCN categories) and, (ii) Any operation leading to an adverse and irreversible residual impact on a critical habitat; (iii) Any forest project or agricultural project with broad coverage (>100 ha) that does not implement a methodology ensuring zero-deforestation. h. Sub-projects that will cause adverse significant degradation or pollution of the water resources. i. Sub-projects that have a high probability of serious adverse effects to human health and/or the environment (e.g., due to accidents, toxic waste disposal, etc.) j. Sub-projects that include any removal or impact on archaeological remains or cultural heritage sites 		
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Recommendations:

If the answer to any of the questions above is yes, the subproject should be excluded from financing.

If all the answers are no, proceed with the subproject Environmental and Social Screening below and list the appropriate E&S mitigation measures/ instruments.

SECTION 5: RATING CRITERIA TO ASSESS RISKS OF SUBPROJECT

Parameter	Evaluation Description	Rating
Spatial Influence	Within the project site	Low (1)
	Impact beyond site boundary; Local	Medium (2)
	Widespread impact beyond site boundary; Local	Substantial (3)
	Impact widespread far beyond site boundary; Regional/national	High (4)
Duration	Quickly reversible, less than project life, short term (0-2 years)	Low (1)
	Reversible overtime; medium term to life of project (2-4years)	Medium (2)
	Of difficult reversibility overtime; medium term to life of project (4-6years)	Substantial (3)
	Beyond closure; permanent; irreplaceable or irretrievable commitment of resources	High (4)
Intensity	Minor deterioration, nuisance or irritation, minor change in species/habitat/diversity or resource or very little quality deterioration; very little improvement	Low (1)
	Moderate deterioration, discomfort. Partial loss of habitat biodiversity/resource or slight or alternation, moderate improvement.	Medium (2)
	Alteration or disturbance is significant	Substantial (3)
	Habitat/diversity or resource, severe alteration or disturbance important processes; severe improvement	High (4)
Probability	Unlikely, low likelihood, No known risk or vulnerability to natural or induced hazards. Unlikely, low likelihood, Seldom No known risk or vulnerability	Low (1)

	to natural or induced hazards.	
	Possible, distinct possibility, frequent Low to medium risk or vulnerability to natural or induced hazards.	Medium (2)
	Possible, distinct possibility, frequent substantial risk or vulnerability to natural or induced hazards.	Substantial (3)
	Definite (regardless of prevention measures), highly likely, continuous high risk or vulnerability to natural or induced hazards.	High (4)
Significance	Deduced from the summation of the ratings with the range defined as follows: Below 4 low Risk , (Risk is acceptable and can be managed easily by the IA & Contractor) 4-7 Low to moderate , (Risk can be managed, but need mitigation based on ESMP checklist) 7-9 Moderate Risk , (Risk can be managed, but need further management (mitigation measures and monitoring plan and other ESHS plans propotiante to the risk) 10-12 Substantial Risk , (risk can be managed, but need further detailed and comprehensive management of proposed mitigation measures, monitoring plans and other ESHS plans. 13-16 High Risk , (screened of high, irreversible risk as identified in the Project exclusion criteria, and will be excluded at the pre-screening stage)	

Below is a guidance to determine what action would be taken before proceeding to the next step based on the risks classification results

Low Risk	These types of subprojects would be labeled as ' activities of low environmental and social risk. Those activities will require no further action needed to proceed with the sub-project implementation.
Low to Moderate Risk	These types of subprojects would be labeled as ' activities of low to moderate environmental and social risk. In this case, incorporate potential mitigation measures into the design of the subprojects would be integrated and Environmental and Social Checklist would be prepared based on the ESMP checklists at annex 5.
Moderate Risk	These types of subprojects would be labeled as ' activities of moderate environmental and social risk. In this case, incorporate potential mitigation measures into the

	design of the subprojects would be integrated and site-specific ESMP would be prepared based on the ESMP samples provided at ESMF.
Substantial Risk	These types of subprojects would be labeled as ' activities of substantial environmental and social risk . In this case, site-specific ESMP/ESIA would be prepared.
High Risk (Exclusion)	The activities screened to fall under the exclusion criteria will be excluded.

SECTION 6: ENVIRONMENTAL AND SOCIAL SCREENING

Recreate the table below for both (i) construction (ii) operation phases.

POTENTIAL ENVIRONMENTAL / SOCIAL RISKS	Yes	No		Recommended Mitigation Measures
ESS1: Assessment and Management of Environmental and Social Risks and Impacts				
Does the subproject involve civil works including new construction, expansion, upgrading or rehabilitation environmental risks and impacts they are mostly temporary, predictable and/or reversible?				
Are there any anticipated potential impacts and risks to the physical environment, including water resources, natural habitat, atmospheric emissions, noise, solid waste, or ecological degradation?				
Is there a likelihood that the activities would have inequitable or discriminatory adverse impacts on affected communities? Or to exclude individuals or groups? Including vulnerable and marginalized groups?				
Does the subproject management have the institutional environmental and social capacity to manage and implement the E&S risks and mitigation measures?				
ESS2: Labor Rights and Working Conditions				
Does the subproject involve recruitment of workers including direct, contracted, primary supply, and/or community workers?				
Does the subproject have potential GBV/SEA/SH risks? Are the financed activities expected to be sensitive to such risks?				
Is there a risk that any employment resulting from the execution of subproject activities will be biased towards marginalized and vulnerable groups (e.g., women, people with disability)				

POTENTIAL ENVIRONMENTAL / SOCIAL RISKS	Yes	No		Recommended Mitigation Measures
Is there a risk of unfair recruitment process if subproject activities will require recruitment activities?				
ESS3: Resource Efficiency and Pollution Prevention and Management				
Will the subproject result in the release of pollutants to air (including nuisances)?				
Will the subproject result in the release of pollutants (solid and/or liquid) to land and environment and natural resources ?				
Is the subproject expected to be associated with generation of Hazardous waste?				
Is the subproject expected to be associated with generation of substantial quantities of construction/demolition waste?				
Is the subproject expected to generate dust/noise/excessive exhaust emissions?				
Will the project will require increase the use or depletion of resources?				
Will the project will be				
ESS4: Community Health and Safety				
Is the design of subproject may potential risks during construction and operation on closest sensitive receptors or nearby communities				
Does the sub-project include structural elements? If yes, do they incorporate ESHGs and other good international industry practice? Do they take into account climate change considerations as appropriate?				
Is implementation of subproject would impact other utilities services provide for the community ie electricity and communication.				
Is subproject implementation potential traffic and road safety				

POTENTIAL ENVIRONMENTAL / SOCIAL RISKS	Yes	No		Recommended Mitigation Measures
risks to affect communities and road users throughout the project life cycle				
Are the construction and operational equipment and machineries would affect public roads and other public services.				
Are subproject activities during construction and operation affect ecosystem service that may result with health and safety impacts on affected communities.				
Does implementation of subproject would expose community to health risks with water-born, water related, communicable and non-communicable diseases during construction and operation, particularly for vulnerable groups				
Is subproject implementation will expose community to hazardous materials that would be released during construction and operation				
Would subproject implementation generate emergency events ie Fire, spills, etc. that could impact health and safety of the public.				
Are subproject activities expected to include measures to facilitate the access of vulnerable or disadvantaged persons to the benefits of the project				
Do subproject activities carry any high or substantial risks of causing incidents to the population and neighboring communities? Is there a risk of increasing the probability				
creating GBV potential impacts due to the execution of financed activities:				
<ul style="list-style-type: none"> • Will the sub-project result in labor influx 				
<ul style="list-style-type: none"> • Is the sub-project being implemented in rural, peri- 				

POTENTIAL ENVIRONMENTAL / SOCIAL RISKS	Yes	No		Recommended Mitigation Measures
urban, or urban areas?				
<ul style="list-style-type: none"> • Will the sub-project be in hard to supervise areas • Will the sub-project construction near school route or other pedestrian access that women and girls use for their daily activities 				
Does the subproject have the potential to upset community dynamics? (Impacts on community culture, and values)				
Will subproject activities present hazards to community members on the sub-project site? Also consider risks and accessibility for people with disabilities applying the principle of universal access where technically and financially feasible				
Will the subproject activities pose traffic and road safety hazards?				
Will the technical assistance studies (Feasibility studies/design) include rehabilitation of dams?				
ESS5: Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement				
Will the Project require land acquisition, resettlement?				
Will the project require physical displacement (relocation , loss of residential land or loss of shelter)				
Will the project cause impacts on livelihood that cause loss of income of the affected persons (including commercial tenants, or assets temporarily or permanently loss of crops, fruits, trees ...etc.),				
Will the subproject implementation affects assets or access to assets such as access of individuals to their houses and owners / customers to business shops or access to to natural or community resources (e.g. pasture, fishing locations,				

POTENTIAL ENVIRONMENTAL / SOCIAL RISKS	Yes	No		Recommended Mitigation Measures
forests, water sources, places of worship, or public spaces)				
Are there any squatters or encroachers on the site?				
ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources				
Is the project located within or nearby an area that is legally protected, designated for protection, or regionally or internationally recognized as an area of high biodiversity value?				
Will subproject activities adverse impact sensitive or protected areas?				
Will project activities have any adverse impacts or risks to any category of habitats defined under the standard: - Modified habitat - Natural Habitat - Critical Habitat				
ESS8: Cultural Heritage				
Will the subproject be located or close to a site of cultural value or social heritage of local communities?				
ESS10: Stakeholder Engagement and Information Disclosure				
Does the sub-project have a plan to to incorporate measures to allow meaningful, effective and informed consultation of stakeholders, such as community engagement activities, particularly in a way that informs project design and identification of environmental and social mitigation measures?				
Does the sub-project have a plan to coordinate with government agencies and municipalities and utilities about the design, construction and operation as relevant?.				
Has there been previous cases of exclusion of persons with				

POTENTIAL ENVIRONMENTAL / SOCIAL RISKS	Yes	No		Recommended Mitigation Measures
disabilities or other marginalized related to the project's implementation? groups (women, children, ethnic minorities, elderly) in the area?				
Does the sub-project have a plan to disclose and disseminate information to stakeholders in an accessible, understandable and culturally appropriate format				
Does the sub-project have a plan to consult with men and women's groups to ensure they can participate in decision-making processes regarding the activity and to understand safety and security risks including SEA/SH?				
Is there a risk that exclusion of beneficiaries will lead to grievances?				
Does the subproject have a GM in place, to which community and stakeholders have access, designed to respond quickly and effectively and transparently?				

SECTION 7: SUMMARY OF THE SCREENING PROCESS

E&S Screening		Results and Recommendations		
	Relevant ESSs for this subproject	List ESSs		
Phase (Construction/Operations)	Summary of Critical Risks and Impacts identified	Risk / Impact	Individual Risk/ Impact Rating (low, moderate, substantial, High)	Summary of Mitigation Measures
	1.			
	2.			
	3.			
	4.			
	5.			

Additional Assessment Requirements	
Screening Result	Summary of Screening Result Justification
1. No further E&S assessment required	e.g. "Low risk sub-project"
2. No further E&S assessment required but could require E&S mitigation measures clauses and ESMP checklist, or a simple ESMP depending on technical recommendation	e.g. "Low to Moderate risk sub-project"
3. Detailed ESMP	e.g. "Moderate risk sub-project.
4. Detailed ESMP	e.g., "substantial risk sub-project.
5. ESIA required. Conducted by a third party	e.g. "Substantial risk sub-project"
Is this activity excluded under the Project	Yes / No

SECTION 7: E&S CLAUSES AND CHECKLIST FOR INCLUSION IN BIDDING DOCUMENTS

List of management plans and E&S instruments: _____

E&S Specialist Conducted the Screening: _____

Signature: _____ Date: ___/___/_____

Subproject Manager: _____

Signature: _____ Date: ___/___/_____

Annex 5: Generic Sample for TOC of ESIA Report

- **EXECUTIVE SUMMARY**

- **INTRODUCTION**
 - **Subproject Background**
 - **Purpose of ESIA**
 - **Scope of Work**
 - **ESIA Approach**
 - **Detailed ESIA Methodology**
 - Documents Review
 - Field Investigation
 - Impact Assessment
 - Public Consultation and Scoping
 - **Structure of ESIA Report**

- **DESCRIPTION OF THE PROPOSED SUBPROJECT**
 - **Subproject Location**
 - **Existing Conditions**
 - Settlements
 - Population
 - Infrastructure
 - **Subproject Cost**
 - **Subproject Components**
 - **Construction Requirements**
 - Mobilization and Preliminary Works
 - Civil Works
 - Construction Materials Sources and Transportation
 - Machinery and Equipment
 - Wastewater Management
 - Domestic and Hazardous Waste Management
 - **Major Subproject Components During Construction**
 - Operational activities
 - Waste and Wastewater Management
 - **Description of Subproject Decommissioning Activities**
 - Demolition Works
 - Site Restoration
 - Waste Generated
 - **Construction Waste and Emission Inventory**
 - Construction and Commissioning Waste Management
 - Emissions During Operation
 - Wastewater Disposal

- **BASELINE INFORMATION**
 - **Physical Environment**
 - Climatic conditions
 - Topography

- Geology
 - Soils
 - Hydrology
 - Air Quality
 - Noise Levels
- **Biological Environment**
 - Ecosystems
 - Flora and Fauna
 - Sensitive Habitats
- **Socio-economic Baseline**
 - Human Population
 - Education Status of the People
 - Housing
 - Gender Issues
 - Poverty
 - Socio Economic activities
 - Physical Infrastructure
 - NGOs
 - CBOs
 - Employment
 - Environmental degradation in the county
 - Water and Sanitation
 - Structures/Utilities in the vicinity of Subproject
- **POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK**
 - **Local Environmental Policy Framework and Regulations**
 - **World Bank Environmental and Social Safeguard Policies**
- **ANALYSIS OF PROJECT ALTERNATIVES**
- **STAKEHOLDER CONSULTATION**
 - **Objectives of Stakeholders Consultation**
 - **Consultation Approach and Method**
 - **Summary of Consultations outcomes**
- **ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT**
 - **Positive Impacts During Construction Phase**
 - Creation of Job Opportunities
 - Provision of Market for Supply of Materials
 - Increased Business Opportunities
 - **Negative Impacts During Construction Phase**
 - Depletion of Natural Resources
 - Dust Emissions
 - Exhaust Emissions
 - Noise and Vibration
 - Waste Generation
 - Risks on Community Health and Safety
 - Influx of Workforce
 - Physical and Economic Displacement
 - Destruction of Natural Habitats and Biodiversity

- Risks on Workers Health and Safety
 - Risks on Cultural Heritage
- **Positive Impacts During Operation Phase**
 - Creation of Job Opportunities and Poverty Reduction
 - Provision of Market for Local Goods
 - Improve Infrastructure and Services
 - Improve Community Livelihood
- **Negative Impacts During Operation Phase**
 - Risks on Community Health and Safety
 - Risks on Workers Health and Safety
- **Mitigation Measures for Impacts during Construction Phase**
 - Minimization of Noise and vibration
 - Control of Dust and Emissions
 - Protection of Community Health and Safety
 - Avoidance of Physical and Economic Displacement
 - Maintain and Enhance Community Livelihood
 - Avoid disruption for Utility Services
 - Conserve Natural Habitats and Biodiversity
 - Protect Workers Health and Safety
 - Enhance Workers Welfare
 - Preserving Cultural Heritage
- **Mitigation Measures for Impacts during Operational Phase**
 - Control of Dust and Emissions
 - Minimize Risks on Community Health and Safety
 - Enhance Workers Welfare
 - Preserving Cultural Heritage
- **ENVIRONMENTAL MITIGATION MEASURES, ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN**
 - **Approach to Environmental and Social Management**
 - ES & OHS Policies
 - Planning and Design
 - Management of Impacts during construction and operation
 - Inspection and Supervision
 - Monitoring, Inspecting, and Reporting
 - Management Review
 - **Responsibility and Accountability**
 - **Management Plans**
 - **Conclusion and Recommendation**
 - Conclusions
 - Recommendations

Annex 6: Environmental and Social Management Plan (ESMP) Template

Where an environmental and social management plan is prepared as part of the environmental and social assessment, it will include the following:

Introduction

Environmental and social management plan (ESMP) is an instrument that details set of mitigation, monitoring, and institutional measures to be taken during implementation and operation of a project to eliminate adverse environmental and social risks and impacts, offset them, or reduce them to acceptable levels. The ESMP also includes the measures and actions needed to implement these measures. The MoH will (a) identify the set of responses to potentially adverse impacts; (b) determine requirements for ensuring that those responses are made effectively and in a timely manner; and (c) describe the means for meeting those requirements. The ESMP includes the following components:

Introduction

An overview of the project and the proponent including information such as: i) project name and general description; ii) background; iii) objectives of the ESMP.

