Preliminary Design, Detailed Design, Preparation of Tender Documents and Construction Supervision Services for Connection Points Ramallah and Jenin Water Supply Sub-Project

State of Palestine

Palestinian Water Authority (PWA)

Consortium

CONSULT

مركز الهندسة والتخطيط
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Jenin ESIA Report

Preliminary Design, Detailed Design, Preparation of Tender Documents and Construction Supervision Services for Connection Points of Ramallah and Jenin Water Supply Sub-Project

State of Palestine

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LIST OF ABBREVIATIONS

Abbreviation	Description
ADF	Average Daily Flow
AFD	Agence Française de Développement (French Development Agency)
AMSL	Above Mean Sea Level
BPS	Booster Pumping Station
BW	Bulk Water
BWS	Bulk Water Supply
CA	Contracting Authority (Palestinian Water Authority)
CBO	Community-Based Organization
C-ESMP	Contractor Environmental and Social Management Plan
CEP	Center for Engineering and Planning, Ramallah/Palestine
CFP	Chance Find Procedure
CH	Cultural Heritage
CoC	Code of Conduct
Consultant	Consultancy Association GKW - CEP
CRM	Climate Risk Management
DCI	Ductile Cast Iron
EA	Environmental Assessment
EMMP	Environmental Mitigation and Monitoring Plan
EMS	Environmental Management System
EQA	Environment Quality Authority

Abbreviation	Description
ERP	Emergency Response Plan
ES	Environmental Specialist
ESF	Environmental and Social Framework
ESHS	Environmental, Social, Health and Safety
ESMS	Environmental and Social Management System
ESIA	Environmental and Social Impact Assessment
ESMMP	Environmental and Social Management and Monitoring Plan
ESMP	Environmental and Social Management Plan
ESS	Environment and Social Standard
EU	European Union
FS	Feasibility Study
GBV	Gender-Based Violence
GKW	GKW GmbH, Mannheim/Germany
GR	Growth Rate
GRM	Grievance Redress Mechanism
GRP	Glass Fiber Reinforced Polyester
HDPE	High Density Polyethylene
HWMS	Hazardous Waste Management System
HSE	Health, Safety and Environment
ICA	Israeli Civil Administration
IEE	Initial Environmental Evaluation
IFR	Interim Financial Report
ILO	International Labor Organization
IWA	Israeli Water Authority
JSCSWM	Joint Services Council for Solid Waste Management - Jenin
JWC	Joint Water Committee
KFW	Kreditanstalt für Wiederaufbau (German Development Agency)
LA	Land Authority
LAP	Land Acquisition Plan
lcd	Liters per Capita per Day
LGU	Local Government Unit
LMP	Labor Management Procedure
LRP	Livelihood Restoration Plan

Abbreviation	Description
masl	Meter Above Sea Level
MDF	Maximum Daily Flow
MHF	Maximum Hourly Flow
m3/d	Cubic Meter per Day
m3/h	Cubic Meter per Hour
MoA	Ministry of Agriculture
MoE	Ministry of Education
MoERA	Ministry of Endowment and Religious Affairs
MoFP	Ministry of Finance and Planning
MoH	Ministry of Health
MoL	Ministry of Labor
MoLG	Ministry of Local Government
MoPWH	Ministry of Public Works and Housing
MoTA	Ministry of Tourism and Antiquities
MoT	Ministry of Transport
MoSD	Ministry of Social Development
MSDS	Material Safety Data Sheet
NCDRM	National Center for Disaster Risk Management
NEDCO	Northern Electricity Distribution Company
NGO	Non-Governmental Organization
NIS	New Israeli Shekel
NPV	Net Present Value
NRW	Non-Revenue Water
NWC	National Water Council
OHS	Occupational Health and Safety
O&M	Operation and Maintenance
OSH	Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PA	Palestinian Authority
PAPs	Project Affected Persons
PCBS	Palestinian Central Bureau of Statistics
PCL	Palestinian Civil Law
PCU	Project Coordination Unit

Abbreviation	Description
PEAP	Palestinian Environmental Assessment Policy
PEL	Palestinian Environmental Law
PES	Palestinian Environmental Strategy
PFA	Project Financing Agency
PHG	Palestinian Hydrology Group
PIUs	Project Implementation Units
PLL	Palestinian Labor Law
PMU	Project Management Unit
PNA	Palestinian National Authority
PS	Palestinian Standard
PSBS	Palestinian Central Bureau of Statistics
PSC	Project Steering Committee
PSI	Palestinian Standard Institute
PPE	Personnel Protective Equipment
PTCHL	Palestinian Tangible Cultural Heritage Law
PWA	Palestinian Water Authority
PWL	Palestinian Water Law
RF	Resettlement Framework
RFP	Request for Proposal
RFQ	Request for Qualifications
RoW	Right of Way
RP	Resettlement Plan
RWU	Regional Water Utility
SS	Social Specialist
SCADA	Supervisory Control And Data Acquisition
SEA	Sexual Exploitation and Abuse
SEP	Stakeholder Engagement Plan
SH	Sexual Harassment
SMP	Sanitation Master Plan
SOP	Series of Projects
TD	Tender Documents
TL	Team Leader
TM	Transmission Main

Abbreviation	Description
TMP	Traffic Management Plan
TOR	Terms of Reference
TP	Technical Proposal
UfW	Unaccounted-for-Water
UPWSP	Union of Palestinian Water Services Providers
USAID	United States Agency for International Development
WB	World Bank
WB&G	West Bank and Gaza
WBWD	West Bank Water Department
WCS	Welded Carbon Steel
WHO	World Health Organization
WMP	Waste Management Plan
WS	Water Supply
WSP	Water Service Provider
WSRC	Water Sector Regulatory Council
WSRP	Water Security and Resilience Program
WWTP	Wastewater Treatment Plant
ZFL	Zahret Al Finjan Landfill

0 EXECUTIVE SUMMARY

0.1 Sub-Project Background and Purpose

This Environmental and Social Impact Assessment (ESIA) Report for the "Bulk Water Supply System in Jenin" is prepared as part of the Consultancy of the "Preliminary Design, Detailed Design, Preparation of Tender Documents and Construction Supervision Services for Connection Points of Ramallah and Jenin Water Supply Sub-Project". The "Bulk Water Supply System in Jenin" was launched under the USAID funding program for the benefit of the Palestinian Water Authority (PWA). The sub-project was stopped after collecting data related to the sub-project, preparing the basis of the design report, and proposing preliminary locations of the water facilities. After that, the "Agence Française de Développement" (AFD) allocated a budget to prepare the design and tender documents for the sub-project, which is ongoing, however, the budget for implementing the sub-project components in Jenin was "optional". In the meantime, AFD has decided not to finance the implementation of the Jenin Sub-Project Part.

The sub-project is part of the Red Sea-Dead Sea Agreement, where the Israeli Water Authority (IWA) allocates additional water quantities to the West Bank. As part of this water allocation, the Jenin area will receive additional water quantities of 400m^3/hr and 390m^3/hr from Salem and Al-Jalameh connection points, respectively.

The World Bank allocated a budget to implement the components of the sub-project through a recently launched program titled "The Water Security and Resilience Program (WSRP)", which is the first sub-project in a series of projects (SOP-1) aimed at the ambitious agenda for climate-smart water and sanitation infrastructure investments and reforms, building on the World Bank's support to the sector over the past decades. The Program will be implemented during the fiscal years 2023 to 2028 with possible co-financing by other development partners such as the Kreditanstalt für Wiederaufbau (KFW).

The WSRP includes four components as follows:

- Component 1 - Improvement of Water and Wastewater service
- Component 2 - Improve performance of Water Sector Service Providers
- Component 3 - Project Management and Monitoring
- Component 4 - Contingent Emergency Response Component

The WSRP aims to: (a) ensure equitable access of the population to climate-resilient safely managed water supply and sanitation services; (b) enhance the capacity of the water sector for the planning, regulating and monitoring the performance of service delivery institutions; and (c) create enabling conditions for improved service delivery and operation and maintenance of infrastructure.