Policy and Legal Framework

Brief outline relevant policies, guidelines and laws that apply to the project and the approvals that need to be obtained from different government agencies

Project description and Justification

Brief description of the development proposal including project location and footprint (including maps), summary of key design features, resource requirements and source, predicted type and quantify of waste outputs, work force size and accommodation, and implementation schedule

Brief justification including benefits accruing to the local area, and project relevance in light of local or national needs

Description of the project area

A brief description of the environmental, socio-economic and cultural characteristics relevant to the project and its area of influence

Consultation and Information Dissemination

A summary of consultation and information dissemination activities during the ESMP process and including general issues raised, and responses to those issues;

Impact Assessment and Mitigation Measures

The ESMP identifies measures and actions in accordance with the mitigation hierarchy that reduce potentially adverse environmental and social impacts to acceptable levels. The plan will include compensatory measures, if applicable. Specifically, the ESMP:

a) identifies and summarizes all anticipated adverse environmental and social impacts;

b) describes—with technical details—each mitigation measure, including the type of impact to which it relates and the conditions under which it is required;

- c) estimates any potential environmental and social impacts of these measures; and
- d) takes into account, and is consistent with, other mitigation plans required for the project.

Environmental Mitigation Plan

Activity	Potential Environmental Impact	Proposed Mitigation Measures	Responsibility for Implementation of Mitigation Measures	Period for Implementation of Mitigation Measures	Mitigation Measures Implementation Costs (and who bears it)
Construction phase					
1					
2					
Operational Phase					
1					
2					
Decommissioning phase (if applies)					
1					
2					

Monitoring

The ESMP identifies monitoring objectives and specifies the type of monitoring, with linkages to the impacts assessed in the environmental and social assessment and the mitigation measures described in the ESMP. Specifically, the monitoring section of the ESMP provides (a) a specific description, and technical details, of monitoring measures, including the parameters to be measured, methods to be used, frequency of measurements, limits (where appropriate), and definition of thresholds that will signal the need for corrective actions; and (b) monitoring and reporting procedures to (i) ensure early detection of conditions that necessitate particular mitigation measures, and (ii) furnish information on the progress and results of mitigation.

Monitoring Plan (Update the relevant generic monitoring plan as per Annex 7)

<i>What parameter is to be monitored?</i>	<i>Where is the parameter to be monitored?</i>	<i>How is the parameter to be monitored?</i>	<i>When is the parameter to be monitored (time and</i>	<i>Who monitors the parameter (responsibility)?</i>	<i>Cost of monitoring the parameter (and who bears it)</i>

			<i>frequency)?</i>		
Construction phase					
1					
2					
Operational Phase (and decommissioning if applies)					
1					
2					

Institutional Arrangements, Capacity Development and Training

The ESMP provides a specific description of institutional arrangements, identifying which party is responsible for carrying out the mitigation and monitoring measures (e.g., for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting, and staff training). An E&S Supervision Engineer to be assigned for implementing, monitoring and reporting to the ES specialists at the MDLF the environmental and social requirements as per the environmental and social instruments.

Implementation Schedule and Cost Estimates

For all three aspects (mitigation, monitoring, and capacity development), the ESMP provides (a) an implementation schedule for measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans; and (b) the capital and recurrent cost estimates and sources of funds for implementing the ESMP. These figures are also integrated into the total project cost tables.

Annex 7: Generic Environmental and Social Mitigation Monitoring

Component 1 : Sustainable non-revenue water reduction

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
Construction Phase							
IAs ES Capacity		- Assign ES Specialists	ToRs for ES Specialist ES Specialists assigned at PIUs	Prior preparation of sub-projects tender documents	PIU / WCs	ESSD-PMD	WAJ
Assess each Sub-project activity in accordance to the ESS's		-exclude activities that are identified in the exclusion list - Prepare E&S Assessment Reports or Management Plan in accordance to the risk assessment findings	E&S Assessment Reports ESMPs	Upon identification of sub-projects	PIUs	WCs	WAJ
Physical Environment							
Air Pollution by Dust and Emissions	Low / Moderate	Perform periodic preventive maintenance and check for construction vehicles and machineries prior commencement of work	Maintenance log at monthly progress report	Monthly	Contractor	WAJ / MWI	MWI
		Use of machinery and vehicles that are in good condition	Visual inspection at site	Daily	Contractor	WAJ / MWI	MWI
		To apply less dust excavation	Proposed	Once during	Contractor	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		techniques when applicable such as trenchless and micro-trenching methods	excavation method statement	review of tender evaluation or during review of submitted method statement for approval			
		To prohibit accumulation of excavated material at work locations and to be disposed on daily bases	Visual inspection	Daily	Contractor	WAJ / WCs	MWI
		To apply dust suppression methods during loading of excavated material on trucks such as water spaying (as minimum as applicable)	Visual inspection	Daily	Contractor	WAJ / WCs	MWI
		To cover loaded trucks with excavated materials during transportation to disposal dump site	Visual inspection	Daily	Contractor	WAJ / WCs	MWI
		To keep construction machinery and vehicle idle when out of use.	Visual inspection	Daily	Contractor	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		Drivers should be instructed on the benefits of driving practices that reduce both the risk of accidents and fuel consumption, including measured acceleration and driving within safe speed limits;	Instructions have developed Visual inspection	Daily	Contractor	WAJ / WCs	MWI
Noise Level	Moderate	Obtain a work permit from relevant municipality defines allowed working hours during the day	Municipal work permit or approval	Once prior commencement of construction work	Contractor	WAJ / WCs	MWI
		Avoid work at night as much as applicable, and to obtain a work permit from relevant municipality for night work	- Work permit form - Municipal Approval	Daily	Contractor	WAJ / WCs	MWI
		Inform community at work area prior commencement of night work either by direct communication or through display at information board at work location	Visual check during regular inspection	Randomly during daily check	Contractor	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		Avoid as much as applicable construction works in front of schools and other education centers during education hours	Permit to work form	Daily	Contractor	WAJ / WCs	MWI
		Avoid as much as applicable night work close to hospitals	Permit to work form	Daily	Contractor	WAJ / WCs	MWI
		Maintain machinery and vehicles not in use in off mode	Visual check during regular inspection	Randomly during daily check	Contractor	WAJ / WCs	MWI
Soil and Groundwater Pollution	Low	Correct implementation for the below mentioned waste management plan mitigation measures For water wells rehabilitation generated acidic wastewater must be collected in impermeable drying pits	Refer to above methods	Refer to above frequency	Contractor	WAJ / WCs	MWI
Soil Erosion by Flood Hazards	Moderate	Proper soil erosion and flood control measures shall be taken and/or temporary drainage channels shall be built	Flood control measures are in place	Once, before starting construction activities. And	Contractor	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		to avoid washing away of stored materials		regular check before anticipated rainy periods			
Waste Generation and Management	Moderate	Development of waste management plan include mitigation measures for non-hazardous and hazardous waste	Waste management plan prepared and approved	Prior commencement of construction	Contractor	WAJ / WCs	MWI
		Coordination with relevant municipality for disposal of excavated material and other non-hazardous construction waste	Disposal log and receipt from official dump site	Randomly during daily inspection	Contractor	WAJ / WCs	MWI
		Coordination with MoEnv for disposal of construction hazardous waste	Hazardous waste log at monthly progress report and communication evidence with MoEnv (Letter, disposal manifest)	Monthly	Contractor	WAJ / WCs	MWI MoEnv
		Prevent maintenance of construction machinery at site	Visual inspection	Randomly during daily inspection	Contractor	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		Installation of drip tray or isolation sheets under mobile generators and compressors when utilized at site, similar during refueling processes.	Visual inspection	Randomly during daily inspection	Contractor	WAJ / WCs	MWI
		Define central HAZMAT area for DMA at contractor's relevant yard to temporary store hazardous material and waste prior disposal	Visual Inspection during monthly audit	Monthly	Contractor	WAJ / WCs	MWI MoEnv
		Provision of MSDS of stored hazardous material at HAZMAT area	Visual Inspection during monthly audit	Monthly	Contractor	WAJ / WCs	MWI MoEnv
		Provision of HAZMAT kit at each work location	Visual inspection	Randomly during daily inspection	Contractor	WAJ / WCs	MWI MoEnv
		Maintain proper housekeeping at work location on daily basis	Visual inspection	Randomly during daily inspection	Contractor	WAJ / WCs	MWI
		Provide garbage collection bins at site	Visual inspection	Randomly during daily inspection	Contractor	WAJ / WCs	MWI
		Collection of generated wastewater of mobile restrooms or those at site	- Wastewater disposal log at monthly progress report	- Monthly - Randomly during daily	Contractor	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		offices in septic tanks	- Receipt from WWTP where WW disposed - Visual inspection	inspection			
		Collection of generated wastewater during wells rehabilitation at lined drying pits	- Visual inspection - Lined collection and drying pits prepared	- Prior well rehabilitation works	Contractor	WAJ	MWI
		Dispose dried Bentonite into nearest construction waste dump site	- Visual inspection - Disposal receipt from relevant municipality	- Post well rehabilitation works	Contractor	WAJ	MWI
Asbestos Management	Substantial	Implement asbestos management plan (Annex 10) if ACM pipes need to be replaced	Asbestos management plan	Prior commencement of construction at networks includes asbestos pipes	Contractor	WAJ / WCs	MWI
		Coordinate with MoEnv. for proposed management procedure and disposal of removed asbestos pipes	Ministry approval on the management and disposal procedure	Prior commencement of construction at networks includes asbestos pipes	Contractor	WAJ / WCs	MWI MoEnv.
Natural Habitats and Biodiversity							