Component 1 of the WSRP Improvement of Water and Wastewater service: This component aims to improve supply and bolster the population's resilience to increasing water shortages through investments in water facilities based on identified priorities. This component includes the following sub-components:

1. Sub-Component 1.1 – Bulk Water Supply System in Jenin: The sub-project will finance the construction of the Jenin Bulk Water Supply System, of which sub-project components will consist of water transmission pipelines with a total length of 40.6 km with nominal pipe diameters ranging from DN 150 mm to DN 500mm, Main booster pumping station (BPS) with a balancing Tank (1,500m^3), two in-line BPSs, and regional tank (6,000m^3).
2. Sub-component 1.2 – Northeast Villages Water Distribution System in the Jenin Area (Deir Abu Deif, Jalaboun, Attara, Araboneh, Northern Beit Qad, and Southern Beit Qad): making up to about 10,000 new connections (residential, institutional, and commercial). The Sub-Project will also finance the rehabilitation of the existing wells, pipes, and storage facilities.
3. Sub-Component 1.3 – Hebron Wastewater Operation and Maintenance

This ESIA Report addresses Sub-Component 1.1 “Bulk Water Supply System in Jenin”.

The purpose of the Jenin Bulk Water Supply Sub-Project, Sub-Components 1.1, is:

- to provide adequate, reliable, and safe water supply with better storage capabilities to help overcome the deficit in the water supply that the area suffers due to undersized, old, and deteriorated pipes.
- to construct the main bulk water system components necessary to supply the Jenin area with the additional water allocation that will be provided by Mekorot at the Salem and Al Jalameh connection points.

This sub-project aims to improve the water supply and bolster the population’s resilience to increasing water shortages through investment in bulk water supply facilities. It will act as a catalyst to boost the socioeconomic development of the area and the betterment of the served communities. With best management practices and a proper environmental management and monitoring plan applied during the construction and operation phases, the proposed sub-project is not expected to cause any significant adverse effects on the surrounding environment.

0.2 Purpose of ESIA

The construction of the Bulk Water Supply System in Jenin will likely be associated with adverse environmental and social risks and impacts. In line with the Palestinian Environmental Assessment Policy, and the World Bank Environmental and Social Framework (ESF), an ESIA study is required to anticipate and identify the adverse environmental and social risks likely to occur and develop cost effective and feasible mitigation measures by applying the mitigation hierarchy.

0.3 ESIA Methodology

Data collection: The Consultant’s team collected the primary data relevant to the sub-project through site visits, field surveys of the biodiversity values, and meetings with relevant stakeholders. The Consultant team visited the sub-project sites many times to acquaint the sub-project sites, and to carry out field surveys relevant to the environmental and social characteristics, biodiversity values, and archeological and cultural values of the sub-project sites. The Biodiversity Specialist walked through the sites and recorded the existing plant species and vegetation cover on the sites and any traces of the animals. Some of these site visits have been accompanied by the staff of the PWA.

The Consultant’s team utilized the existing studies, reports, and maps pertinent to the sub-project site to get the relevant secondary data and information. The following sources are used: Geomolg website, which is the formal website of the Ministry of Local Government (MoLG), Palestinian Central Bureau of Statistics (PCBS), and Palestine Meteorological Department (PMD)[1].

Mapping and consulting sessions with sub-project stakeholders: The Consultant’s team met and interviewed the key stakeholders to obtain comments and/or concerns that have been considered in the design and the implementation of the works and getting the relevant data and information. The stakeholders include the following entities: Environment Quality Authority (EQA), MoLG, Ministry of Tourism and Antiquities (MoTA), Ministry of Transport, (MoT), Ministry of Labor (MoL), Ministry of Agriculture (MoA), Environmental Health Department belonging to the Ministry of Health (MoH), Ministry of Public Works and Housing (MoPWH), Municipalities of Jenin, Qabatiya and Burqin and the Village Council of Al-Shuhada. Also, the Consultant team carried out public meetings with the sub-project communities of Jenin, Burqin and Al-Shuhada. The concerns and perceptions of these communities resulting from sub-project implementation were identified.

[1] 1. Geomolg Portal for Spatial Information in Palestine, https://geomolg.ps/L5/index.html?viewer=A3.V1
2. Projected Mid -Year Population for Jenin Governorate by Locality 2017-2026, PCBS, May 2021, https://www.pcbs.gov.ps/statisticsIndicatorsTables.aspx?lang=en&table_id=695
3. Population, Housing and Establishment Census of 2017- Jenin Governorate, PCBS, January 2019
4. Transportation and Communications Statistics in Palestine, Annual Report: 2022, PCBS, July 2023
5. Climatic Averages, PMD, https://www.pmd.ps/en/climatic-averages

Identify, assess and define key environmental and social risks and impacts and mitigation measures: The Consultant team has addressed key environmental and social risks and impacts associated with the sub-Project components. The environmental and social management plan (ESMP) includes a list of mitigation measures, monitoring activities, procedures and protocols to be adopted by the PWA and Contractors during the construction phase, and the PWA team during the operation phase to address identified risks including for, but not limited to, the labor and working conditions risk, community health and safety risk, and the risk of contaminating the local environment.

Sub-Project Components and Activities:

Jenin bulk supply system consists of the following components as presented in Figure 0-1:

1. Water transmission pipelines with a total length of 40.6 km with nominal pipe diameters ranging from DN 150 mm to DN 500 mm
2. Main BPS near Al-Jalameh with a balancing tank of 1,500m^3 capacity
3. Regional tank of 6,000m^3 capacity
4. Burqin Inline BPS and Qabatiya Inline BPS. There is no balancing tank at these sites.

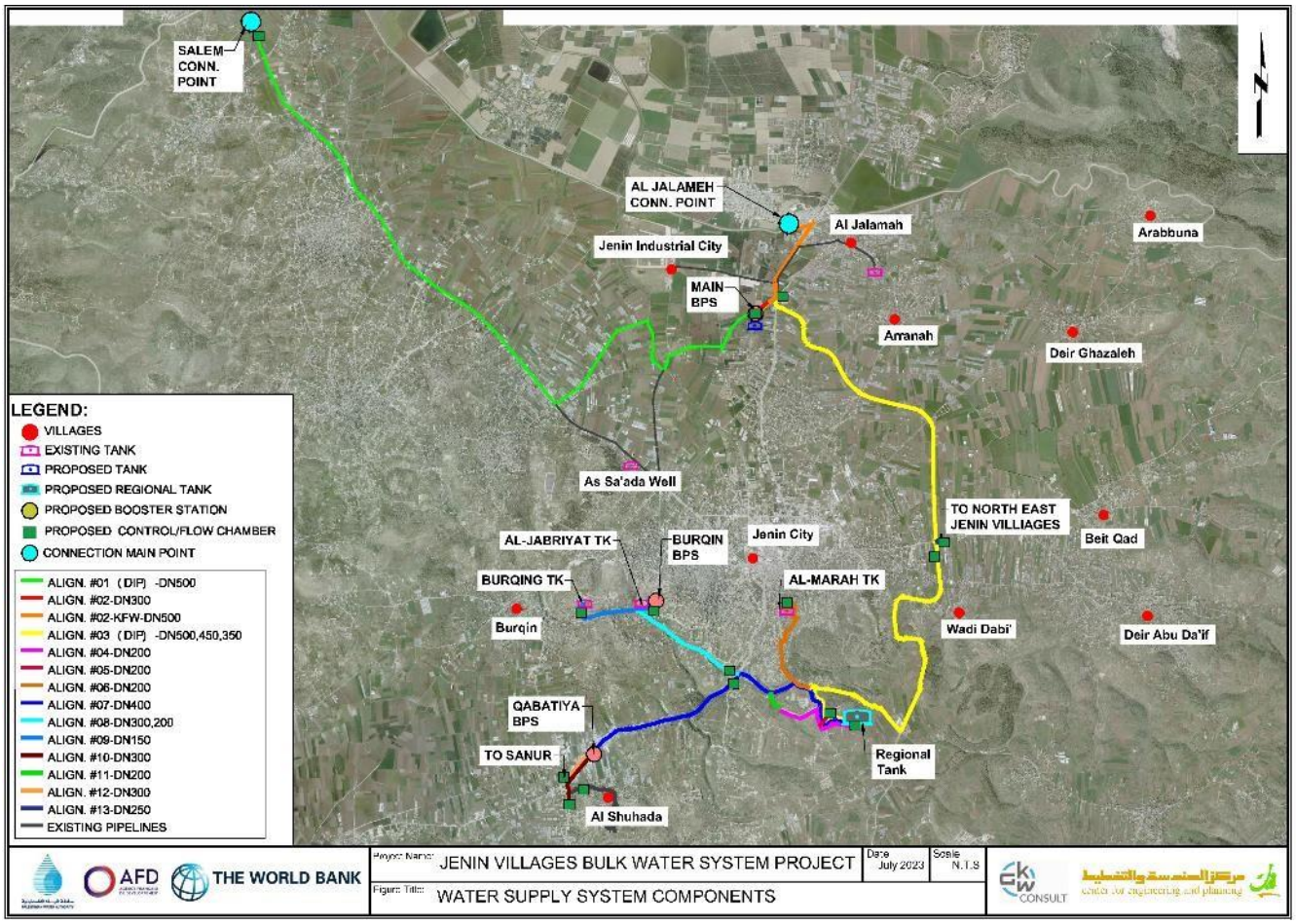

Figure 0-1: Jenin Bulk Water Supply System Components (Source: Consultant)

For sub-project implementation, the sub-project scope of works has been split into three lots to allow for separate tendering for each lot as follows:

1. Lot 1 extends from the Salem connection point to the Al-Jalameh BPS (included).
2. Lot 2 extends from Al-Jalameh BPS (excluded) to the regional tank (included).