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
Wildlife Hunting / Killing	low	Hunting / killing must be prohibited to construction workers especially at areas with natural landscapes	Instructions included at site induction material	Randomly during daily inspection	Contractor	WAJ / WCs	MWI
Wood Collection for Fire	Low	Wood collection must be prohibited to construction workers especially at areas with natural landscapes	Instructions included at site induction material	Randomly during daily inspection	Contractor	WAJ / WCs	MWI
Accidental Killing by Traffic	Low	Apply reduced speed limits at the project site Minimize as much as applicable night work at areas with natural landscapes	Permit to work	Randomly during daily inspection	Contractor	WAJ / WCs	MWI
Social and Socioeconomic							
Public Traffic Disturbance and Management	Substantial	Development of Traffic Management Plan / Procedure (TMP)	TMP is developed and approved	Prior commencement of construction	Contractor	WAJ / WCs	MWI
		Ensure proper physical isolation of the work area from pedestrians and public traffic.	Visual inspection for Physical barriers installed at site	Daily	Contractor	WAJ / WCs	MWI
		Display clear and visible information and warning signs at site	Visual inspection	Daily	Contractor	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		Provide safe access and walkways for pedestrians including disabled individuals when needed to cross excavated pits and trenches	Visual inspection	Daily	Contractor	WAJ / WCs	MWI
		Provide safe access and walkways for pedestrians including disabled individuals when needed to cross excavated pits and trenches	Visual inspection	Daily	Contractor	WAJ / WCs	MWI
		Assign a flagman to control access around work locations.	Visual inspection	Daily	Contractor	WAJ / WCs	MWI
		Engage with traffic authorities to obtain approvals on proposed traffic plans for traffic detours when needed.	Traffic authority approval	Prior implementation of traffic diversion	Contractor	WAJ / WCs	MWI
		Provide speed limit signs and traffic diversion signs if applicable in the proximity of work areas	Visual inspection	Prior commencement of construction works	Contractor	WAJ / WCs	MWI
		Provide reverse alarm at all mobile construction machinery	Visual inspection	Randomly during daily inspection	Contractor	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
Community Health & Safety	Moderate / Substantial	Ensure proper physical isolation of the work area from the surrounding residential areas, pedestrians and public traffic.	Visual inspection	Daily	Contractor	WAJ / WCs	MWI
		Display clear and visible information and warning signs at site	Visual inspection	Daily	Contractor	WAJ / WCs	MWI
		Communicate safety awareness messages with the surrounding households especially at schools and community centers either directly or via dissemination of printed materials about the risks associated with the work and <i>the importance of complying with</i> applied mitigation measures	- Community communication log - Safety awareness prints - Community health and safety mitigation measures prepared at HSE plan - Visual inspection - Monthly Audit	- Randomly during daily inspection - Monthly	Contractor	WAJ / WCs	MWI
		Provide safe access and walkways for pedestrians including disabled individuals when needed to cross excavated pits and trenches	Visual inspection	Daily	Contractor	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		Apply safe traffic measure upon TMP with the presence of flagman to control access around work locations.	Visual inspection	Daily	Contractor	WAJ / WCs	MWI
		Engage with traffic authorities to obtain approvals on proposed traffic plans for traffic detours when needed.	Traffic authority approval	Prior to implementation of traffic diversion	Contractor	WAJ / WCs	MWI
		Provide speed limit signs and traffic diversion signs if applicable in the proximity of work areas	Visual inspection	Daily	Contractor	WAJ / WCs	MWI
		Adopt when applicable safer excavation techniques such as trenchless method	Excavation method statement	Prior to commencement of excavation	Contractor	WAJ / WCs	MWI
		Display contacts at site to receive relevant complaints as per developed GM	Contacts displayed at site	Daily	Contractor	WAJ / WCs	MWI
Disruption of Water Supply	Moderate / Substantial	To schedule construction works as much as possible outside the water supply hours at the work area according to the supply schedule made by WCs	Construction schedule	Weekly	Contractor	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		To adopt fast methods for work completion such as micro-trenching	Excavation method statement	Prior to commencement of work	Contractor	WAJ / WCs	MWI
		To inform the households at work area prior to work commencement in sufficient time that enable them to store adequate quantities at their water tanks.	Communication log	2 weeks prior to commencement of work	Contractor	WAJ / WCs	MWI
		If work activity requires long time to be completed, then alternative water supply method must be applied	Water supply records	1 week after commencement of work	WAJ / WCs	WAJ	MWI
		Display contacts at site to receive relevant complaints as per developed GM	Contact displayed at site	Prior to commencement of work	Contractor	WAJ / WCs	MWI
Disturbance of other utilities services (electricity, communication and municipal)	Moderate / Substantial	To engage with utilities services providers to obtain reliable information regarding the installed underground services at work locations and the surroundings	Records of communication made, and data obtained	During design phase and prior commencement of work	Contractor	WAJ / WCs	MWI
		To perform trial pits when needed to ensure data collected	Trial pits records	Upon contractor request for	Contractor	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
				inspection			
Land Acquisition (LA)	Moderate / Substantial	To avoid as much as applicable land acquisition for lands during location selection for in-network storage reservoirs.	Lands ownership documents required for water storage reservoirs belong to WAJ	Prior to design phase	WAJ	MWI	MWI
		Apply LA procedure and measures as defined in RP and RF when required	LA performed upon RA	Prior to Commencement of work	WAJ	MWI	MWI
Economic displacement of commercial and trade activities	Moderate / Substantial	Application of proposed preventive mitigation measures at the approved RP or site specific ESMP	Visual observation of applied measures	Prior to Commencement of work	Contractor	WAJ / WCs	MWI
		To schedule construction works at commercial streets as much as applicable outside working hours,	Work schedule	Prior to Commencement of work	Contractor	WAJ / WCs	MWI
		To inform shop owners of the work schedule in sufficient time prior work commencement. Shop owners to be consulted on work schedule and sufficient time needed.	Contractor submits documentation demonstrating when and how shop owners have been notified	Prior Commencement of work and as agreed during consultation.	Contractor	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
			according to agreed schedule.				
		Maintain safe and adequate access for commercial centers, shops and customers	Visual inspection at site	Prior to and during commencement of work	Contractor	WAJ / WCs	MWI
		Display contacts at site to receive relevant complaints as per developed GM	Contact displayed at site	Prior to Commencement of work	Contractor	WAJ / WCs	MWI
Socio-economic and health impacts on those reliant on illegal connections	Substantial	To inform WC with any discovered case of illegal connection	Illegal records log	Monthly	Contractor	WAJ / WCs	MWI
		Investigate the reasons for illegal connection of each case to define vulnerability of the households reliant on illegal connections	Investigation records	Monthly	WCs	WAJ	MWI
		Engage with vulnerable households to define agreed solutions to supply water in legal manner.	Engagement and resolutions records	Quarterly	WCs	WAJ	MWI
Workers Health and Safety	Substantial	To perform OHS risk assessment for all construction activities as part of the HSE	Risk assessment included at HSE Plan	Prior to commencement of	Contractor	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		Plan		constrworks uction			
		<ul style="list-style-type: none"> -To develop OHS safety procedures as part of HSE Plan for all defined risks including but not limited to: -Permit to Work system -PPE -Excavation Safety - Lifting Operations Safety -Electrical Works Safety (Lock-Out Tag-Out) -Work at Height Safety -TMP -Hot Work Safety -Night Work Safety -Manual Handling Safety -Extreme Weather Conditions Safety -Emergency Preparedness and response 	OHS procedures included at HSE Plan	Prior to commencement of construction works	Contractor	WAJ / WCs	MWI
		To develop work method statements for safe construction works that include substantial risks ie fall from height, fall of lifted	Method statements prepared	Prior to commencement of construction	Contractor	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		objects and electrocution where mitigation measures at relevant OHS safety procedure must be considered and applied such as installation of fall protection barriers, wearing full body harness, proper scaffold erecting and tagging, isolation of lifting area, isolation of electrical equipment through LOTO, ta		works			
		To conduct TBT prior work commencement on daily basis	TBT records at site	Randomly during daily inspection	Contractor	WAJ / WCs	MWI
		To isolate work area (excavated pits and work at height) from the surroundings with appropriate physical barriers according to applicable OHS procedure	Visual inspection	Randomly during daily inspection	Contractor	WAJ / WCs	MWI
		To assign first aider, to provide first aid box and to deploy emergency evacuation vehicle at each work location	<ul style="list-style-type: none"> - First aider certificate - First aid kit at site - Emergency vehicle at site 	Randomly during daily inspection	Contractor	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		To Display safety warning and information signs at each work location	Visual inspection	Daily	Contractor	WAJ / WCs	MWI
		To assign flagman to control traffic of construction machinery and vehicles	Visual inspection	Daily	Contractor	WAJ / WCs	MWI
		Provide workers with appropriate PPEs	Workers are using PPEs	Daily	Contractor	WAJ / WCs	MWI
		Implementing safety measures to reduce the risk associated to COVID-19 health impacts on workers and employees,	Adherence to guidelines No. (9) & (12) issued by the Ministry of Labor for COVID-19	Daily	Contractor	WAJ / WCs	MWI
Labor welfare and working conditions	Substantial	Apply labor management measures of LMP	Records of measures applied like induction log, recruitment policy, contacts templates etc, and workers grievances log	Quarterly	Contractor	WAJ / WCs	MWI
		Conduct LMP awareness for labor upon recruitment	Awareness attendees log	Randomly on monthly basis	Contractor	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		Communicate and display contacts to receive labor complaints according to workers GM.	Communication records and contacts displayed at office	Prior to commencement of work and randomly on monthly basis	Contractor	WAJ / WCs	MWI
		Provide sufficient amounts of drinking water at work locations during hot weather conditions	Visual inspection	Randomly during daily inspection	Contractor	WAJ / WCs	MWI
		Provide sufficient restrooms at reasonable distance at site either mobile or at nearby subproject offices	Mobilization Plan and Visual inspection	Randomly during daily inspection	Contractor	WAJ / WCs	MWI
Cultural Heritage							
Chance Find of Archaeological Remains	Low	Development of chance find procedure	Chance find procedure is developed and visual inspection	Prior to commencement of work and randomly during daily inspection	Contractor	WAJ / WCs	MWI
Operation Phase							
Performance Based Conditions is not abiding to	Moderate / Substantial	To include operational HSE requirements at PBCs templates including require ES management instruments templates or ToRs such as	Contract template	Prior operation	Operator	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
the project's HSE requirements		ESMP, ES Screening, LMP and RP.					
		To include relevant regulations and WB ES standards that operator must comply with in the clauses of the contract	Contract template	Prior operation	Operator	WAJ / WCs	MWI
Physical Environment							
Air Pollution	Moderate	Perform periodic preventive maintenance and check for maintenance vehicles and machineries	Maintenance log	Quarterly	Operator	WAJ / WCs	MWI
		To apply less dust excavation techniques for major maintenance works when applicable such as trenchless and micro-trenching methods	Work method statement	Prior to construction	Operator	WAJ / WCs	MWI
		To remove and dispose excavated material from maintenance location upon completion of work	Waste disposal log	Quarterly	Operator	WAJ / WCs	MWI
		To cover loaded trucks with excavated materials during transportation to disposal dump site	Visual inspection	Randomly upon maintenance works	Operator	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
Noise Level	Moderate / Substantial	Perform maintenance works during daytime as much as applicable	Maintenance log	Quarterly	Operator	WAJ / WCs	MWI
		Avoid using heavy machinery as much as applicable when maintenance work needs to be done at nighttime	Visual inspection	Randomly upon maintenance work	Operator	WAJ / WCs	MWI
		Avoid as much as applicable maintenance works in front of schools and other education centers during education hours	Maintenance log and schedule, complaints log	Quarterly or upon receiving complaints	Operator	WAJ / WCs	MWI
		Avoid as much as applicable maintenance work at night close to hospitals	Maintenance log and schedule, complaints log	Quarterly or upon receiving complaints	Operator	WAJ / WCs	MWI
		Inform nearby households prior to commencement of major maintenance works that require long working periods	Communication records	Quarterly or upon receiving complaints	Operator	WAJ / WCs	MWI
Soil and Groundwater Conservation	Low	Apply relevant construction mitigation measures for major maintenance works	Visual inspection	upon major maintenance works	Operator	WAJ / WCs	MWI
Flood Hazards	low	Apply relevant construction mitigation measures for major maintenance works	Visual inspection	upon major maintenance works	Operator	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
Waste Management	Moderate	Development of waste management plan include mitigation measures for non-hazardous and hazardous waste	Waste management plan developed	Prior operation	Operator	WAJ / WCs	MWI
		Coordination with relevant municipality for disposal of excavated material and other non-hazardous maintenance waste	Coordination records, municipal receipts for disposal at official dump sites	Randomly on quarterly basis	Operator	WAJ / WCs	MWI
		Coordination with MoEnv for disposal of maintenance hazardous waste	Coordination records and disposal receipts	Randomly on biannual basis	Operator	WAJ / WCs	MWI
		Prevent maintenance of operational machinery at site during network maintenance.	Visual inspection	Upon major maintenance works	Operator	WAJ / WCs	MWI
		Installation of drip tray or isolation sheets under mobile generators and compressors when utilized at site, similar during refueling processes.	Visual inspection	Upon major maintenance works	Operator	WAJ / WCs	MWI
		Define central HAZMAT area for DMA at operator's relevant yard with MSDS sheets for temporary stored hazardous	Visual inspection	Biannual audit	Operator	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		material and waste prior disposal					
		Provision of HAZMAT kit with maintenance crews	Visual inspection	Upon major maintenance works	Operator	WAJ / WCs	MWI
		Perform proper housekeeping upon completion of maintenance at work location	Visual inspection	Randomly during daily or weekly inspection	Operator	WAJ / WCs	MWI
Asbestos Management	N/A						
Natural Habitats and Biodiversity							
Wildlife Hunting / Killing	Low	Hunting / killing must be prohibited to operation workers especially at areas with natural landscapes	Visual Inspection and accidents reports audit	Randomly and biannual	Operator	WAJ / WCs	MWI
Wood Collection for Fire	Low	Wood collection must be prohibited to operation workers especially at areas with natural landscapes	Visual inspection	Randomly	Operator	WAJ / WCs	MWI
Accidental Killing by Traffic	Low	Minimize as much as applicable night work at areas with natural landscapes	Visual Inspection and accidents reports audit	Randomly and biannual	Operator	WAJ / WCs	MWI
Social and Socioeconomic							
Traffic	Moderate	Development of Traffic	TMP is developed	Prior to	Operator	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
Management		Management Plan / Procedure (TMP) for maintenance works at public roads	and approved	commencement of operation			
		Ensure proper physical isolation of maintenance area from the pedestrians and public traffic.	Visual inspection for Physical barriers installed at site	Daily upon maintenance works	Operator	WAJ / WCs	MWI
		Display clear and visible information and warning signs at maintenance location	Visual inspection	Daily upon maintenance works	Operator	WAJ / WCs	MWI
		Display clear and visible information and warning signs at maintenance location	Visual inspection	Daily upon maintenance works	Operator	WAJ / WCs	MWI
		Provide safe access and walkways for pedestrians including disabled individuals when needed to cross excavated pits and trenches	Visual inspection	Daily	Operator	WAJ / WCs	MWI
		Provide safe access and walkways for pedestrians including disabled individuals when needed to cross excavated pits and trenches	Visual inspection	Daily	Operator	WAJ / WCs	MWI
		Assign a flagman to control access around maintenance	Visual inspection	Daily	Operator	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		locations.					
		Engage with traffic authorities to obtain approvals on proposed traffic plans for traffic detours when needed.	Traffic authority approval	Prior to implementation of traffic diversion	Operator	WAJ / WCs	MWI
		Provide speed limit signs and traffic diversion signs if applicable in the proximity of maintenance areas	Visual inspection	Prior to commencement of maintenance works	Operator	WAJ / WCs	MWI
		Provide reverse alarm at all mobile maintenance machineries	Visual inspection	Randomly during daily inspection	Operator	WAJ / WCs	MWI
Community Health & Safety	Substantial	Ensure proper physical isolation for large maintenance area from the surrounding residential areas, pedestrians and public traffic.	Visual inspection	Randomly during daily inspection	Operator	WAJ / WCs	MWI
		Display clear and visible information and warning signs at maintenance location	Visual inspection	Randomly during daily inspection	Operator	WAJ / WCs	MWI
		Communicate safety awareness messages regarding large maintenance work with the surrounding households	Communication records Information prints	Prior to maintenance works	Operator	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		especially at schools and community centers either directly or via dissemination of printed materials about the risks associated with the work and the importance of complying with applied mitigation measures					
		Provide safe access and walkways for pedestrians including disabled individuals when needed to cross excavated pits and trenches during maintenance work	Visual inspection	Randomly during daily inspection	Operator	WAJ / WCs	MWI
		Adopt when applicable safer excavation techniques such as trenchless method	Maintenance method statement	Prior commencement of maintenance	Operator	WAJ / WCs	MWI
		Display contacts at maintenance vehicles to receive relevant complaints as per developed GM	Contacts displayed	Random inspection	Operator	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
Disruption of water supply and other services during maintenance works	Moderate	To schedule maintenance works as much as applicable outside the water supply hours at the work area according to the supply schedule made by WCs	Maintenance schedule	Prior Maintenance works	Operator	WAJ / WCs	MWI
		To adopt fast methods for maintenance work completion such as micro-trenching	Maintenance method of statement	Prior Maintenance works	Operator	WAJ / WCs	MWI
		Inform the nearby households prior to maintenance commencement to enable them to store adequate quantities at their water tanks	Communication records log	Quarterly	Operator	WAJ / WCs	MWI
		If maintenance activity requires long time to be completed, then alternative water supply method must be applied	Maintenance schedule and supply records	Quarterly	Operator	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		Display contacts at maintenance vehicles and machineries to receive relevant complaints as per developed GM	Contacts displayed and visual inspection	Randomly during daily inspection	Operator	WAJ / WCs	MWI
Small Scale Land Acquisition (LA)	N/ A						
Economic displacement of commercial and trade activities	Moderate	To schedule maintenance works at commercial streets as much as applicable outside working hours	Maintenance schedule	Randomly and upon receiving complaints	Operator	WAJ / WCs	MWI
		To inform shop owners of the maintenance schedule in sufficient time prior work commencement.	Communication records	Randomly and upon receiving complaints	Operator	WAJ / WCs	MWI
		Maintain safe and adequate access for commercial centers, shops and customers	Visual inspection	Daily upon maintenance works	Operator	WAJ / WCs	MWI
		Display contacts at maintenance vehicles to receive relevant complaints as per developed GM	Contacts displayed	Randomly	Operator	WAJ / WCs	MWI
Socio-economic and health impacts on	N/A						