3. Lot 3 extends from the regional tank (excluded) up to the tanks and service connection chambers of target communities (Qabatiya, Al-Shuhada and Sanour connection chambers, Al-Jabriyat tank/Jenin, Burqin tank, Qabatiya and Burqin in-line BPSs).

Construction Phase: The following activities will be followed up during the construction phase for each of the sub-project components:

1) Water Transmission Pipe-lines	• Excavation works for trenches and valves chambers
	• Transporting and disposing of excess excavated materials to appropriate and approved disposal sites
	• Spreading embedding materials
	• Formwork, steel rebar, and casting concrete for chambers
	• Laying out and joining pipes and valves
	• Pipes and valves testing, cleaning, disinfecting, and flushing
	• Backfilling works for trenches and chambers
	• Trenches and chambers backfilling
	• Roadway restoration and reinstatement
2) Water Tanks	• Earthworks, including excavation and backfilling works to the needed level
	• Transporting and disposing of excess excavated materials to appropriate and approved disposal sites
	• Formwork and steel rebar
	• Casting concrete
	• Epoxy external painting and internal insulation
	• Pipework and valves
	• Electrical work (lighting, instrumentation, and lightning)
	• Tank testing and disinfecting
	• Mechanical work for water tank and pipe yard
	• Electrical work for lighting, instrumentation, and lightning
	• Site grading and landscaping
3) Booster Pumping Stations	• Earthworks, including excavation and backfilling works to the needed level
	• Transporting and disposing of excess excavated materials to appropriate and approved disposal sites
	• Formwork and steel rebar for service buildings and BPS shed
	• Casting concrete
	• Mechanical work: installing booster pumps, pipes, valves
	• Supply and installing an electricity supply system
	• Electrical work for power, monitoring, and control systems
	• Site grading and landscaping

Operation Phase: After construction, the water transmission pipelines and other facilities will be operated year-round, 24 hours a day, supplying water to the served area. The West Bank Water Department (WBWD), which is the department belonging to the PWA that is responsible for the provision of bulk water supply systems in the West Bank, will operate the new facilities and ensure their maintenance whenever needed. The maintenance work will include routine maintenance of mechanical and electrical installations and any emergency works (corrective maintenance).

0.4 Institutional and Implementation Arrangements

The main actors concerning the sub-project implementation include the following entities:

PWA: The PWA will be the Implementing Agency for the WSRP-1 project. PWA will create a dedicated Project Coordination Unit (PCU) hosted within PWA, which will be supported by field Engineers in Jenin. The PCU will be staffed with experts and specialists, hired on a competitive basis, to support the management of Environmental, Social, Health and Safety (ESHS) risks and impacts of the WSRP-1 Project, including one Environmental Specialist, one Social Specialist, and one field Engineer. The main task of the environmental and social specialists is to oversee the implementation and monitoring of the environmental and social management framework (ESMF) and the associated ESIA/ESMP, Resettlement Framework and associated Resettlement Plans or similar instruments, Labor Management Procedures, Stakeholder Engagement Plan (SEP), and the performance of the Grievance Mechanisms (GMs), etc.

MoLG and Local Government Units (LGUs): The MoLG, Municipalities and LGUs will also be involved as key stakeholders during the sub-project implementation. The WSRP-1 Project counts on a Project Steering Committee (PSC) to be chaired by the Program Director and including representatives of the Ministry of Finance and Planning (MoFP), MoA, EQA, MoLG, and local district-level stakeholders, WBWD, Water Sector Regulatory Council (WSRC), newly established Regional Water Utilities (RWUs), and representatives of Non-Governmental Organizations (NGOs) and academia. The PSC will facilitate higher-level support for the monitoring and follow-up on the Project and allow advanced discussions on the subsequent sub-projects within the SOP.

Supervision Engineer: The PWA will hire the services of an international engineering firm for construction supervision (supervision Engineer). The supervision Engineer shall include ESIA/ESMP Engineer as part of his/her key personnel. The supervision Engineer will supervise construction works, ensuring compliance with all design parameters, including quality requirements, supervising the contractors' compliance with ESMP implementation, including social aspects, preparing monthly reports and submitting them to the PCU.

Contractors: The PWA will hire the services of contractors to implement the sub-project components as described above. Each contractor will be required to include an OHS specialist as part of his/her key personnel. The Contractors and their sub-contractors will implement the E&S mitigation measures and plans as laid out in this ESIA and ESMP Report. Mitigation measures required will be included and priced in agreements with the contractors. The contractors will be obliged to ensure that staff with ESHS experience and capacity are involved in construction works and can fulfil the reporting requirements on E&S, as elaborated in later sections.

In the operational phase, PWA/WBWD shall ensure E&S measures are taken to avoid adverse risks and impacts on the sub-project components. The focus of the WSRP-1 project on O&M will mainly prepare and train the respective operators to perform the relevant tasks.

0.5 Relevant Laws, Regulations and Policies

The Palestinian laws, bylaws and regulations and the World Bank Social and Environmental Standards (ESSs) are the key references which are considered and used as guidance wherever relevant in the Sub-Project. Additionally, The World Bank Group's Environmental, Health, and Safety (WBG EHS) General Guidelines, which are technical reference documents with general industry-specific examples of Good International Industry Practice (GIIP), shall be applied. Also, The WBG EHS Guidelines for Electric Power Transmission and Distribution Guidelines shall be applied in this Sub-Project as connecting the sub-project facilities to the existing electricity grids is part of the contractors' scope of work.-------

A comparison between the Palestinian E&S legislative framework and the World Bank ESSs has been addressed and in which it was found that there are certain issues with gaps between the two. Wherever the Palestinian requirements are less strict than the ESSs or do not cover certain issues, the ESSs will be applied.

0.6 Sub-Project Site Characteristics and Risks

Resettlement impacts: the water transmission pipelines will be installed within the right-of-way (RoW) of the existing public roads, and there will be no taking of any private land. The lands of the other water facilities are either

state lands or owned by local councils, which provided customization and no objection to the PWA to build the water facilities on these lands. Only one piece of land (on which the main BPS will be built-up) is private land; the area is about 2,000m^2. According to the Palestinian legislation, once the Presidential authorization is issued, the land becomes a State-Land for the public interest, and the owners or users must refrain from disposing of it in any way.

Biodiversity values: Along the investigated area, it was noticed that there are no trees of any kind, and there are only weeds and thistles species except the regional water tank site, which includes ten olive trees. At the proposed locations of the components of the sub-project (water facilities and water transmission pipelines), it was noted that no threatened animal or rare plant species were recorded in and around the proposed locations.

Archeological and cultural heritage: Based on the field visits that the Consultant's team carried out, there is no indication of any archeological sites, cultural or heritage features, and tourist or recreational areas in the sub-project area. The MoTA indicated that the sub-project sites do not have any archaeological sites, and they provided a map showing the locations for archaeological sites and monuments in proximity of the sub-project sites. The MoTA confirmed that there is no cultural heritage close to or located within the sub-project area.

GBV/SEA/SH of labor influx: There is no large-scale labor influx or construction of labor camps under the sub-project. The sub-project will be implemented by local laborers from the Jenin area that come to the sub-project sites daily without need for residing in labor camps. The Sub-Project will not require establishing labor camps or experience any labor influx or issues related to the presence of migrant workers. The existence of the local workers might lead to gender-based violence (GBV), sexual exploitation and abuse (SEA), or sexual harassment (SH).

Access roads: The construction area is accessible through the existing roads, and there is no need to construct any new access road to reach any of the sub-project sites.

Other general risks including Occupational Health and Safety Risks, Community Health and Safety, Labor Conditions, Air Quality, Noise, and Traffic have been addressed in the Report.

0.7 Positive Impacts of Sub-Project

Construction Phase: The sub-project will provide employment opportunities during the construction phase for the workers (skilled and unskilled), workers in the support services (supply of the construction materials and equipment/supply chain), Palestinian companies and suppliers of the construction material and equipment. There will be a chance for the residents surrounding the Sub-Project area to work on the sub-project.