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
those reliant on Illegal connections							
Workers Health and Safety	Moderate / Substantial	To perform risk assessment for all operation activities as part of the HSE Plan	Risk assessment included at HSE plan	Prior commencement of operation	Operator	WAJ / WCs	MWI
		To develop OHS safety procedures as part of HSE Plan for all defined risks including but not limited to: <ul style="list-style-type: none"> - Permit to Work system - PPE - Excavation Safety - Lifting Operations Safety - Electrical Works Safety (Lock-Out Tag-Out) - Work at Height Safety - TMP - Hot Work Safety - Night Work Safety - Manual Handling Safety - Extreme Weather Conditions Safety - Emergency Preparedness and response 	OHS procedures included at HSE plan	Prior commencement of operation	Operator	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		To develop work method statements for safe maintenance work	Method statement prepared	Prior commencement of operation	Operator	WAJ / WCs	MWI
		To conduct TBT prior commencement of maintenance work	TBT records and visual inspection	Prior commencement of operation	Operator	WAJ / WCs	MWI
		To isolate deep excavations at maintenance site from the surroundings with appropriate physical barriers to prevent fall incidents	Visual inspection	Prior commencement of operation	Operator	WAJ / WCs	MWI
		To assign first aider, to provide first aid box and to deploy emergency evacuation vehicle during maintenance work	Recruitment records and visual inspection	Prior commencement of operation	Operator	WAJ / WCs	MWI
		To Display safety warning and information signs at each work location	Signs installed and visual inspection	Prior and during commencement of operation	Operator	WAJ / WCs	MWI
		To provide required PPEs for all workers at site	PPEs provided and visual inspection	Randomly during daily inspection	Operator	WAJ / WCs	MWI
Labor welfare and working conditions							
		Conduct LMP awareness for	Induction records ES Audit	Quarterly	Operator	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		labor upon recruitment					
		Communicate and display contacts to receive labor complaints according to workers GM.	Contact communicated and displayed ES Audit	Quarterly	Operator	WAJ / WCs	MWI
Cultural Heritage							
Chance Find of Archaeological remains	Low	Chance find procedure (Annex 13) to be included under ESMPs and bidding documents	Chance find procedure is prepared and inducted for construction workers	Prior commencement of operation phase	Operator	WAJ / WCs	MWI

Table 12: Generic Environmental and Social Management and Monitoring Plan (Component 1)

Generic Environmental and Social Management and Monitoring Plan

Component.2 Activity: Renewable Energy/Photovoltaic (PV)

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
Construction Phase							
Pre-Construction							
Tender documents and contracts	Moderate / Substantial	To include site specific HSE requirements in tender documents templates including ES management instruments templates or ToRs such as, ES Screening, LMP and RP. To include relevant regulations and WB ES standards that contractor and operator must comply with in the clauses of the contract	Prepared tender documents and contract template include required ES management instruments and relevant regulations and standards that the contractor must comply with	Once during tender documents preparation	WAJ	MWI	MWI
Environmental Approval and Permit	Substantial	Engage with MoEnv to obtain environmental approval and permit for each proposed solar PV plant according to local regulation	MoEnv Approval	Prior commencement of construction	WAJ	MWI	MWI
IAs ES Capacity	Substantial	- Assign ES consultant within ESSD to support existing and new staff Train ESSD and other IAs	-ToRs for ES consultant has been developed -ES consultant	During project implementation	ESSD-WAJ	WAJ / MWI	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		relevant staff on ESMF implementation	assigned with ESD organization -ESMF training plan	planning phase and prior tendering process			
Physical Environment							
Air Pollution	Low	Perform periodic preventive maintenance and check for construction vehicles and machinery prior to commencement of work	Maintenance log and monthly progress report	Monthly	Contractor	WAJ / MWI	MWI
		Use of machinery and vehicles that are in good condition	Visual inspection at site	Daily	Contractor	WAJ / MWI	MWI
		Prohibit accumulation of excavated material at work locations and to be disposed on daily bases	Visual inspection	Daily	Contractor	WAJ	MWI
		Apply dust suppression methods during land leveling and loading of excavated material on trucks such as water spaying (as minimum as applicable)	Visual inspection	Daily	Contractor	WAJ	MWI
		Cover loaded trucks with excavated materials during transportation to disposal dump site	Visual inspection	Daily	Contractor	WAJ	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
Noise Level	Moderate	Obtain a work permit from relevant municipality which defines allowed working hours during the day if the plant located in residential areas	Municipal work permit	Once prior commencement of construction work	Contractor	WAJ	MWI
		Avoid work at night as much as applicable if the plant is located in residential areas, and to obtain a work permit from relevant municipality for night work	- Work permit form - Municipal Approval	Daily	Contractor	WAJ	MWI
		Avoid as much as applicable night work if the plant located close to hospitals	Permit to work form	Daily	Contractor	WAJ	MWI
		Maintain machinery and vehicles not in use in off mood	Visual check during regular inspection	Randomly during daily check	Contractor	WAJ	MWI
Soil and Groundwater Conservation	Low	Implementation for the mentioned waste management plan mitigation measures	Refer to above methods	Refer to above frequency	Contractor	WAJ	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
Flood Hazards	Moderate	Proper soil erosion and flood control measures shall be taken and/or temporary drainage channels shall be built to avoid washing away of stored materials if the plant is located close to wadies or flood planes	Flood control measures are in place	Once, before starting construction activities. And regular check before anticipated rainy periods	Contractor	WAJ	MWI
Waste Management	Moderate	Development of waste management plan includes mitigation measures according to Annex 9. Include measures for non-hazardous and hazardous waste	Waste management plan prepared and approved	Prior commencement of construction	Contractor	WAJ	MWI
		Coordination with relevant municipality for disposal of excavated material and other non-hazardous construction waste	Disposal log and receipt from official dump site	Randomly during daily inspection	Contractor	WAJ	MWI
		Coordination with MoEnv for disposal of construction hazardous waste	Hazardous waste log at monthly progress report and communication evidence with MoEnv (Letter, disposal manifest)	Monthly	Contractor	WAJ	MWI MoEnv
		Prepare HAZMAT area at site for	Visual Inspection	Monthly	Contractor	WAJ	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		temporary store hazardous material and waste prior disposal	during monthly audit				MoEnv
		Store hazardous material at site according to condition required by relevant MSDS	Visual inspection for MSDS at site	Monthly	Contractor	WAJ	MWI
		Damaged solar PV panels must be stored at HAZMAT area	Visual inspection	daily	Contractor	WAJ	MWI
		Provision of HAZMAT kit at the plant	Visual inspection	daily	Contractor	WAJ	MWI
		Maintain proper housekeeping at work location on regular bases	Visual inspection	daily	Contractor	WAJ	MWI
		Provide garbage collection bins at the plant	Visual inspection	daily	Contractor	WAJ	MWI
		Collection of generated wastewater of restrooms at management office (if any) in a septic tanks, that must be: <ul style="list-style-type: none"> - Properly designed and installed in accordance with local regulations and guidance - Well maintained to allow effective operation. - Installed in areas with 	Visual inspection	Randomly during daily inspection	Contractor	WAJ	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		<p>sufficient soil percolation for the design wastewater loading rate.</p> <p>- Installed in areas of stable soils that are nearly level, well drained, and permeable, with enough separation between the drain field and the groundwater table or other receiving waters.</p>					
		Sufficient periodic emptying of septic tanks and disposal of wastewater to the nearest WWTP by authorized transporter.	Wastewater inspection log and receipts of WWTP	monthly	Contractor	WAJ	MWI
		Installation of drip tray or isolation sheets under mobile generators and compressors when utilized at site, similar during refueling processes.	Visual inspection	Randomly during daily inspection	Contractor	WAJ	MWI
Natural Habitats and Biodiversity							
Disturbance and destruction of biodiversity and natural habits at remote locations	Moderate	To assess the Biodiversity Conservation risk under the Environmental Assessment of the activity, and apply the mitigation hierarchy according to	Biodiversity rapid assessment report	Prior construction	Contractor	WAJ	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
of solar PV plants		<p>ESS6.</p> <p>to:</p> <ul style="list-style-type: none"> -To ensure no works are implemented in protected area or areas of high biodiversity values. - To ensure that plant location does not have active dens for animals or large reptiles -To ensure that plant location does not have active nests for ground nesting birds -To ensure that plant location does not have conservation important vegetation species -To develop biodiversity management procedure if the site is found of biodiversity importance 					
Wildlife Hunting / Killing	low	Hunting / killing must be prohibited to construction workers especially at areas with natural landscapes	Instructions included at site induction material	Randomly during daily inspection	Contractor	WAJ	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
Wood Collection for Fire	Low	Wood collection must be prohibited to construction workers especially at areas with natural landscapes	Instructions included at site induction material	Randomly during daily inspection	Contractor	WAJ	MWI
Accidental Killing by Traffic	Low	Apply reduced speed limits at the work sites Minimize as much as possible night work at areas with natural landscapes	Permit to work	Randomly during daily inspection	Contractor	WAJ	MWI
Social and Socioeconomic							
Traffic Management	Moderate	Development of Traffic Management Plan / Procedure (TMP)	TMP is developed and approved	Prior commencement of construction	Contractor	WAJ	MWI
		Ensure proper physical isolation of the work area from pedestrians and public traffic.	Visual inspection for Physical barriers or fencing installed at site	Daily	Contractor	WAJ	MWI
		Display clear and visible information and warning signs at site especially if the plant is located near public roads	Visual inspection	Daily	Contractor	WAJ	MWI
		Assign a flagman to control access of construction machineries and vehicles at the entrance of the construction site	Visual inspection	Daily	Contractor	WAJ / W	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		especially if the plant is located near public roads					
		Provide speed limit signs at site and to train workers on relevant TMP measures	Visual inspection Drivers' induction records	Randomly during daily inspection	Contractor	WAJ	MWI
		Provide reverse alarm at all mobile construction machinery	Visual inspection	Randomly during daily inspection	Contractor	WAJ	MWI
Community Health & Safety	Substantial	To isolate plant area (fencing) from the surroundings when applicable and to limit construction activities within the boundary of the plant land.	Visual inspection	Daily	Contractor	WAJ / WCs	MWI
		Display clear and visible information and warning signs prohibit public access to site	Visual inspection	Daily	Contractor	WAJ / WCs	MWI
		Apply safe traffic measure upon TMP with the presence of flagman to control access at the entrance of construction site.	Visual inspection	Daily	Contractor	WAJ / WCs	MWI
		Provide speed limit signs near the entrance of construction site	Visual inspection	Daily	Contractor	WAJ	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		Display contacts at site entrance to receive relevant complaints as per developed GM	Contacts displayed at site	Daily	Contractor	WAJ	MWI
Disturbance of utilities services (electricity, water, communication)	Substantial	To engage with utility service providers to obtain reliable information regarding the installed underground services at construction site and the surroundings	Records of communication made and data obtained	During design phase and prior commencement of work	Contractor	WAJ	MWI
		To perform trial pits when needed to verify data collected	Trial pits records	Upon contractor request for inspection	Contractor	WAJ	MWI
Small Scale Land Acquisition (LA)	Moderate	To avoid as much as applicable land acquisition for lands during location selection for in-network storage reservoirs.	Lands ownership documents required for solar PV plant belong to WAJ	Prior design phase	WAJ	MWI	MWI
		Apply LA procedure and measures as defined in RP and RF if the land for solar PV plant will be acquired	Land acquisition carried out based on the findings of the Resettlement Plan	Prior to Commencement of construction	WAJ	MWI	MWI
Land Use	Moderate	Perform land use rapid assessment if the plant is located at remote area to define current land use and potential affected	Rapid assessment prepared	Prior Commencement of construction	WAJ	MWI	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		persons (if any) even if the land is owned by WAJ					
Workers Health and Safety	Substantial	To perform risk assessment for all construction activities as part of the HSE Plan	Risk assessment included at HSE Plan	Prior commencement of construction works	Contractor	WAJ	MWI
		To develop OHS safety procedures as part of HSE Plan for all defined risks including but not limited to: <ul style="list-style-type: none"> - Permit to Work system - PPE - Excavation Safety - Lifting Operations Safety - Electrical Works Safety (Lock-Out Tag-Out) - Work at Height Safety - TMP - Hot Work Safety - Night Work Safety - Manual Handling Safety - Extreme Weather Conditions Safety - Emergency Preparedness and 	OHS procedures included at HSE Plan	Prior commencement of construction works	Contractor	WAJ / WCs	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		response					
		To develop work method statements for safe construction works according to applicable OHS procedures	Method statements prepared	Prior commencement of construction works	Contractor	WAJ	MWI
		To conduct TBT prior work commencement on daily basis	TBT records at site	Randomly during daily inspection	Contractor	WAJ	MWI
		To isolate deep excavation and work at height platforms with fall protection barriers	Visual inspection	Randomly during daily inspection	Contractor	WAJ	MWI
		To assign first aider, to provide first aid box and to deploy emergency evacuation vehicle at site	<ul style="list-style-type: none"> - First aider certificate - First aid kit at site - Emergency vehicle at site 	Randomly during daily inspection	Contractor	WAJ	MWI
		To Display safety warning and information signs at site	Visual inspection	Daily	Contractor	WAJ	MWI
		To assign flagman to control traffic of construction machineries and vehicles into and from site if the plant is	Visual inspection	Daily	Contractor	WAJ	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		located within or close to populated areas or near public roads.					
		Provide workers with appropriate PPEs	Workers are using PPEs	Daily	Contractor	WAJ	MWI
		Implementing safety measures to reduce the risk associated to COVID-19 health impacts on workers and employees,	Adherence to guidelines No. (9) & (12) issued by the Ministry of Labor for COVID-19	Daily	Contractor	WAJ	MWI
Labor welfare and working conditions	Substantial	Apply labor management measures of LMP	Records of measures applied like induction log, recruitment policy, contacts templates etc, and workers grievances log	Quarterly	Contractor	WAJ	MWI
		Conduct LMP awareness for labor upon recruitment	Awareness attendees log	Randomly on monthly basis	Contractor	WAJ	MWI
		Communicate and display contacts to receive labor complaints according to workers GM.	Communication records and contacts displayed at site	Prior commencement of work and randomly on monthly basis	Contractor	WAJ	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		Provide sufficient amounts of drinking water at work locations during hot weather conditions	Visual inspection Supplier monthly drinking water test results	Randomly during daily inspection and during monthly audit	Contractor	WAJ	MWI
		Provide sufficient restrooms at site either mobile or at nearby subproject offices	Mobilization Plan and Visual inspection	Randomly during daily inspection	Contractor	WAJ	MWI
		If labor camp will be at site especially at remote areas, then Labor Camp Management Procedure must be prepared according to local regulations and ESS2	LCMP is prepared	Prior to commencement of construction	Contractor	WAJ	MWI
Cultural Heritage							
Chance Find of Archaeological Remains	Moderate	Chance find procedure (Annex 13) to be included under ESMPs and bidding documents	Chance find procedure is developed and visual inspection	Prior commencement of work	Contractor	WAJ	MWI
Operation Phase							
PBCs template is not abiding to the project's HSE requirements	Substantial	To include operational HSE requirements at PBCs templates including ES management instruments templates or ToRs such as ESMP, ES Screening, LMP	Contract template	Prior operation	Operator	WAJ	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		and RP.					
		To include relevant regulations and WB ES standards that operator must comply with in the clauses of the contract	Contract template	Prior operation	Operator	WAJ	MWI
Physical Environment							
Air Pollution	Low	Perform periodic preventive maintenance and check for maintenance vehicles and machineries	Maintenance log	Quarterly	Operator	WAJ	MWI
Noise Level	Low	Perform periodic preventive maintenance and check for maintenance vehicles and machinery.	Maintenance log	Quarterly	Operator	WAJ	MWI
		Avoid as much as possible maintenance work at night if plant is close to hospitals	Maintenance log and schedule, complaints log	Quarterly or upon receiving complaints	Operator	WAJ	MWI
Soil and Groundwater Conservation	Low	Apply relevant construction mitigation measures for major maintenance works	Visual inspection	upon major maintenance works	Operator	WAJ	MWI
Waste Management	Substantial	To apply operational waste management mitigation	Waste management mitigation measures	Monthly	Operator	WAJ	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		measures at the project's waste management plan	applied				
		Coordination with relevant municipality for disposal of excavated material and other non-hazardous maintenance waste	Coordination records, municipal receipts for disposal at official dump sites	Monthly	Operator	WAJ	MWI
		Coordination with MoEnv for disposal of maintenance hazardous waste	Coordination records and disposal receipts	Biannual	Operator	WAJ	MWI
		Prepare HAZMAT area at site for temporary store hazardous material and waste prior disposal	Visual inspection	Prior commencement of operation	Operator	WAJ	MWI
		Store hazardous material at site according to condition required by relevant MSDS	Visual inspection	Monthly	Operator	WAJ	MWI
		Damaged solar PV panels must be stored at HAZMAT area	Visual inspection	Monthly	Operator	WAJ	MWI
		Provision of HAZMAT kit at the plant	Visual inspection	Monthly	Operator	WAJ	MWI
		Maintain proper housekeeping at work location on a regular basis	Visual inspection	Weekly	Operator	WAJ	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		Provide garbage collection bins at the plant	Visual inspection	Weekly	Operator	WAJ	MWI
		Collection of generated wastewater of restrooms at management office (if any) in a septic tanks	Visual inspection	Prior commencement of operation	Operator	WAJ	MWI
		Sufficient periodic emptying of septic tanks and disposal of wastewater to the nearest WWTP by authorized transporter.	Wastewater disposal log	Monthly	Operator	WAJ	MWI
Natural Habitats and Biodiversity							
Wildlife Hunting / Killing	Low	Hunting / killing must be prohibited to operation workers especially if plant at areas with natural landscapes	Visual Inspection and accidents reports audit	Randomly and biannual	Operator	WAJ	MWI
Wood Collection for Fire	Low	Wood collection must be prohibited to operation workers especially if plant at areas with natural landscapes	Visual inspection	Randomly	Operator	WAJ	MWI
Accidental Killing by Traffic	Low	Apply reduced speed levels at the project site. Minimize as much as applicable night work if plant at areas with natural landscapes	Visual Inspection and accidents reports audit	Randomly and biannual	Operator	WAJ	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
Social and Socioeconomic							
Traffic Management	Moderate	Prepare TMP Apply operational traffic measures included at the project's TMP	TMP measures applied	Monthly	Operator	WAJ	MWI
		Define and apply speed limit inside the plant (ie 20km/h) with installation of speed limit signs	Visual inspection	Monthly	Operator	WAJ	MWI
		Provide training for operator's workers and visitors with the TMP requirements	Induction records	Monthly	Operator	WAJ	MWI
		Provide reverse alarm to all mobile maintenance machinery.	Visual inspection	Randomly during daily inspection	Operator	WAJ	MWI
Community Health & Safety	Low	Restrict entrance of public to the site without permission	Visual inspection	Daily	Operator	WAJ	MWI
		Perform regular security surveillance to check the plant fence	Visual inspection Security surveillance records	Daily	Operator	WAJ	MWI
Workers Health and Safety	Substantial	To perform risk assessment for all operation activities as part of the HSE Plan	Risk assessment included at HSE plan	Prior commencement of operation	Operator	WAJ	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		<p>To develop OHS safety procedures as part of HSE Plan for all defined risks including but not limited to:</p> <ul style="list-style-type: none"> - Permit to Work system - PPE - Lifting Operations Safety - Electrical Works Safety (Lock-Out Tag-Out) - Work at Height Safety - TMP - Hot Work Safety - Night Work Safety - Manual Handling Safety - Extreme Weather Conditions Safety - Emergency Preparedness and response 	OHS procedures included at HSE plan	Prior commencement of operation	Operator	WAJ	MWI
		To develop work method statements for safe maintenance work	Method statement prepared	Prior commencement of operation	Operator	WAJ	MWI
		To conduct TBT prior commencement of maintenance work	TBT records and visual inspection	Prior commencement of operation	Operator	WAJ	MWI