Operation Phase: The communities proposed to be served by the Jenin Bulk Water Supply System Sub-Project currently suffer from inadequate water supplies, with an estimated per capita allocation ranging from 60 to 70 l/c/d. The situation is compounded by the increase in population in the region. The sub-project aims to provide adequate, reliable, and safe water supply with better storage capabilities to help overcome the deficit in the water supply that the area suffers due to undersized, old, and deteriorated pipes.

Currently, the water service providers are forced to cut off water in the targeted areas, particularly in summer, which causes the following negative impacts:

- Adversely impact of personal health and hygiene and cleanliness in the area
- Economic losses for factories that need considerable quantities of water.

Socioeconomic impacts in the operational phase are generally positive as follows:

- Contribute to the provision of reliable water sources and proper increase in the domestic water per capita consumption in the Sub-Project Area.
- Minimize the impacts on the residents of the served communities who suffer from water shortage, especially during the summertime and are forced to spend more money to get water by private water vendors.
- Improve the health situation of the citizens of the served communities by providing them with safe and disinfected drinking water and eliminating their dependence on water tankers of unknown quality.

- Encourage investors to implement new industrial and commercial facilities in the served area, thus increasing employment opportunities.
- Provide employment opportunities by employing O&M staff to operate the new facilities of the Sub-Project.

0.8 Negative Risks Impacts of Sub-Project

There are certain risks and impacts that will be caused by the sub-project implementation that need to be settled and mitigated. These risks and impacts cover the following phases: pre-construction, construction, and operation.

Pre-construction Negative Risks and Impacts: The pre-construction risks and impacts are related mainly to land acquisition for privately-owned land for the main BPS, which area is 2,000m^2. A Presidential Decree was issued to acquire the land for public use, but the owners are not compensated yet. This privately-owned land required for the sub-project shall be allocated for the sub-project before starting the sub-project implementations.

Per the WSRP 1 Resettlement Framework (RF)[2], compensation for loss of lands shall comply with the requirements of the national legislation as well as the World Bank's ESS5. As stated in the project RF, landowners will be compensated at the full replacement cost of land and other assets attached to it.

There will be no economic or livelihood impacts resulting from the implementation of the sub-project as the water transmission pipelines will be laid within the RoW of existing roads. Also, the other water facilities (except main BPS, see above) will be constructed on State Land and lands owned by the local councils, which are not used for any livelihood source.

Construction's Negative Risks and Impacts: Risks and impacts that occur during construction are primarily associated with earthworks, material transportation, electrical cables (overhead and underground) installation, and the movement of heavy machinery. Such risks and impacts are mostly of short-term, local, temporary, reversible, and caused by the Contractors' activities in the area. The potential negative risks and impacts can be minimized or eliminated by mitigation measures. The key social risks and impacts associated with the sub-project are associated with the construction labor management, community health and safety risk, GBV/SEA/SH that might result from the increased presence of workers/labor working close to the residential areas.

The contractors shall carry out the mitigation measures; the supervision and monitoring of the compliance of the contractors and their sub-contractors in implementing the mitigation measures are addressed in the later section of this executive summary. The Contractors shall provide appropriate environmental training to the concerned staff.

The below Table 0-1represents the potential risks, the mitigation measures, and the responsible party that will implement the mitigation measures.

Table 0-1: Negative Risks and Impacts and Mitigation Measures during Construction Phase

Potential Risk and Impact	Mitigation Measures	Implementation Responsibility
Air quality	Implement a construction site management plan including the following measures: • Store construction materials in pre-identified storage areas. • Cover fine aggregate during storage. • Using emissions filter for the mobile generators used by the contractors.	Construction contractors

[2] http://www.pwa.ps/userfiles/server/%D8%A7%D8%B9%D9%84%D8%A7%D9%86%D8%A7%D8%AA/2023/Resettlement%20Framework%20%20.pdf

Potential Risk and Impact	Mitigation Measures	Implementation Responsibility
	• Wet the construction areas of water transmission pipelines locations. The use of water should be restricted to extremely active areas. • Regulation of speed to a suitable speed (20 km/h) for all vehicles working close to populated areas. • Implement preventive maintenance program for vehicles and equipment working on site and promptly repair vehicles with visible exhaust fume.	
Noise	Implement on-site Occupational Health and Safety Plan, including the following actions: • Minimization of exposure of construction workers to different noise levels and noise impacts according to the national standards. This could be achieved through adjusting working hours, breaks, and exposure duration to be within permissible limits. • Provide the workers with earplugs/earmuffs should be available to all workers especially for those working near jack hammers/excavators. • Install mobile generators inside noise-control containments/isolation. • Provide training on how and when PPE should be used as part of employee orientation courses. • Set clear visible instructions in areas where noise levels are critical. Other mitigation measures to reduce the impact of off-site noise at the nearest sensitive receptors include: • Improve the use of construction equipment that causes a high noise level and shut down any equipment when not in use. • Regular maintenance of all equipment and vehicles. • Minimize construction through nighttime whenever possible to reduce disturbance to nearest community. • Inform the neighboring communities with the construction schedule. • Implement complaints system (Grievance Redress Mechanism)	Construction contractors
Non-hazardous solid waste	• Design a waste separation system during each phase of sub-project implementation. • Design and establishment of a central storage area for non-hazardous waste. • Coordinate with and apply to local councils for collecting and disposal of domestic waste. • Coordinate with local councils and other concerned government agencies (e.g., MoLG) for disposing surplus excavated wastes and surplus construction material. • Record the amount of waste disposed and maintain disposal/burial and transport receipts. • During the construction phase, the above mitigation actions must be included in the contractor's contract. The contractor shall submit a site-specific waste management plan (SWM) containing the above-mentioned procedures at the minimum.	Construction contractors

Potential Risk and Impact	Mitigation Measures	Implementation Responsibility
Liquid wastes	• Domestic wastewater should be evacuated by licensed vacuum tankers and disposed of in the Jenin wastewater treatment plant (WWTP) or other licensed WWTP. Contractors should allocate certain areas within the construction site for the hygienic mobile latrine units for the construction staff.	Construction contractors
Hazardous waste generation and handling	The Contractor shall submit a hazardous waste management plan containing at minimum these procedures. **A) General procedures for storage, transport and disposal of hazardous wastes:** • Do not allow any mixing of different types of hazardous waste. • Determine how hazardous waste management can be managed, whether by recycling or safe disposal outside the site through licensed contractors at the beginning of the construction phase. Awareness campaigns and training on sound environmental practices for hazardous solid waste management should be carried out as part of safety and occupational health procedures. • Collecting and storing used oils in designated containers to be disposed of / recycled by a specialized and licensed company to be identified at the beginning of the construction phase. • The Contractor shall prepare a register of hazardous materials and wastes, which shall include all data related to the management of hazardous wastes and materials. **B) Adopting identification system for hazardous wastes generated on site:** The Contractor should be able to identify hazardous waste types in accordance with the Palestinian Hazardous Waste Classification System (PHWCS). **C) Management of hazardous waste storage area** • Provide a water source in the storage area- if any. • Hazardous waste must be stored in drums, in order to facilitate handling and prevent interaction with non-compliant waste.	Construction contractors
Soil and Groundwater	Implement the construction site management plan which includes: • Segregation and reuse options of excavated material. • Collect and dispose of solid waste in a hygienic manner. • Excavation shall be carried out in a way preventing soil erosion. • Contractors will be required to take appropriate measures to avoid and contain any spillage and pollution of the soil Including the response to spill scenarios within the emergency response plan. • Contractors will confine the contaminants immediately after such accidental spillage	Construction contractors
Biodiversity	• Transplant olive trees uprooted from the regional tank site on nearby land owned by the ex-owner after coordination with Jenin Municipality and MoA. • Prevent laborers from hunting wild animals in the area.	Construction contractors