ES Issue / Potential Impact	Significance	Mitigation Measures	Means of Verification	Monitoring Frequency	Responsibility		
					Implementation	Supervision	Monitoring
		To assign first aider, to provide first aid box and to deploy emergency evacuation vehicle at the plant	First aider certificate Visual inspection	Prior commencement of operation	Operator	WAJ	MWI
		To Display safety warning and information signs at plant	Signs installed and visual inspection	Prior and during commencement of operation	Operator	WAJ	MWI
		To provide required PPEs for all workers at site	PPEs provided and visual inspection	Randomly during daily inspection	Operator	WAJ	MWI
Labor welfare and working conditions	Substantial	Apply relevant labor management measures of LMP	ES Audit	Quarterly	Operator	WAJ	MWI
		Conduct LMP awareness for labor upon recruitment	Induction records ES Audit	Quarterly	Operator	WAJ	MWI
		Communicate and display contacts to receive labor complaints according to workers GM.	Contact communicated and displayed ES Audit	Quarterly	Operator	WAJ	MWI

Table 13: Generic Environmental and Social Management and Monitoring Plan (Component 2)

Annex 8: ESMP Checklist

The ESMP Checklist is composed of four parts:

- A. General Project and Site Information
- B. Safeguards Information / Safeguards Screening Findings
- C. Mitigation Measures & Monitoring Plan

Part A: General Project and Site Information

SITE DESCRIPTION

Name of site

Describe site location

Attachment: Site map Y No

Who owns the land?

Description of Physical Environment,

Description of Biological Environment

Description of Socio-economic Context

Description of Utilities Services

Description of Cultural Heritage Sites

(if any)

Source and Transport of Construction /
Installation Material

LEGISLATION

Identify national & local legislation &

permits that apply to project activity (if
any)

PUBLIC CONSULTATIONS

Identify Potential Stakeholders

Identify Performed Public

Consultation

INSTITUTIONAL CAPACITY BUILDING

Will there be any capacity building? N or Y if Yes, Attach capacity building program

Part B: Safeguards Information

This part includes Environmental and social screening that implemented for sub-project.

	E&S Screening	Results and Recommendations		
	Relevant ESSs for this subproject	List ESSs		
Phase (Construction/Operations)	Summary of Critical Risks and Impacts identified	Risk / Impact	Individual Risk/ Impact Rating (low, moderate, substantial, High)	Summary of Mitigation Measures
	1.			
	2.			
	3.			
	4.			
	5.			

Part C: Same template of Generic ES Mitigation measures at section annex 7 of ESMF (Update the relevant as per annex 7)

E&S CLAUSES AND CHECKLIST FOR INCLUSION IN BIDDING DOCUMENTS

List of management plans and E&S instruments: _____

E&S Screening Conducted by: _____

Signature: _____ Date: ____/____/____

Annex 9: Hazardous Waste Management Plan (HWMP) Template

HWMP Guidelines

GENERAL

Hazardous waste is a waste with properties that make it potentially dangerous or harmful to human health or the environment and it can be liquids, solids, or contained gases. HW is characterized with one or more of the following chemical properties:

- Ignitability – Ignitable wastes can create fires under certain conditions, undergo spontaneous combustion, or have a flash point less than 60°C
- Corrosivity – Corrosive wastes are materials, including solids, that are strong acids or bases, or that produce acidic or alkaline solutions
- Reactivity – Reactive wastes are unstable under normal conditions. They can cause explosions or release toxic fumes, gases, or vapors when heated, compressed, or mixed with water
- Toxicity – Toxic wastes are harmful or fatal when ingested or absorbed

The following Guidelines are prepared to assist the contractor to prepare their Hazardous Waste Management Plan (HWMP).

The Guidelines presented here represent good practice that should be followed by the contractor. They should not, however, limit the implementation of additional environmental protection measures.

REGULATIONS & REQUIREMENTS

These guidelines do not negate contractor responsibility to comply with the provisions of relevant Jordanian regulations.

Contractor also must consider requirements of World Bank ESS3

The contractor is also expected to ensure he is compliant with all required permits in respect of waste management as required. These could include:

- Permit for the transportation of hazardous waste; and
- Permit for the disposal of hazardous waste.

RESPONSIBILITIES

Contractor

In accordance with these Guidelines, the contractor shall submit a comprehensive HWMP to IA - PIU for approval. This Plan must be submitted for approval and approved prior to the Commencement Date. This will include as a minimum specific operational requirements such as the definition of waste isolation, details on the use of PPE by employees, approved handling techniques, other safety requirements, ventilation and fire fighting techniques and equipment.

In preparing the HWMP the contractor must be aware, and confirm in writing, that it will be executed at his sole risk and that IAs will not be asked to consider claims in respect of contractual delay or additional costs that may occur, for whatever reason.

Contractor shall be responsible for compliance with these guidelines and any associated Management Plans, in particular Waste Management Plan.

Contractor shall identify personnel responsible for implementation, monitoring and updating of the HWMP. Documentation identifying personnel responsible for implementation, monitoring and updating of the HWMP and for implementing any Emergency Response Plan (ERP) shall be kept at each storage site and the main Site Office.

Copies of documents containing approved plans or permits shall be kept on the site offices all the time.

The contractor shall ensure that all relevant workers should be provided with appropriate PPE to protect against harmful effects of hazardous waste.

The contractor shall maintain an updated Hazardous Waste Inventory for the entire project. Each entry shall include the following information:

- Description of Material,
- Product name,
- Store / site location,
- Store characteristics,
- MSDS Certificates (available or not),
- Quantity of Material on-site.

The Contractor shall be responsible for day to day monitoring of contractor activities and compliance with the HWMP.

IAs - PIUs

- IA-PIU shall assist contractor by facilitating coordination with MOE and other authorities as required.
- IA-PIU shall approve the HMMP.
- IA-PIU shall undertake periodic inspections and audits to ensure compliance with the approved HWMP.

MoEnv.

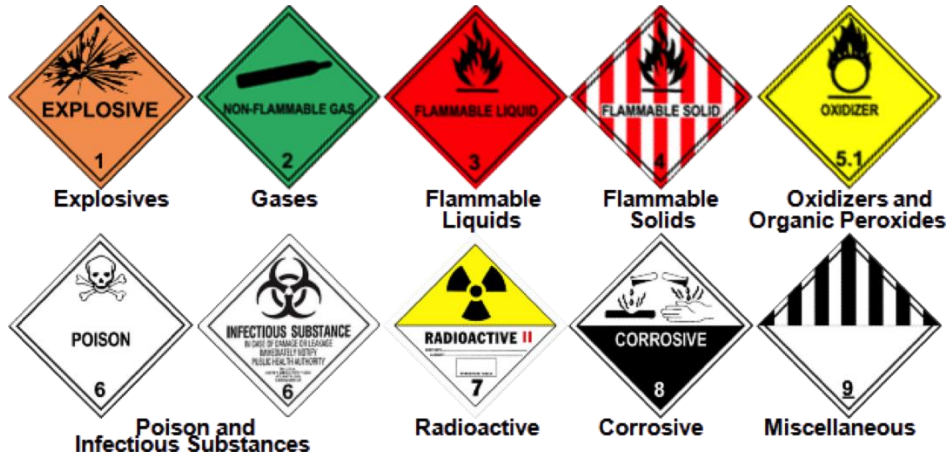
MoEnv shall approve the disposal of all hazardous wastes from the SO-1 Project.

HAZARDOUS WASTE COLLECTION AND DISPOSAL PROCEDURE

- Hazardous waste generated by the contractor and subcontractors will be contractor's responsibility and shall be disposed of at the cost of contractor.
- All HW must be collected and discharged under waste agreements with licensed contractors.
- MoEnv shall be advised of all shipments of HW.
- Assigned staff for HWM must be trained on HWMP implementation prior commencement of work
- Adequate PPEs must be provided for project staff responsible for HW management.
- Hazardous waste may not be stored on-site during construction except where storage is in a secured indoor area in containers, or outdoors in a covered roll-off, that is marked in Arabic and English with the words Hazardous Waste and a description of the waste, and the date waste was

first placed in the container. All containers must be in good condition and closed when waste is not being added to the container.