Potential Risk and Impact	Mitigation Measures	Implementation Responsibility
	• Exercise caution when excavating trenches and laying underground cables to protect mammals, reptiles, and birds. • Produce cautionary-loud sounds before starting the construction works to alarm the animals and allow them to move to a safer place. • Minimize impacts of surplus excavated materials and construction materials waste on biodiversity and habitats outside the sub-project sites. • Limit storage of materials at the sub-project sites. • Minimize impacts of lay-down areas, surplus excavated materials, and construction materials wastes on biodiversity and habitats outside the sub-project sites.	
Occupational Health and Safety	The Contractors shall adopt an Occupational Health and Safety (OHS) Plan. According to OHS plan, the main mitigation measures to prevent common construction hazards are: • Workers must follow safety standards and use PPE to minimize hazards while trenching and excavating. • Workers should be trained to identify and evaluate fall hazards and be fully aware of how to control exposure to such risks as well as to know how to use fall protection equipment properly. • To prevent heavy construction equipment risk, workers should follow all construction safety guidelines necessary to eliminate the exposure to such injuries and accidents. • To prevent the electrical hazard, workers should be at a safe working distance away from the power lines. • Identification of hazard sources to workers • Eliminating the sources of hazards • Training workers to recognize potential hazards, use proper work practices and procedures, recognize adverse health effects, how to use PPE and are familiar with appropriate emergency evacuation procedures. • Inspection and testing of all equipment and machines. • Follow all safety guidelines at construction sites to prevent injuries and accidents. • Preparation of an emergency response plan which shall consider risks of communicable diseases. • Provision of necessary rescue equipment. • Elaboration and management of a health and safety plan. • Provision of appropriate and sufficient first aid equipment. • There are safety and health standards that require initial check-up to workers before starting the sub-project. Then the check-up should be conducted regularly (e.g., monthly) to ensure full safety. • Operationalise Grievance Mechanism for workers in line with Project LMP	Construction contractors

Potential Risk and Impact	Mitigation Measures	Implementation Responsibility
Visual and Landscape Impacts	• Dispose of all construction wastes and surplus excavated materials into appropriate and approved disposal sites and keep the site clean. • from sub-project sites and keep the sites clean. • Compensate the loss of vegetation cover within the regional tank site by planting native plants around the site perimeter.	Construction contractors
Cultural Heritage and Monuments	• Develop, document, and implement a site-specific 'Chance Find Procedure' that will detail what the construction contractor shall do if valuable artefacts or culturally valuable materials are found. The contract relating to the sub-project construction shall include the Chance Find Procedure (CFP). • Ensure relevant workers are trained in the requirements of the procedure before ground disturbance • Inform the Directorate of Tourism and Antiquities (DoTA)- Jenin formally in advance and before starting the construction works. • In case of finding a monument during the excavation, the excavation work shall immediately be stopped, leaving the monument as is at the site where it was found and taking photos to document the time and status of the monument. Guards should be assigned to monitor the monument and contact the DoTA-Jenin to handle the site.	Construction contractors
Community Health and Safety	• Occupational health and safety guidelines should be followed on the roads. • For the construction activities of pipe trench, barriers shall be used to protect the site from any entrance of the pedestrians. • Use signs, barriers, public outreach to prevent public contact with potentially dangerous equipment while working close to populated areas and other occupied areas. • Sites of regional tank and booster stations shall be marked of with fencing and signage to prevent public from entering the dangerous sites. • Communication with local communities when work activities will take place near them to ensure children are not playing in the work area. • Prepare and operationalize Grievance Mechanism in line with Project LMP • Ensure that workers understand, sign and adhere to workers' Code of Conduct.	Construction contractors
Traffic	• Contractors shall develop and stick to a site-specific traffic management plan (TMP). • Avoid vehicle movement during rush hours • Coordination with related authorities such as traffic police. • Determine the maximum speed within the sub-project sites. • Place traffic signals to warn of the movement of heavy vehicles and machineries.	Construction contractors

Potential Risk and Impact	Mitigation Measures	Implementation Responsibility
	• Place traffic signs to warn of the movement in case of street and road closures due to trench excavations. • The speed of the vehicles should be reduced at least 500 meters before and after the entrance to the working area. • Flagman shall be used to direct vehicle traffic around construction sites and hazards during working hours. • Determine the movement of vehicles to be during the daytime only. • Determine the trench excavations to be during the daytime only unless the relevant authority, e.g., traffic police, requests it to be done at nighttime. • No open trenches can be left overnight. • Place traffic signals and warning tapes to warn of the movement due to trench excavation in case any trenches were left open overnight for an emergency purpose. • Secure parking areas for workers and staff at the Contractor's offices and site premises. • Ensure vehicle safety and regular maintenance.	
Labor Conditions	• Develop and implement labor management plan, which the contractors shall prepare specifically to the project components and nature as per the Project LMP. • Develop and implement a workers' grievance redress mechanism including provisions for the handling of GBV/SEA/SH. • No child under the age of 15 will be employed. • Persons under the age of 18 will not be employed by the project unless to perform light duties. • Implement GBV/SEA/SH, and child protection training/awareness campaign for the contractors' staff.	PCU/PWA, supervision Engineer, Construction contractors
GBV/SEA/SH of Labor Influx	• Maintain labor relations with local community through labor code of conduct and not to act with any behavior that may lead to any problems or disputes with the local population. • The Contractors' employees should receive orientation sessions in working in the surrounding communities. A code of conduct would need to be signed by all workers during the construction work to stay away from the communities. Also, an awareness campaign for the communities and workers will help deter unacceptable behavior. • Develop and implement a grievance redress mechanism including provisions for the handling of GBV/SEA/SH. • Implement an awareness campaign on GBV and sexual harassment.	Construction contractors
Infrastructure	• Contractors shall get as built drawings for the existing underground infrastructure from the service providers and coordinate the excavation works with them before starting any excavation works. • Reinstate the damaged infrastructures due to the installation of the pipelines in the main roads and reinstate any accidental damage to	Construction contractors

Potential Risk and Impact	Mitigation Measures	Implementation Responsibility
	existing structures and private property caused by construction activities.	
Land Use	• Contractors shall conduct agreements with the landowners, in line with the ESS5, including the compensations the Contractors would pay for the landowners.	Construction contractors
Access to Sub-Project Benefits and Lack of Stakeholder Engagement	Employment opportunities: • Ensure sub-project GM, including mechanisms to manage GBV/SH-related grievances, is accessible and applied. • Apply workers' GM. Exclusion of stakeholders in sub-project activities and lack of sharing of information: • Use innovative communication and engagement means to reach the communities with information on the sub-project and receive their feedback. • Disseminate information about the GM in the communities. • Use the Arabic language in communication. Temporary loss of accessibility to individual land/asset: • Avoid impacts through the identification of alternatives. • Ensure access to GM. • Implement SEP throughout the sub-project implementation phase.	PCU/PWA, supervision Engineer, Construction contractors

Operation's Negative Risks and Impacts: The below Table 0-2 identifies the components of the ESMP during the operation phase. The WBWD/PWA shall carry out the mitigation measures, and the ES and SS from WBWD shall supervise and monitor the compliance with mitigation measures as per the monitoring program.

Table 0-2: Negative risks and impacts and Mitigation Measures during Operation Phase

Potential Risk and Impact	Mitigation Measures
Soil and groundwater	• Limit the water abstract to the safe yield of the well • Conduct public awareness campaign through flyers, mass media, public meetings or workshops, or the local council to: - Encourage diverting greywater directly to open channels, storing greywater on site prior to diversion or reuse, and reusing greywater - Encourage more frequent hiring of vacuum tankers to remove sewage from cesspits - Encourage replacing cesspits with reinforced concrete septic tanks and discharge into subsurface leach fields, or are evacuated and the effluent discharged to designated safe wastewater disposal locations (Jenin WWTP) - Encourage construction of septic tanks for new buildings - Encourage implementation of small-scale, on-site wastewater systems - Increase awareness of environmental and health risks associated with sewage disposal to cesspits - Encourage water conservation and protection • Implementation of waste management plan by regular emptying for any existing septic tank within the facilities.