- Damaged solar PV panels are to be removed from fixtures with care and placed in special cartons. Since these lamps contain heavy metals it is important that they are not broken thereby releasing toxic material into the environment.
- All used batteries containing heavy metals are to be removed from site. They must not be placed in general refuse containers. They must be collected and stored in appropriate containers in appropriate conditions prior to proper disposal.
- Hazardous liquid spills must be collected with contaminated soil by special spill kit or through applying sand to absorb spilled liquid
- Collected hazardous waste must be stored in special HAZMAT area that well bounded isolated and with controlled access
- HW must be kept inside sealed container that marked and labelled according to the relevant category. Below are sample of used labels:



- Disposal of collected hazardous waste must be through authorized transporter by MoEnv.

HWMP Table of Content:

- 1- Introduction
- 2- Sub-project description
- 3- Purpose and Objectives of HWMP
- 4- Roles and Responsibilities
 - a. Contractor
 - b. Implementing agency
 - c. Ministry of Environment
- 5- Types of Hazardous Waste Generated
- 6- Hazardous Waste Collection Method
 - a. Solid HW
 - b. Liquid HW
 - c. Required PPEs
- 7- Hazardous Waste Storage

- 8- Hazardous Waste Disposal
- 9- Documentation and Recording
- 10- Training
- 11- Monitoring and Inspection

Annex 10: Asbestos Management Plan

Introduction

SOP1 project has excluded any location that have currently or confirmed historically Asbestos Contained Material (ACM) pipes at water networks, however, some old water networks as build drawings and information may not exist. Therefore, the following procedures were developed to identify the safe handling, transfer and disposal of ACM pipes discovered during construction, and provide clear identification of roles and responsibilities to safely manage the implementation of this plan upon the occurrence of chance find of ACM.

Purpose and Objectives

This procedure is prepared to provide project implementation parties of component 1 (IAs, construction supervisor and contractor) with proper approach that complies with World Bank EHS guidelines and local regulation in management and handling ACM pipes once found during construction. To achieve that, this procedure will:

- Provide clear definition and information regarding ACM pipes
- Provide clear instructions to the contractor to apply in the event of finding ACM pipes during construction
- Define roles and responsibilities for involved parties in implementation of this procedure during construction activities under component 1 including contractor, construction supervisor, IAs and Ministry of Environment (MoEnv) as the regulatory body.
- Define the EHS guidelines, and regulations that contractor must comply with in implementing this procedure
- Set the communication and reporting requirements during implementation of this procedure.

Definitions⁵ and ACM in Water Networks

Asbestos: Asbestos includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that have been chemically treated and/or altered.

Asbestos is a hazardous material that poses a risk to health by inhalation if the asbestos fibers become airborne and people are exposed to these fibers

Asbestos-containing Material (ACM): Any material containing more than 1% asbestos

Old water pipes were made from asbestos, cement and water, which were commonly used in water systems networks. When breaking up old piping that may contain asbestos cement through pipe bursting or Cured-in-Place treatment, it is possible for workers to be exposed to asbestos fibers. Below pictures for asbestos cement water pipes and how look like.

⁵ <https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1001>



Figure 6:Old Water Pipes

Relevant World Bank EHS Guidelines and Local Regulations Requirements

This procedure is prepared to comply with the below requirements:

- World Bank Environmental, Health, and Safety (EHS) Guidelines:
The Environmental, Health, and Safety (EHS) Guidelines present general and industry-specific examples of Good International Industry Practice (GIIP). These General EHS Guidelines are designed to be used together with the relevant Industry Sector EHS Guidelines which provide guidance to users on EHS issues in specific industry sectors including water sector. These guidelines request to prevent using ACM and World Bank financed projects, if the project includes known facilities contain ACM, then the following requirements must be performed:
 - Asbestos management plan must be developed defines locations and conditions of ACM in the project
 - Asbestos monitoring program ACM conditions and access to ACM locations
 - Training of staff who may be involved in handling and get in contact with ACM at the project to prevent exposure for this serious health hazard.

- Asbestos management plan and procedures must be communicated with all staff involved at the project.
- Asbestos removal and disposal must be by trained staff and following relevant local regulations and international standards.

Detailed guidelines are available at below link:

www.ifc.org/ifcext/enviro.nsf/Content/EnvironmentalGuidelines

- Management of Hazardous Material and Hazardous Waste Regulation No. 68 of 2020:
This regulation sets the responsibility of monitoring hazardous waste management under MoEnv, and through a committee formulated for this purpose comprises of member from different institutions including Ministry of Water and Irrigation. The regulation defines the classification of hazardous material and waste. Jordan has no specific regulations or standards for management and disposal of ACM, however, its classified as hazardous material and must be treated according to this regulation where any incident occur includes hazardous material then it must be reported to MoEnv within 24 hours.
- Hazardous Waste Management Instructions for the Year 2019
These instructions were issued to define the safe handling and disposal of hazardous waste at generation site until being disposed to the authorized landfill. It also defines roles and responsibilities of hazardous waste generator in handling packaging and temporary storing of hazardous waste. That also include the transportation requirements from the generator side and the licensed transporter of this material. These instructions do not have a specific requirements for management and handling of ACM, however, relevant instructions must also be applied for ACM waste material. Details of the these instructions are at below link
http://www.moenv.gov.jo/ebv4.0/root_storage/ar/eb_list_page/%D8%AA%D8%B9%D9%84%D9%8A%D9%85%D8%A7%D8%AA%D8%A5%D8%AF%D8%A7%D8%B1%D8%A9%D8%A7%D9%84%D9%86%D9%81%D8%A7%D9%8A%D8%A7%D8%AA%D8%A7%D9%84%D8%AE%D8%B7%D8%B1%D8%A9%D9%88%D8%AA%D8%AF%D8%A7%D9%88%D9%84%D9%87%D8%A7%D9%84%D8%B3%D9%86%D8%A9_2019.pdf
- Draft Instructions for the Removal of Asbestos Boards of 2007:
These draft instructions were prepared by Ministry of Health (MoH), and in coordination with other institutions include MoEnv and MoL. These instructions are not published officially, however, it's provided for contractors at MoH when they start the process to obtain a permit for asbestos boards used in buildings and structures that called Asbestos Building Material (ABM). Jordan has no similar instructions for ACM pipes, therefore, these instruction will be considered as guidance for required mitigation actions that need to be considered at this plan.

Roles and Responsibilities:

This section defines the roles and responsibilities of involved parties in management of ACM upon chance find of ACM during construction phase. These responsibilities includes response at site, staff arrangements, communication hierarchy and flow, monitoring, ACM handling, transporting and disposal, and reporting requirements.

- The Contractor:
 - Conduct induction training for excavation staff and worker, safety supervisors, and site engineers on ACM water pipes including physical appearance and characteristics, related health hazards, required precautions and actions required to respond upon chance find event based on this procedure.
 - Perform excavation activity with duty of care at old water networks areas where as build drawings or historical data is not available, either by performing trial pits or any other method approved by construction supervision consultant.

Upon the identification of presence of ACM during excavation, the contractor shall follow the perform the following procedures:

- Inform the Project Management and the Construction Supervision firm resident engineer, and coordinate with the ESSD Environmental Specialist.
- Communicate with MoH, MoEnv and MoL to ensure that required resources from trained HSE and labor, equipment and PPEs are in place and adequate to proceed with the ACM handling process Obtain a list of authorized contractors for transporting and disposal of ACM when found during excavations
- Construction supervision consultant (Site Engineer):
 - Inform the PMD and the ESSD Environmental Specialist and ensure communication is held by contractor with the identified national agencies
 - Ensure that the contractor has proper preparedness and aware of the required actions to implement asbestos management plan in the chance find event
 - Review and approve asbestos induction training material prepared by contractor
 - Supervise the implementation of asbestos management plan in the event of chance find including ACM removal packaging and disposal
- Ministry of Health:
 - Review and approve the ACM removal and disposal plan or procedure prepared by contractor
 - Supervise ACM removal process by the contractor at site to ensure that the process is planned and performed in a safe manner
 - Define ACM packaging requirements prior transportation and disposal
- Ministry of Environment:
 - Review and approve the proposed ACM removal and disposal procedure proposed by the contractor in coordination with MoH
 - Provide contractor with a list of authorized and certified contractors to transport removed ACM to hazardous material landfill.
 - Supervise ACM removal and disposal process at site in coordination with MoH
 - Define requirements for temporary storage location at site until the disposal of ACM to hazardous material landfill.
- Ministry of Labor:
 - Review the proposed procedure for ACM removal by the contractor in coordination with MoH

- Define required PPEs to be used by the workers involved at ACM removal and disposal process.
- Supervise ACM removal process at site in coordination with MoH.

ESSD Environmental Specialist:

- Ensure all parties are implementing their roles in proper manner,
Maintains line of communication until the final report of the incident finding is submitted.

ACM Removal and Disposal Procedure:

This section describes the procedure needs to be implemented for the removal of chance found ACM pipe by the contractor at the construction site. This procedure is complying with instructions developed by MoH, as well as with relevant World Bank EHS guidelines.

- Preparation Phase:
 - Inform MoH with the details of the proposed ACM removal and disposal process by the contractor including the location of ACM, and the date of ACM removal in order to obtain MoH permit and approval.
 - Inform MoEnv with the details of ACM removal process in order to obtain relevant permit and to define the location where the removed ACM is disposed
 - Inform MoL with the details of ACM removal process in order to obtain relevant permit
 - Contractor must allocate on his own cost an OHS expert or qualified OHS person from contractor's organization or external to supervise ACM removal and disposal process in order to ensure that all required safety precautions are implemented. Also to respond immediately with required corrective actions as needed to rectify arising issues during implementation.
 - CV of assigned OHS expert and competency of selected workers for the removal task must be submitted by contractor to supervision consultant for approval.
 - Removal and disposal process is preferred to planned for implementation during weekend where traffic at public roads is less and to limit the number of construction workers at site to the minimum
 - Provide the required PPEs for the required workers as requested by MoL such as:
 - Body Cover-whole
 - Filter Masks
 - Clear Goggles
 - Head and Face Cover
 - Safety Shoes
 - Thick impermeable gloves.
 - Contractor must:
 - Provide impermeable thick sheets ie plastic to cover the ground surrounding the ACM pipe work area
 - Provide water hoses ends with spraying heads, these hoses must be long enough to cover the whole work area

- Ensure that enough quantities of water are available with adequate pressure. This water can be either by using supply from water network or by tanks equipped with pumps.
 - Isolate the ACM removal work area and to evacuate any other equipment, tools, structures that may be contaminated by asbestos fibers. This action is preferred to be performed 1 or 2 days prior to the date of performing the removal process.
 - Provide a rest room with toilets and showers for workers involved in the ACM removal process. This rest room must be close to the work location and separate from other rest rooms for other workers and surrounded by an empty yard.
 - Provide detergents and washing soaps, disposable drinking water cups and disposable paper towels that all can be collected and disposed after the work completion.
- Implementation (removal phase):
 - Permit to work must be issued by the contractor after the approval of the supervision consultant on the applied preparation measures.
 - Before the start of removal work, the OHS expert must provide the assigned workers for asbestos removal with induction regarding the detailed removal procedure. Induction includes:
 - The legal position concerning work with and disposal of asbestos waste;
 - Procedures people should take to protect themselves;
 - What control measures are required;
 - What equipment people need to do the job properly;
 - How to choose, use and look after personal protective equipment (PPE), including respiratory protective equipment (RPE);
 - Decontamination of yourself, work equipment and work areas;
 - Asbestos waste handling and waste disposal;
 - Emergency procedures.
 - Mark and isolate the work area with physical barriers and limit access only to workers and supervisors involved in the removal process.
 - Cover the ground surrounding the ACM pipe location with plastic sheets or any other requested material by MoEnv to collect water spray and dust, where these sheets must then be collected in impermeable bags that are sealed with Asbestos warning and information labels and to be disposed with ACM pipes.
 - During the removal process start, water must be sprayed over the ACM pipe area from a suitable close distance / height and in low pressure to minimize dispersion of asbestos fibers into the air.
 - Damaging of ACM pipes during removal, handling, loading, transportation and disposal must be avoided.
 - Workers must limit their movement to the ACM removal location and the designated rest areas in order not to disperse the asbestos fibers.
 - Removed ACM pipes must be wrapped and packed with plastic sheets or any other material requested by MoEnv. with information and warning labels. to avoid dispersion of asbestos fibers during transportation.

- Transportation of wrapped ACM pipes must be through an authorized and licensed contractor by MoEnv.
- Completion Phase
 - All workers and supervisors involved at removal process must remove their cover-whole and all clothes used during removal and to be put in sealed bag with asbestos waste label
 - All workers and supervisors involved at the removal of ACM must get a shower prior departing the removal site
 - Disposal of removed ACM material, collected ground sheet, and workers and supervisors clothes and PPEs must be at hazardous waste landfill in Swaqa area.
 - All facilities utilized by workers and supervisors such as rest areas and showers, toilets, etc. must be washed with water and must be kept for 2 days with well ventilation, and entry must be prohibited during these 2 days. In the case that no immediate transportation of removed ACM pipe is possible, then packed and wrapped removed ACM pipes must be stored at closed area with restricted access and labeled with information and warning signs.

Monitoring and Reporting:

This plan is developed to manage the chance find of ACM pipes of water networks that will be rehabilitated under the project activities . The monitoring required is mainly by the construction supervision consultant and the Construction Supervisor or consultant of the IA in full coordination with the ESSD Environmental Specialist,, to ensure that the procedure is performed according to this plan. As this activity is not a routine work of the project components, no long term monitoring required because once the ACM pipe replace, the open trench is backfilled and the waste ACM pipes are removed from site to disposal sites.

The contractor must document and report the implementation of this plan and procedures as follows:

- Proposed date, team competency, details of removal techniques, and documents of authorized contractor must be submitted to construction supervision consultant for review and approval prior communication with relevant authorities
- Approvals of MoH, MoEnv., and MoL on the ACM pipe removal procedure and plan must be submitted for construction supervision consultant
- Records and forms of waste receivable at the hazardous waste landfill must be submitted for construction supervision consultant as an evidence for proper disposal

Annex 11: Requirements for Contractor Environmental and Social Monthly Performance Report

1. Brief background information on the areas where project activities executed during the reported month including physical environment, natural habitats and biodiversity, socioeconomic conditions, cultural heritage aspects.
2. Updated HSE organization
3. Types, locations and numbers of permits to work issued during the reported month
4. Types, numbers and findings of ES inspections including those performed by any third party on behalf of contractor
5. Corrective and preventive measures applied based on inspections results
6. General ES and OHS statistical records ie number of workers, number of working hours, working hours, accidents and near-misses during the reported month, working hours without LTIs, training hours performed, etc. Logs, registers of types of generated waste (non-hazardous and hazardous)
7. Brief on accidents (if happened at reported period) and investigation results, in addition to lessons learned
8. Summary on performed trainings including emergency drills, in addition to list of participants.
9. Any updates performed on any ES , OHS document during the reported month
10. ES and OHS consideration for major activities at next month.

Annex 12: Sample Template of Negative Performance Points (NPPs) Checklist

The following reference table is a master checklist for NPP listing all the relevant checks for each Site Inspection type.

DOCUMENTATION		NPPs	Access	Camp/Office/ Yards	Construction Site
1	Management Plans not available on site	5		✓	✓
2	HSE Supervisor does not have copy of all MPs	5		✓	
3	Approvals / laws / regulations / guidelines not available	3		✓	
4	OHSE plan not in place	3		✓	✓
5	OHSE rules and / or other information not adequately displayed	3		✓	✓
6	List of approved equipment operators not available	5		✓	
7	Complete set of MSDSs and / or MSDSs not present in HAZMAT storage areas.	3		✓	✓
8	The HAZMAT register is not present or has not been kept updated.	5		✓	✓
9	A Code of Conduct is not in place	3		✓	
10	The Register of Complaints is not maintained and/or the telephone line is not manned or is not operational	5		✓	✓
11	Inadequate notification of construction activity schedules to potentially affected residents	3		✓	✓
12	Staff not nominated to key ES & OHS management roles.	5		✓	✓
13	Nominated ES & OHS staff are unaware or unclear of their role and/or are not adequately trained.	5		✓	✓
14	Lack of site awareness and personnel induction training	3		✓	✓
15	ERP staff not identified or not adequately trained	5		✓	

SITE LOCATION AND LAYOUT		NPPs	Access	Camp/Office/ Yards	Construction Site
16	Location of facilities at site not previously approved.	7	✓	✓	✓
17	Sites not properly prepared or not prepared as per approved construction plan.	7	✓	✓	✓
18	Contract operations not confined within site boundary and / or site boundary not clearly marked.	5	✓	✓	✓

SITE LOCATION AND LAYOUT		NPPs	Access	Camp/Office/ Yards	Construction Site
19	Internal road layout not adequately defined and marked.	5		✓	✓

SITE CLEARANCE		NPPs	Access	Camp/Office/ Yards	Construction Site
20	Site occupation / demolition prior to approval and / or prior to full access right provided by Employer	7	✓	✓	✓
21	Removal of trees/vegetation beyond site boundaries and / or avoidable damage to trees/vegetation	2	✓	✓	✓

SITE ACCESS		NPPs	Access	Camp/Office/ Yards	Construction Site
22	Site access points not laid out as per Site Plan	5	✓	✓	✓
23	Site not secured from unauthorized access	3		✓	✓
24	Site access restrictions not in operation and / or ineffective (where applicable)	3		✓	✓
25	Parking of vehicles off-site	2	✓	✓	✓

ACCESS ROADS		NPPs	Access	Camp/Office/ Yards	Construction Site
26	Inadequate signage (speed limits and other restrictions)	3	✓		
27	Access roads not clearly demarcated	5	✓		
28	Access road junction with public highway not laid out as planned / working inefficiently / not well maintained	5	✓		
29	Use of non-approved public highways and public rights-of-way	5	✓		
30	Public private access restricted and / or not maintained.	5	✓		

MATERIALS STORAGE		NPPs	Access	Camp/Office/ Yards	Construction Site
31	Aggregate, fill and spoil heaps are too large or unprotected and being eroded, or poorly located with respect to grade and watercourses or sensitive receptors.	3		✓	✓
32	Materials stored at locations not previously approved	3		✓	✓

MATERIALS AND EQUIPMENT		NPPs	Access	Camp/Office Yards	Construction Site
33	Use of machinery that is not clean or well maintained or tested	3	✓	✓	✓
34	Carrying out repairs on roads or open ground without taking necessary precautions.	1	✓	✓	✓
35	Routine servicing such as lubrication and refueling carried out without taking necessary precautions. Outside designated locations.	2	✓	✓	✓
36	Cleaning of machinery without taking necessary precautions..	3	✓	✓	✓
37	Equipment being operated by untrained staff	7	✓	✓	✓

CONSTRUCTION TRAFFIC		NPPs	Access	Camp/Office/ Yards	Construction Site
38	Breaches of national traffic regulations by Contractors' vehicles and / or evidence of poor driving practice	3	✓	✓	✓
39	Use of vehicles emitting excessive noise and/or exhaust	3	✓	✓	✓
40	Poor driving / speeding within site perimeters	3			✓
41	Traffic not confined to defined access roads	5	✓		
42	Construction vehicles poorly or improperly loaded	3	✓	✓	✓
43	Vehicles do not display adequate load markings	5	✓		✓
44	Traffic diversions not adequately signed	3	✓		
45	Inadequate coordination with Traffic Police, Civil Defense, etc	5	✓	✓	✓

HYGIENE AND PROTECTIVE EQUIPMENT		NPPs	Access	Camp/Office/ Yards	Construction Site
46	Site not clean and / or free from accumulated waste material, construction debris and rubbish.	3		✓	✓

HYGIENE AND PROTECTIVE EQUIPMENT		NPPs	Access	Camp/Office/ Yards	Construction Site
47	Inadequate sanitary facilities - restrooms, water tanks, cold drinking water facilities	5		✓	✓
48	Use of open ground for sanitation purposes	3		✓	✓
49	Use of open ground for cooking	2		✓	✓
50	Inadequate mess hall facilities and / or cooking on-site	3		✓	
51	Workforce not wearing appropriate PPEs	3		✓	✓

EARTHWORKS		NPPs	Access	Camp/Office/ Yards	Construction Site
52	Using equipment in an unsafe and dangerous manner	7			✓
53	Edge of excavations not adequately marked	7			✓
54	Excavations inadequately supported structurally as needed	7			✓

PUBLIC UTILITIES		NPPs	Access	Camp/Office/ Yards	Construction Site
55	Utility relocation not implemented as per plans.	5		✓	✓
56	Relevant utilities owners are not informed of utility damage	7	✓	✓	✓
57	Unauthorized connection to a utility service	7	✓	✓	✓

NOISE, DUST AND ATMOSPHERIC POLLUTION		NPPs	Access	Camp/Office/ Yards	Construction Site
58	Working outside working hours without approval	5		✓	✓
59	Workmen and others in the vicinity of noise-generating sources or operations not wearing protective devices	3		✓	✓
60	Non-compliance with dust abatement measures	3	✓	✓	✓
61	Non-compliance with national regulations concerning noise and atmospheric emissions	5	✓	✓	✓

WASTE MANAGEMENT		NPPs	Access	Camp/Office/ Yards	Construction Site
GENERAL					

WASTE MANAGEMENT		NPPs	Access	Camp/Office/ Yards	Construction Site
62	Waste management records incomplete	5		✓	✓
63	Disposal of solid wastes in a manner not approved in WMP	5		✓	✓
64	Disposal of liquid wastes in a manner not approved in WMP	5		✓	✓
65	Disposal of hazardous wastes in manner not approved in WMP	5		✓	✓
66	Sewage, solid and hazardous wastes not being removed from the site in a timely manner.	3		✓	✓
CONSTRUCTION WASTE					
67	Construction waste not separated or inappropriately stored	5			✓
SOLID WASTE					
68	Adequate waste storage areas with easy vehicular access not prepared or adequate skips / bins not provided	5		✓	✓
69	Uncovered waste allowed to blow across site	3		✓	✓
70	Littering, waste burning and/or disposal on open land	3		✓	✓
WASTEWATER					
71	Use of non-approved wastewater collection system	5		✓	✓

HAZARDOUS MATERIALS (HAZMAT)		NPPs	Access	Camp/Office/ Yards	Construction Site
GENERAL					
72	Storage of HAZMAT at unapproved sites or the inappropriate storage of fuel, oil, and other chemicals, without adequate ventilation and/or temperature control	5		✓	✓
73	HAZMAT without the relevant MSDSs.	3		✓	✓
74	Failure to notify WAJ and Authorities of a major HAZMAT spill	15	✓	✓	✓
75	Chemicals stored with no visible Hazardous Materials Register	3		✓	✓
76	Leaking fuel, oil or other chemical containers observed	3		✓	✓
77	Inadequate contingency planning and/or Emergency Response Preparedness.	5		✓	✓
78	No fuel / oil spill clean-up kit on site or not useable	3		✓	✓

WATER SUPPLY		NPPs	Access	Camp/Office/ Yards	Construction Site
79	Use of a non-approved source of drinking water for workers	5		✓	✓
80	Excess consumption in relation to ESMP	3		✓	✓

SOIL POLLUTION		NPPs	Access	Camp/Office/ Yards	Construction Site
81	Disposal of solid and/or hazardous waste onto land	3		✓	✓
82	Minor spills not cleaned up immediately	2	✓	✓	✓

WATER POLLUTION		NPPs	Access	Camp/Office/ Yards	Construction Site
SURFACE WATER					
83	Disposal of solid waste and wastewater to watercourses	5	✓	✓	✓
84	Oil or chemically contaminated water allowed to enter sewer	5		✓	✓
GROUND WATER					
85	Sanitary facilities inadequate, leaking, or inadequately monitored	5		✓	✓
86	Leaking oil and fuel or use of chemicals on unsealed ground	3		✓	✓
87	Discharge of wastewater directly to the ground	3	✓	✓	✓

ECOSYSTEMS		NPPs	Access	Camp/Office/ Yards	Construction Site
88	Illegal hunting or the destruction of wildlife and habitats (except as approved for site clearing and pest control)	3	✓	✓	✓

Positive Performance Points (PPP) Table

The positive performance of contractors must be maintained as much as possible where it will be reported by the construction supervision consultant. The basic principle that each contractor must pass the total of 40 PPPs at monthly basis. Those who failed to achieve the target threshold will be given a relevant period to submit a corrective action plan that must be completed prior the next monthly inspection or audit.

The following reference table is a master checklist for PPP listing all the relevant checks.

Description	PPPs
Establishing self-audit system	5
Good self-auditing practices and periodic review of audit results to identify ways of improving environmental & social management performance	10
Acceptance and statement of understanding of ESF requirements and instruments	10
Good record keeping (e.g. waste transport records, water quality testing records, records of internal environmental audits)	10
Evidence of environmental management training and guidance of personnel	10
Exercising environmental awareness and reporting observed inappropriate environmental practices and/or incidents on other parts of the site	10
Incident reporting system established with responsible (quick, professional, transparent) intervention action	15

Annex 13: Archaeological Chance Find Procedure

SCOPE

This procedure aims to ensure that any undiscovered archeological, cultural and/or paleontological remains encountered during construction activities are protected and handled in accordance with the requirements of the Jordanian Ministry of Tourism and Antiquities – specifically the Department of Antiquities (DoA); taking into account the provisions of the applicable laws and regulations.

OBJECTIVES

The objectives of this procedure are to:

Ensure protection of archaeological and cultural heritage resources from potential construction activities.

Outline the requirements related to handling undiscovered (chance finds) archaeological, cultural and/or paleontological remains during construction.

Provide adequate guidelines for the main contractor and its sub-contractors to ensure appropriate application of chance find procedures on site that are compliant with Jordanian Laws and Regulations – specifically the Antiquities Law no. (21) / 1988 and its amendments for year 2004 as well as ESS10 of The World Bank.

All personnel on site whether under the main contractor’s employees or sub-contractor’s employees shall be made aware of this procedure during the hiring process.

ABBREVIATIONS:

Ministry of Tourism and Antiquities (MoTA)

DoA: Department of Antiquities

ESIA: Environmental & Social Impact Assessment

ESS: Environmental and Social Standards

REFERENCES:

The Antiquities Law no. (21) / 1988 and its amendments no. (23) / 2004

World Bank ESS10: Cultural Heritage

DEFINITIONS:

Cultural Heritage	Cultural heritage refers to (i) tangible forms of cultural heritage, such as tangible moveable or immovable objects, property, sites, structures, or groups of structures, having archaeological (prehistoric), paleontological, historical, cultural, artistic, and religious values; (ii) unique natural features or tangible objects that embody cultural values, such as sacred groves, rocks, lakes, and waterfalls; and (iii) certain instances of intangible forms of culture that are proposed to be used for commercial purposes, such as cultural knowledge, innovations and practices of communities embodying traditional lifestyles. Source (IFC, Performance Standard 8)
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APPLICABILITY

This procedure shall apply to the following types of work Construction of the SO-1 project.

ROLES AND RESPONSIBILITIES

Contractor:

Immediate stop of construction activities upon discovery of any archaeological remains

Isolation and protection of the chance find location with physical barriers

Evacuate all workers from the isolated chance find location

Provide proper security and supervision to protect the site until relevant authorities arrive to site

Immediately inform The General Antiquities Department (DoA)with the chance find, location and responsible contact person

Immediately notify the construction supervision consultant with the chance find event

Handover the chance find location for DoA representative.

Prepare a report on the chance find event and submit it to the construction supervision including description of the event, actions performed by contractor and DoA, copy of communication with DoA, and photos for documentation of process.

Construction Supervision Consultant

Ensure that chance find procedure has been prepared by contractor and according to relevant regulation and consistent with ESS10

Ensure that excavation and construction staff are aware of the chance find procedure requirements

Monitor and supervise the implementation of this chance find procedure once being informed by the contractor with chance finding event

Inform ESSD-PMD at WAJ and PIUs of WCs with the chance find event once informed by the contractor

Report to ESSD-PMD at WAJ or PIUs at WCs with the level of implementation and compliance of contractor with the procedure and actions performed.

PROCEDURE

Pre-Construction Screening

The contractor will be committed through his contract to implement the archaeological chance find procedure

The contractor will conduct induction training for construction team regarding this procedure and its requirements

Chance Find Procedures

Construction works shall be ceased if any historical/ culturally sensitive or archaeological sites / remains are chance found during construction activities.

If any known sites were found during construction and may potentially be threatened by construction, the area with the newly discovered remains/sites shall be fenced and the DoA shall be notified immediately and invited for consultations and assessment of the finding and agreement must be reached with the DoA in order to minimize damages to the sites. It shall also be the Contractor's responsibility to notify the supervisor of the Cultural resources Management Office of the DoA are encountered in any area during construction and also specifications set in Article 15 of the Antiquities Law No. 21 (1988) and its amendments ,

DoA will assess the discovered remains and may carry out an emergency salvage excavation (i.e. archaeological excavation conducted during the construction phase, which should be conducted only when an archaeological site is accidentally found (chance found)).