Potential Risk and Impact	Mitigation Measures
	• Fuel tanks to be installed inside fully- sealed concrete structures
Air Quality	• Equipment selection will consider the air emission standards. • Using emissions filter for all generators in the sub-project.
Noise	• Noise associated with the operation of booster pumps and standby generators will be mitigated by its containment/isolation. • Equipment selection will consider the noise level standards. • Noise levels for facilities installed in a separate room/enclosure: < 80 (db(A)) outside the room/enclosure, < 55 (db(A)) inside control room and < 40 (db(A)) outside site boundary. • Hazardous warning notices indicating ear defenders are to be worn shall be installed at entrances to rooms/enclosures where the sound level exceeds 80 (db(A)). • Replace and maintain noise muffling equipped or other used acoustic reduction technologies as needed.
Hazardous and Non-Hazardous Waste	• The hazardous waste generated should be stored and disposed of through a licensed contractor per the Palestinian HWMS for the hazardous waste. • Waste Management Plan must be developed to comply with relevant Palestinian regulations and international best practices covering all types of waste to be implemented by sub-project operators. Generated solid waste should be collected in covered bins, until they are delivered via the relevant local council/licensed contractor for disposal in domestic solid waste disposal sites.
Occupational Health and Safety	**The Occupational Safety and Health Plan** shall include the following procedures as a minimum: • Identify and remove hazards to workers. • Follow safety standards and use PPE. • Conduct periodic medical examinations for workers to ensure their safety. • Follow all safety guidelines at sites required to prevent injury and accidents. • Inspection and testing of all equipment and machinery. • Prepare an emergency response plan. • Provide the necessary rescue equipment and adequate and enough first aid. • Develop and manage a plan to ensure safety. • The applied procedures should cover the following risks at a minimum: • Risk of injury during operation. • Personal injury risks for workers and employees as a result of truck traffic on site. • Hazards associated with closed spaces or anywhere where breathing is difficult.
Labor Conditions	• Abide with the Palestinian Civil Service Law No. 4 of 1998 for the permanent staff and the Palestinian Labor Law for the casual staff; • Implement the clauses of the LMP; • Develop and implement a grievance redress mechanism with provisions for handling GBV/SEA/SH; and • Implement GBV/SEA/SH training/awareness campaign for the PWA/WBWD staff.
Community Health and Safety	• Provide a complaint mechanism for the community. • Conduct semiannual community meetings to record any concerns/complaints they may have.
GBV/SEA/SH	• Maintain labor relations with the local communities through labor codes of conduct and do not act with any behavior that may lead to problems or disputes with the local population. • Develop and implement a grievance redress mechanism including provisions for the handling of GBV/SEA/SH.

Potential Risk and Impact	Mitigation Measures
	• Develop a workers' GM for the PWA/WBWD. The workers shall be made aware of the workers' GM, and will also be able to lodge complaints to the special referral pathways for grievances on GBV, SEA, SH.
Infrastructure	Electricity: • Use of energy-efficient equipment • Comply with the operational manual and design recommendations for controlled mechanisms to allow the safe shutdown of facilities in the case of interruptions to the power supply. • Follow lessons learnt and procedures that have been experienced previously by PWA with other water supply facilities regarding diesel availability Wastewater: • Refer to mitigation measures on "Soil and Groundwater"
Emergency Impacts	• Develop and implement an emergency response plan (ERP) per the Palestinian regulations regarding emergency preparedness requirements and the World Bank procedures on disaster prevention and preparedness following an eligible crisis or emergency. • Communicate the roles and responsibilities of laborers in case of an emergency. • Train all operation workers in general health and safety matters and on the specific hazards of their work. Training should include basic hazard awareness, site-specific hazards, safe work practices, and emergency procedures for fire, evacuation, and natural disasters as appropriate. • Furnishing sub-project sites with tools and equipment for coping with fire, electrocution, etc. • Display emergency contact numbers clearly and prominently at strategic places in sub-project facilities.

0.9 Environmental and Social Management and Monitoring Plan (ESMMP) Implementation and Responsibilities

The overall responsibility of environmental and social performance of the sub-project and effective ESMP implementation will rest with the PCU/PWA. However, there are other actors involved in implementing the ESMP as follows:

PWA: The PWA, through the PCU, will oversee the compliance of the parties that will implement the sub-project, which includes the supervision Engineer, Contractors, Sub-contractors, and suppliers of construction materials, with the setup of environmental and social measures and safeguards. The Environmental Specialist (ES) and Social Specialist (SS) of the PCU/PPWA will carry out frequent visits to the sub-project sites during the implementation phase to ensure compliance with the E&S requirements, implementation of the ESMP clauses and the site-specific contractors' management plans, which are: LMP, Waste Management Plan (WMP), OHS plan, TMP, ERP and the CFP.

Supervision Engineer: As mentioned earlier, the PWA will hire the services of an international engineering firm for construction supervision of the sub-project components (supervision Engineer). The supervision Engineer will supervise construction works, ensuring compliance with all design parameters, including quality requirements, supervising the contractors' compliance with ESMP implementation, preparing monthly reports, and submitting them to the PCU.

Contractors: The Contractors shall assign an Environmental and Social Officer (ESO) with qualifications relevant to the environmental, social, and OHS requirements. The ESO will supervise and monitor the implementation and compliance with the ESMP clauses and other site-specific contractors' management plans.

The contractors must prepare and prepare site-specific E&S plans as part of the Contractor Management Plan. These plans include the followings:

- Labor Management Plan (LMP)
- Waste Management Plan (WMP);
- Occupational Health and Safety (OHS) plan;
- Work Space safety Plan;
- Traffic Management Plan (TMP);
- Emergency Response Plan (ERP); and
- Chance Find Procedures (CFP)

Subcontractors and Suppliers of Construction Materials: The sub-contractors and the suppliers of materials, whose services will be hired by the Contractors and will work under their umbrella, shall implement the contents of the ESMP and the site-specific contractors' management plans relevant to their activities.

0.10 Monitoring and Reporting

The effectiveness of the proposed mitigation actions and the environmental and social management plan will be monitored during the various phases of the sub-project implementation using measurement equipment (as appropriate) and standard techniques to ensure accurate results. These results will be maintained in an accessible database and will be analyzed, and corrective/additional actions will be taken as necessary. Matrices include monitoring indicators, methods, frequency, responsible parties, and cost.

The PCU/PWA will oversee the implementation of the mitigation measures by the Environmental Specialist (ES) and the Social Specialist (SS). The supervision and monitoring of the implementation of the mitigation measures will be carried out by the supervision Engineer.

ESIA/ESMP Engineer of the supervision Engineer shall supervise and monitor the implementation of the ESMP. The ES and SS shall attend the sub-project sites to supervise and monitor the implementation of the ESMP frequently.

At any stage of construction, if the contractor has not taken appropriate action to achieve compliance with the environmental and social clauses after repeated notices of violation and warnings of noncompliance, and significant environmental or social risks and impacts are occurring or imminent, the ESIA/ESMP Engineer should order the contractor to stop work until environmental and social performance is brought under control and up to acceptable standards.

The ES and SS shall ensure that the contractors shall implement the requirements of the ESMP. The ES and/or SS will conduct onsite visits to all sub-project sites at least four times a month or any other time to oversee the implementation of ESMP. As part of their regular activities, the ES and/or SS will oversee and document (including pictures) the performance of contractors in implementing the environmental and social mitigation measures for all sub-project sites throughout the construction phase. This will involve both spot check visits to the worksites, reviews of records kept by the supervision Engineer and the contractors, and daily reports prepared by them. The frequency of site visits should consider the magnitude of activities and their associated environmental and social risks and impacts.

Each visit and interaction with the contractors should be documented, in the database, including identifying the non-compliant performance and its significance and guidance on the actions to be taken. PCU will follow up, as needed, to ensure the timely resolution of non-compliant issues with environmental and social clauses. This may include further communications with the contractors' administration, issuing notices of deficiency or warnings, and other actions if needed.

The contractors shall prepare and submit to the supervision Engineer a monthly report on implementing the environmental and social mitigation measures. The Report shall cover monitoring the environmental and social issues,

OHS compliance, OHS incidents and accidents, training conducted, and any other significant activities carried out during the reporting period.

The PWA shall prepare monthly reports summarizing the monitoring results as part of the monthly progress reports to be submitted to the World Bank. Also, a final evaluation of all environmental and social monitoring results shall be submitted to the World Bank as part of the overall sub-project implementation reporting.

0.11 Grievance Redress Mechanism (GRM)

A grievance redress or complaints handling mechanism will be created to ensure that the sub-project affected persons (PAPs) have access to a viable system to air grievances and to seek resolution with no intimidation or coerciveness. The sub-project GRM deals with the issues of land and other assets acquisition and livelihood risks and impacts (e.g., amount of compensation, suitability of residual land plots, loss of livelihood, etc.) as well as the losses and damages caused by construction works, and any direct or indirect environmental and social risks and impacts. The grievance mechanism (GM) for beneficiaries is in line with the SEP prepared under the WSRP-1.

There will be also a GM for all workers and staff working in the sub-project implementation. The PWA shall implement the contents of the GM for their workers/staff. The Contractors shall prepare their labor-management plans before starting the implementation phase, which shall also include a detailed description of the workers' grievance mechanism for their workforce. The GM for workers shall be in line with the LMP prepared under the WSRP-1.

The GM for all sub-project worker's types shall cover all the sub-project activities and it is consistent with the requirements under the relevant national law as confirmed by the Bank and the ESS2. The GM will receive any sub-project related grievances from all sub-project worker's types, such as compensation, discrimination, OHS concerns, GBV/SEA/SH, and any others as described in the LMP.

1 INTRODUCTION

1.1 Sub-Project Background

This “Bulk Water Supply System in Jenin” was launched under the USAID funding program. The sub-project was stopped after collecting data related to the sub-project, preparing the basis of the design report, and proposing preliminary locations of the water facilities. After that, the “Agence Française de Développement (AFD)” allocated a budget to prepare the design and tender documents for the sub-project, which is ongoing, however, the budget for implementing the sub-project components was “optional”. In the meantime, AFD has decided not to finance the implementation of the Jenin Sub-Project Part.

The sub-project is part of the Red Sea-Dead Sea Agreement, where the Israeli Water Authority (IWA) allocates additional water quantities to the West Bank. As part of this water allocation, the Jenin area will receive additional water quantities of 400m^3/hr and 390m^3/hr from Salem and Al-Jalameh connection points, respectively.

The World Bank allocated a budget to implement the components of the sub-project through a recently launched program titled “The Water Security and Resilience Program (WSRP)”, which is the first project in a series of projects (SOP-1) aimed at the ambitious agenda for climate-smart water and sanitation infrastructure investments and reforms, building on the World Bank’s support to the sector over the past decades. The Program will be implemented during the fiscal years 2023 to 2028 with possible co-financing by other development partners such as the Kreditanstalt für Wiederaufbau (KFW).

1.2 Sub-Project Context

The WSRP aims to: (a) ensure equitable access of the population to climate-resilient safely managed water supply and sanitation services; (b) enhance the capacity of the water sector for the planning, regulating and monitoring the performance of service delivery institutions; and (c) create enabling conditions for improved service delivery and operation and maintenance of infrastructure. The Program components are as follows:

Component 1 - Improvement of Water and Wastewater service: This component aims to improve supply and bolster the population’s resilience to increasing water shortages through investments in water facilities based on identified priorities. This component includes the following sub-components:

1. Sub-Component 1.1 – Bulk Water Supply System in Jenin: The sub-project will finance the construction of the Jenin Bulk Water Supply System, of which sub-project components will consist of water transmission pipelines with a total length of 40.6 km with nominal pipe diameters ranging from DN 150 mm to DN 500mm, Main booster pumping station (BPS) with a balancing Tank (1,500m^3) and regional tank (6,000m^3).
2. Sub-component 1.2 – Northeast Villages Water Distribution System in the Jenin Area (Deir Abu Deif, Jalaboun, Attara, Araboneh, Northern Beit Qad, and Southern Beit Qad): making up to about 10,000 new connections (residential, institutional, and commercial). The sub-project will also finance the rehabilitation of the existing wells, pipes, and storage facilities.
3. Sub-Component 1.3 – Hebron Wastewater Operation and Maintenance: this sub-component will finance the operation and maintenance of the Hebron wastewater treatment plant that is expected to be commissioned and put into operation in 2023 for five years (sub-project duration).

Component 2 - Improve performance of Water Sector Service Providers: This will finance goods, works, and services to enhance water institutions and the service providers’ operational and financial efficiency and their responsiveness to emergencies. It will also provide necessary technical assistance and capacity-building activities to address sector challenges and sector reform and support improved social accountability of service providers. This component will build on the technical assistance provided under the ongoing projects supported by the World Bank and other donors and will include the following three sub-components:

1. Sub-component 2.1 – Strategic Planning and Sector Reform.
2. Sub-component 2.2 – Improve the Financial and Operational Performance of the Service Providers.
3. Sub-component 2.3 – Improve Social Accountability of Service Providers.

Component 3 - Project Management and Monitoring: This component will support the Project Coordination Unit (PCU) hosted within PWA and the Project Implementation Units (PIUs) in Jenin and Hebron that will coordinate, implement, monitor and report on the project implementation progress. To facilitate project implementation and mitigate institutional capacity risks in the first of the SoP, the Project will support the hiring of experts and specialists on a competitive basis to reinforce the PCU and PIUs. The aim of the project, however, will be to minimize the use of external specialists and to build the PWA's capacity to administer future projects internally.

Component 4 - Contingent Emergency Response Component: This component with provisional 'zero' allocation will improve the PA's ability to respond effectively in an emergency in line with World Bank procedures on disaster prevention and preparedness following an eligible crisis or emergency. This report is prepared to clarify an important issue related to sub-component 1.2, especially alignment #3 in the design of this sub-project and will show a detailed comparison between the original route proposed in the approved preliminary design and the alternative route proposed by PWA.

This ESIA Report addresses Sub-Component 1.1 "Bulk Water Supply System in Jenin".

1.3 ESIA Objectives

The purpose of this ESIA study is to identify the direct and indirect risks and impacts of the construction of the sub-project components. The ESIA study identifies the effect that the sub-project will have on the natural resources, ecosystem, and socioeconomic dimensions of the neighboring communities and populations. All objectives are crucial since the components of the bulk water supply system (transmission pipelines, booster stations, and regional reservoir) are planned to be well-integrated with their surroundings and to be well-connected with their neighborhood. Accordingly, mitigation measures and an ESMP are proposed by the GKW/CEP to address the identified risks and impacts, the corresponding mitigation measures and the monitoring process and integration with the sub-project.

The main objectives of the ESIA study are as follows:

1. To investigate and record the existing social, economic, and environmental conditions for the proposed sub-project location before starting the construction.
2. To describe the construction aspects of the proposed sub-project.
3. To define and assess the potential beneficial and adverse risks and impacts resulting from the sub-project.
4. To propose mitigation measures to avoid, then reduce and compensate when avoiding is not possible, the adverse effects and enhance the beneficial effects.
5. To assess the policy, legal and administrative framework.
6. To prepare an ESMP for the sub-project and estimate the cost required for its implementation.
7. To define the responsibilities of the main stakeholders during the implementation phase.
8. To set a monitoring plan to track and assess the mitigation measures in the ESMP.
9. To provide the Palestinian Water Authority (PWA) and the Sub-Project Donors with the required data and information to decide on proceeding and supporting the Sub-Project implementation.

1.4 ESIA Methodology

To prepare this ESIA and achieve its objectives, the GKW/CEP team has carried out the following activities:

- In-depth review of the Environmental and Social Management Framework (ESMF), Labor Management Procedure (LMP), Stakeholder Engagement Plan (SEP), Resettlement Framework (RF) prepared by the PWA for the WSRP-1.

- Coordinated with the GKW/CEP technical team to identify the components of the sub-project, the activities that will be carried out during the construction and operation phases, and the construction materials and their sources.
- Established baseline data to prepare the ESIA study.
- Followed up and coordinated with the PWA focal point for the required updates.
- Met and Coordinated with the Palestinian Environment Quality Authority (EQA) for their requirements to issue the approval for the sub-project components.
- Preparation of the required legal and institutional framework related to ESIA, such as:
  - National environmental and social safeguard laws, policies and regulations
  - Related World Bank legislative and institutional frameworks and guidelines
  - Identify the gaps between the national and the international legislative frameworks
- Analysis and description of the environmental risks and impacts and mitigation measures, which include the following aspects:
  - Pre-Construction Risks and Impacts
  - Construction Risks and Impacts
  - Operation and Maintenance Risks and Impacts
- Analysis and description of the social risks and impacts and mitigation measures, especially regarding the land acquisition issues.
- Public consultation and grievance redress mechanism with consideration of the following subjects:
  - Consultation during sub-project preparation
  - Consultation during construction
  - Information disclosure
  - Grievance redress mechanism
- Preparation of the ESMP, which includes:
  - Mitigation measures
  - Implementation arrangements
  - Monitoring and reporting
  - Integration of the ESMP with the implementation of the sub-project.

The outcome of the approved ESIA will have to be adopted by the contractor/s, who will be requested to implement the identified mitigation measures by developing the contractors' C-ESMP and relevant specific plans and procedures.

The ESIA study addresses the sub-project components that will be implemented under the Sub-Project's Scope of Work. The followings tasks have been carried out to prepare the ESIA study:

Data Collection: The main objective of this task is to perform a collection of existing data and available information related to the sub-project. The GKW/CEP team has referred and utilized the studies/reports pertinent[3] to the Sub-Project Area and has updated information relevant to the sub-project components. The collected data are related to the baseline data, components of the sub-project, and relevant construction and operation works and activities. Part of the collected data is for the ownership documents for the lands on which the water facilities will be constructed.

[3] Refer to the list of references at the end of the report.