The available short time for salvage excavations cannot be considered an authorization to destroy the discovered remains or site.

Construction work shall be resumed within the newly discovered area only after archaeological experts from DoA and official authorities are consulted and appropriate mitigation measures are implemented, however construction activities can continue at other parts of the site if no potential archaeological remains were found. If found, same procedures above apply.

Consultation with Communities

If the project may potentially affect archaeological and/or cultural heritage resources the contractor shall consult with affected communities within the project area vicinity who use or have used the cultural

heritage within living memory for longstanding cultural purposes to identify cultural heritage of importance, and to incorporate into the decision-making process the views of the affected communities on such cultural heritage. The contractor will provide information to affected communities, in a transparent and appropriate language, on the scope, location, duration of a project, and any activities that might involve impacts on cultural heritage and/or archaeological resources.

The Consultation method shall comply with project's stakeholder engagement requirements.

Consultation will involve the relevant local regulatory authorities entrusted with protection of cultural heritage such as MoTA / DoA. Impacts on cultural heritage will be appropriately mitigated with the informed participation of the affected communities.

INSPECTION & AUDIT:

In case of a chance find, a minimum of one site inspection must be conducted on site.

Inspection of records of training / awareness sessions undertaken by the Contractor on site regarding this procedure.

Maintain an audit register in case of chance finds.

Annex 14: ESF Instruments Consultation Session
Consultation Outcomes Summary

Name & Entity	Comment / Concern	Responses through the WAJ Director of Planning and Administration h and the management team
Ma'an Governorate	<p>The documents are displayed on the website in English, and it is preferable that they be in Arabic, because the targets are Arabic speakers.</p>	<p>An apology was made , it was clarified that the reason is the lack of time and the requirements of the funding agency. The documents will be translated into Arabic and re-disclosed. Participants can provide comments on these versions and send them by email to (WAJinfo@mwi.gov.jo)</p>
	<p>Stakeholder identification: The municipality must be a main partner and not a stakeholder Why are the municipalities not involved in the stages of studies for projects and planning and identifying the areas to be developed? Why are the municipalities not involved in the stages of studies for projects and planning and identifying the areas to be developed? The approval of the municipal council is required for the study</p>	<p>There will be partnership and coordination with the municipalities and defining regions in partnership with the municipalities. The current documents were prepared during the study phase Municipality are among stakeholders identified at SEP prepared for the project</p>
	<p>The problem of administrative and technical losses in Ma'an governorate still exists, specially that each region has a geographical specificity.</p>	<p>The aim of Waste projects is to support the water supply in Jordan. The new waste strategy for the water sector aims to reduce waste by 2% annually within a specific time frame, and the sector is committed to implementing it. The lack of permanent supply is the cause of technical losses and the presence of old lines and networks that need rehabilitation. Administrative loss: Among its causes are the attacks on the water lines and the lack of billing. The solution is to continue the security campaigns</p>

	<p>It is preferable to support wastewater projects (gray and black water) and use them in agriculture.</p>	<p>The Ministry of Water and Irrigation is constantly seeks supporting this sector while studying and implementing its projects.</p>
<p>Imad Al-Saudi Member of Ma'an Municipal Council</p>	<p>Emphasize the importance of partnership and coordination between the authority and the municipalities, especially in the issue of restoring conditions.</p> <p>The problem is in financing and the municipalities law has been repealed. There is no objection to the citizen bearing the financial cost if the services provided are good</p> <p>Dispensing with external financing, focusing on local investment, and supporting the private sector with municipalities.</p> <p>What is needed is to improve the water management process in Jordan.</p>	<p>There is a permanent tendency to partner with the private sector, especially in employment, but projects are not attractive to donors, and local funding needs time.</p> <p>Restoration: prior coordination with the municipalities in this regard and directing letters to the project sites.</p>
<p>Ministry of Labor</p>	<p>Regarding employment and employment in the project, will there be cooperation with the Ministry of Labor in the future?</p> <p>With regard to occupational safety and health, it was noted that injuries occurred and that the implementing contractors did not adhere to general measures.</p> <ul style="list-style-type: none"> • An intervention on observation of activating the role of the Ministry of Labor's register platform for cooperation in the issue of appointing persons with disabilities <p>Required:</p> <ul style="list-style-type: none"> - Providing the Ministry of Labor with the names of contractors, locations and methods of communication to ensure the exercise of the role of control and supervision. - Among the terms of reference for the project should be the appointment of 	<p>This will be prepared and documented in the project terms of reference.</p>

	an occupational safety and health supervisor.	
Greater Ma'an Municipality	<p>What is the total size of the project?</p> <ul style="list-style-type: none"> - Employment rate of refugees (the question was incorrect) - In the field of energy, reaching a solution regarding approvals and permit delays with the Ministry of Energy - NEXUS Emissions Treatment. <p>Restoration costs.</p>	<p>The total volume of the first phase is 300 million dollars</p> <p>The Ministry of Water and Irrigation / Water Authority works in continuous coordination with the Ministry of Energy to mitigate challenges.</p> <p>Emissions in private energy projects in the sector are covered</p> <p>Emphasis is placed on coordination with those concerned before the start of the project for the necessity of the contractor reviewing the concerned municipality and obtaining approval for implementation.</p>
Higher Council for the Rights of Persons with Disabilities	<p>Thanks for including people with disabilities in the project.</p> <p>Is 30 people (male and female)</p> <p>How will the process of selecting the beneficiaries take place, and will there be coordination with the Council in announcing employment and selecting and appointing persons to ensure equal opportunities?</p> <p>It is important for the Supreme Council to be a partner in choosing</p>	<p>Coordination will be made with the Council and the Ministry of Social Development for appointment purposes.</p> <p>The recruitment process will be competitive and the board will be involved and informed of the terms of recruitment.</p> <p>The Project is committed to principles of non-discrimination and equal opportunities in recruitment as per LMP</p> <p>This is the first project in which groups of people with disabilities are involved.</p>
Royal Scientific Society	<p>What is the project going to add to old Water Authority projects related to waste (NRW) to ensure non-repetition of projects (Overlapping)</p> <ul style="list-style-type: none"> - Will the required targets be achieved while the number of women attending plumbing training is small compared to the duration of the project. It is preferable to target more numbers and 	<p>The possibility of covering new categories or increasing the number of trainees will be studied.</p> <p>Waste projects did not cover all governorates, and this project will try to cover most of the governorates.</p> <p>Water losses will be processed from the source, network, meter and billing (all</p>

	more groups.	stages).
Royal Society for the Conservation of Nature	<p>Thanks for conducting the consultative session.</p> <p>- The question about the competence of those responsible for implementing the mitigating measures.</p> <p>Is there a clear mechanism for determining mitigation measures in preserving the environment and nature? (Mitigation measures)</p>	<p>No project will be implemented without submitting a reference environmental plan within the tender documents, and any feedback from municipalities and stakeholders will be taken into account, and financial costs will be allocated to implement environmental and social plans and to address negative environmental impacts, and projects will be supervised and followed up by Experts and specialists in the water sector, and the contractor will be subject to penalties in case of violation</p> <p>:</p> <p>The mitigation mechanism is included in the environmental and social documents of the project</p>
Ministry of Energy and Mineral Resources	<p>Inquiry about the energy index 80 G wh/year, and what are the procedures followed to achieve this figure?</p> <p>Is the Number (80) gigawatt-hours annual, or is it only for one time measured?</p>	<p>There is an energy unit that includes specialists, and energy expenditures are annually studied at 200 million dinars / year</p> <p>There are conditions that prevent the implementation of more than 1 mega watt.</p> <p>The focus is on energy efficiency raising projects such as operating pumps.</p> <p>M . Abdullah Hijab - Director of the Energy Unit: Clarification of the Directorate's objectives for the year 2025, and there is an update on the energy policy for the year 2040, which is represented by:</p> <ul style="list-style-type: none"> - Increase energy efficiency. - Increasing the share of renewable energy. - Adopting the global energy management system. <p>The procedures followed by the water authority in the sector were clarified.</p> <p>The measurements of the World Bank program: the indicators in the Kingdom</p>

		<p>were studied through the energy audit</p> <p>As for the energy target index (80 gigawatt-hours), which will be achieved annually:</p> <p>40GWH: Increased energy efficiency 40GWH: renewable energy</p> <p>Coordination is made with the electricity companies and a preliminary list of the capacities allowed to be installed is determined.</p> <p>It will save about 10 million Jordanian dinars annually. 5% of the annual energy bill.</p>
<p>Bani Kenana Association - Al-Rafid area (Irbid governorate)</p>	<p>For farmers:</p> <ul style="list-style-type: none"> - The Ministry expropriated Al-Rafid agricultural lands to construct Al-Wahda Dam, which prevented farmers from benefiting from the dam's water. - Farmers are prevented from reaching their agricultural crops, which led to their damage. <p>Regarding the water supply issue: The distribution of water is random.</p> <ul style="list-style-type: none"> - Low efficiency of water service providers in distribution and operation stations, and mistreatment of citizens. <p>Provided the water distribution network and lines, and did not maintain them.</p> <p>Regarding the refugee problem: Al-Rafid area is one of the most receiving areas for Syrian refugees, and this led to increased pressure on water resources and its consumption and reduced the per capita share, and the necessary measures were not taken to raise the water supply.</p> <ul style="list-style-type: none"> - The inability to access and benefit from the well near the Al-Wehda Dam, due to the presence of a security threat to the lives of citizens due to its proximity to the Syrian border. <p>For municipalities: Emphasizing the necessity of</p>	<p>Emphasis on the limited water resources and the lack of adequate funding to improve and rehabilitate the network.</p> <p>The project will not involve construction of any new dams</p>

	<p>coordinating with the municipalities regarding restoring conditions.</p> <p>For investment projects implemented in the region:</p> <ul style="list-style-type: none"> - The operation of the presses led to the pollution of the spring water, which was exploited by citizens, and the necessary measures were not taken. 	
<p>President of the Women's Association of Tlal Al-Mansheya (Northern Ghor)</p>	<ul style="list-style-type: none"> - What is the type of partnership with farmers, and how will they be included in the project? - Submit a request to support farmers with modern irrigation networks. - Inclusion of women from the northern Jordan Valley in the plumbing training project, due to their urgent need for that. <p>Exploitation of surface water and implementation of water harvesting projects.</p> <ul style="list-style-type: none"> - Implementation of a sewage water project. - Improving conditions, especially in farmers' areas, due to their exposure to destruction. - Delayed maintenance of water lines. <p>Emphasis on the necessity of coordination with the municipalities.</p> <p>The question about the water harvesting project in the Jordan Valley; Being a heavy rainy area and the amounts of water go to waste, and the question is about the possibility of exploiting that amount of water through water harvesting.</p>	<p>The note will be taken into consideration.</p> <ul style="list-style-type: none"> - There is not enough funding to implement the sewage water project. <p>Notes will be taken, the information will be transferred, and the question will be directed to the concerned parties in the Jordan Valley Authority (JVA).</p>
<p>Assistant Mayor of Salt</p>	<p>The municipalities are supposed to be a strategic partner and an authentic axis in the initial stages of the project, and not only in the restoration process.</p> <ul style="list-style-type: none"> - Complaining about the quality of the water provided to the places and that it does not meet the health standards. <p>Question about conformity of water distribution lines with specifications.</p>	<p>Maintaining water quality.</p> <p>The note will be taken into account.</p>

	<p>Are there cadres to implement waste projects? Are there bodies responsible for receiving complaints from citizens? Allocating a refundable amount to the municipal budget related to the issue of street rehabilitation.</p>	
<p>Royal Scientific Society</p>	<p>Obtaining feedback from the Zarqa Rehabilitation Project, in which women were trained on plumbing.</p> <p>What are the two criteria excluded from the World Bank standards? Are only World Bank standards included?</p>	<p>The note will be taken into consideration</p> <p>The two standards not considered relevant at this time are: ESS7 & 9 National standards are included in addition to donor standards</p>

List of Invitees

No.	Entity
Civil society organizations	
1	Wise Women Plumbers Cooperative
2	Alrafeed agricultural association
3	Almanshiah women association Telal
4	Almanal for development and trainig durrat
5	ARDD
6	Jordanian National Comission for women The
Research and monitoring centers	
8	Rased
9	Agricultural Research Center National
10	Scientific Society Royal
11	Badia Development Fund Hashimate
12	Jordanian environmental association The
13	Union for Conservation of Nature International
14	Society for the Conservation of Nature Royal
Entities concerned with people with disabilities	
15	The Higher Council for the Rights of Persons with Disabilities
Electricity companies	
16	NEPCO
17	EDCO
Donors	
18	AFD
19	GIZ
20	USAID
21	KFW
Municipals	
22	governatle capital - Municipality Shahab
23	asult Municipality-AIBalqa'a governate Greater
24	Municipality- Azarqa'a governate Azarqa'a
25	Madaba Municipality-Madaba governate Greater
26	Irbid Municipality-Irbid governate Greater
27	Mafraq Municipality-Mafraq governate Greater
28	Jerash Municipality-Jerash governate Greater
29	Ajloun Municipality-Ajloun governate Greater
30	Kark Municipality-Kark governate Greater
31	Atafila Municipality-Atafila governate Greater
32	Ma'an Municipality-Ma'an governate Greater
Neighborhood committees	
33	zarqa
34	Salt
35	Amman and sahab
36	madaba association & sumaya center princess

List of Attendees:

وزارة المياه و الري / سلطة المياه / ادارة التخطيط والادارة / مديرية المعايير البيئية والاجتماعية
الجلسة التكوينية الخاصة بمشروع تحسين كفاءة قطاع المياه في الأردن
يوم الثلاثاء 2023/05/16 من الساعة 10-11 من قائمة الحضور

الرقم	الجهة
1	جمعية سيدات الريه الزراعية
2	المجلس الأعلى لتفوق ذوي الاعاقة
3	بلدية السلط
4	جمعية سيدات لادان للمشيئة
5	وزارة الداخلية
6	وزارة السياحة والآثار
7	وزارة الطاقة و الثروة المعدنية
8	وزارة الزراعة
9	بيتك الدولي
10	بلدية معن الكبرى
11	بلدية معن الكبرى
12	بلدية معن الكبرى
13	بلدية معن الكبرى
14	وزارة العدل
15	وزارة التجارة المحلية
16	الجمعية الطبية المحلية
17	الجمعية الطبية المحلية
18	USAID
19	وزارة النقل
20	AFD
21	رئيس بلدية معن
22	الجمعية الملكية لحماية الطبيعة
23	QIZ

Annex 15:

Water Subscription Instructions for the year 2000 and Amendments