The Consultant team collected the primary data relevant to the project through site visits, field surveys of the biodiversity values, and meetings with sub-project stakeholders through the following procedure:

1. Site Visits and Field Surveys: The GKW/CEP team visited the sub-project sites many times to acquaint the sub-project sites, and to carry out field surveys relevant to the environmental characteristics, biodiversity values, and archeological and cultural values of the sub-project sites. Some of these site visits have been accompanied by the staff of the PWA. The following are elaborations on the schedules of the site visits and field surveys of the biodiversity values that the GKW/CEP team has carried out to the sub-project sites:
    - The team visited the sub-project sites on November 9th and 22nd, 2022 to acquaint to the nature of the sub-project sites, record the risks and impacts of the sub-project implementation on the surrounding communities, record the existence of any cultural and archeological value close to the sub-project sites, and record and survey the lands and premises that might be affected by the sub-project implementation.
    - The GKW/CEP Biodiversity Specialist walked through the sub-project sites from January to February 2023 and recorded the existing plant species and vegetation cover on the sites and any traces of the animals.
2. Meetings with Sub-Project Stakeholders: Part of the data relevant to the sub-project was provided by the sub-project stakeholders such as the municipalities, Ministry of Tourism and Antiquities (MoTA), etc.

The Consultant team has utilized the existing studies, reports, and maps pertinent to the project sites to get the relevant secondary data and information. The following sources are used by the CEP team: Geomolg website, which is the formal website of the Ministry of Local Government (MoLG), Palestinian Central Bureau of Statistics (PCBS), and Palestine Meteorological Department (PMD).

Mapping of Key Sub-Project Stakeholders: The GKW/CEP team considered in the ESIA study all views and opinions of the respectful stakeholders of the sub-project. The GKW/CEP team, and in coordination with the PWA, identified the main stakeholders who will be engaged in the study, which are the government/public officials and the Sup-Project Affected Persons (PAPs). The stakeholders include the following entities:

- MoLG
- EQA
- MoTA
- Ministry of Agriculture (MoA)
- Ministry of Health (MoH) / Environmental Health Department-Jenin Directorate
- Ministry of Social Development (MoSD)
- Ministry of Transport (MoT)
- Ministry of Public Works and Housing (MoPWH)
- Ministry of Labor (MoL)
- Governor Office- Jenin
- Local Authorities including Jenin Municipality, Burqin Municipality, Qabatiya Municipality, and Al-Shuhada Village Council
- Sub-Project affected communities of the cities and towns of Jenin, Burqin, Qabatiya, and Al-Shuhada
- Affected persons and other interested parties

Meetings and Consulting Sessions with Sub-Project Stakeholders: The GKW/CEP environmental and social team considered handling individual meetings with key stakeholders mentioned above to explain the objectives and nature of the sub-project. These meetings helped in obtaining direct feedback from the stakeholders and obtaining

comments or concerns that have been considered in the design and the implementation of the works and getting the relevant data and information.

Also, the Consultant team carried out public meetings with the communities that will be served following the sub-project implementation and through which the concerns and perceptions of these communities resulting from sub-project implementation were identified. The public meetings have been carried out at the sub-project area with invitations to all authorities, organizations, local communities and individuals affected by or benefited from the sub-project. The arrangements of these meetings (locations, timings, attendees, invitations) were coordinated with the PWA.

In this context, a Scoping Session was conducted on December 18th, 2022, in Jenin. Representatives of the above stakeholders, in addition to other stakeholders, such as neighborhood communities that will not be affected during the implementation phase but will be served by the bulk water supply system through implementing new water distribution networks, lecturers and students at the Arab American University in Jenin, Northern Electricity Distribution Company (NEDCO) attended the Scoping Session. The attendees raised concerns and requirements relevant to the sub-project implementation.

All meetings, individual or public meetings with stakeholders are documented.

Identify, Assess and Define Key Environmental and Social Risks and Impacts as well as Mitigation Measures: In order to avoid any foreseen conditions or obstacles during the implementation and operation phases of the sub-project, the Consultant team has addressed key environmental and social risks and impacts associated with the sub-project components. The GKW/CEP team prepared the ESMP as part of the ESIA study. The ESMP will guide the PWA, Engineer, and the Contractors to take decisions and actions that assure compliance with the national regulations as well as the required Health, Safety and Environmental (HSE) requirements for the sub-project. The ESMP includes a list of mitigation measures, monitoring activities, procedures, and protocols to be adopted by the PWA, Engineer and Contractors during the construction phase, and the PWA team during the operation phase to address identified risks including for, but not limited to, the labor and working conditions risk, community health and safety risk, and the risk of contaminating the local environment.

The assessment has been carried out in three main steps, as follows:

1. Identification of potential risks and impacts---
2. Evaluation and assessment of the risks and impacts in terms of their significance**.**
3. Identification/proposing mitigation measures for minimizing the effects of the significant risks and impacts.

1.5 Guides to Readers

This document addresses the environmental and social risks and impacts of the Sub-Project “The Bulk Water Supply System in Jenin”, proposed to serve the communities located within the Jenin Governorate, covering the following subjects:

- Sub-project objectives and components;
- Sub-project area baseline and characteristics;
- Relevant laws, regulations and policies;
- Sites visits, meetings and findings;
- Stakeholders’ consultation;
- Key environmental and social risks and impacts assessments and mitigation measures; and
- Environmental and social management and monitoring plan.

Chapter 1 summarizes the sub-project background, objectives, ESIA methodology and objectives.

In Chapter 2, the sub-project objectives and components, construction activities, analysis of alternatives, sub-project resources and generated wastes during construction and operation phases have been addressed.

Chapter 3 addresses the national environmental laws, policies and regulations, and the World Bank Environmental and Social Framework (ESF). A gap analysis between the World Bank ESF and the national laws and regulations has been prepared accordingly.

Chapter 4 addresses the site environmental baseline conditions in terms of geopolitical status, climate features, topography, and geology. Chapter 4 also addresses the soil, the groundwater in addition to the agricultural land within the area of the sub-project. It also addresses the biological environment and the cultural heritage of the sub-project and the socioeconomic characteristics.

Chapter 5 addresses the Stakeholder Involvement Activities. The GKW/CEP team has met and interviewed the stakeholders to get information and data relevant to the sub-project implementation and operation and to record their concerns and requirements. The process of identifying the stakeholders, the selection criteria, the relevant data and highlights of the meetings are recorded in the output of these consultations.

Chapter 6 addresses the Environmental and Social Impact Assessment and Mitigation Measures during the construction and operation phases of the sub-project.

Chapter 7 addresses the Environmental and Social Impact Management and Monitoring Plan.

Chapter 8 addresses the Environmental and Social Clauses to be considered in the Bidding Documents that the Bidders shall consider in pricing their bids.

2 SUB-PROJECT DESCRIPTION AND PROPOSED ACTIVITIES

2.1 Sub-Project Background and Objectives

The Sub-Project of Bulk Water Supply System - Jenin is part of the Red - Dead Sea Agreement, where the Israeli Water Authority (IWA) is allocating additional water quantities to the West Bank. As part of this additional water allocation, the Ramallah northwest villages will receive a total of 25,500 m^3/d from Mekorot (the Israeli Water Company) storage tank near 'Abud village, while the Jenin area will receive an additional daily quantity of 18,960 m^3/d from Salem and Al Jalameh connection points.

Sub-Project Objectives

About 30% of the bulk water for the sub-project area is provided by Mekorot at the existing Al Jalameh high-pressure and low-pressure connection points. The high-pressure and low-pressure connection points provide 3,520 cubic meters of water per day through two existing pipelines as follows:

- 200-millimeter pipeline that supplies the Northeast Villages and the South and West sides of Jenin City, delivering water to the existing Al Marah and Al Jabriyat water tanks at Jenin City.
- 150-millimeter pipeline supplies Al Jalameh village and the Northeastern part of Jenin City.

The remaining 70% of the bulk water for the sub-project area is provided from multiple existing water wells, including two wells operated by Jenin Municipality, Al-Sa'adeh Well and Jenin Municipality Well No.1 (AL-Mekanik Well). In addition to these sources, water is purchased from private agricultural wells, and water is commonly provided by private water vendors to households within the sub-project area.

The communities proposed to be served by the Jenin Bulk Water Supply System Sub-Project currently suffer from inadequate water supplies, with an estimated per capita allocation ranging from 60 to 70 l/c/d. The situation is compounded by the increase in population in the region.

Based on the above, the purpose of the Jenin Bulk Water Supply Sub-Project is:

- to provide adequate, reliable, and safe water supply with better storage capabilities to help overcome the deficit in the water supply that the area suffers due to undersized, old, and deteriorated pipes.
- to construct the main bulk water system components necessary to supply the Jenin area with the additional water allocation that will be provided by Mekorot at the Salem and Al Jalameh connection points.

2.2 Sub-Project Components and Packages

Jenin bulk supply system consists of the following components as presented in Figure 2-1:

1. Water transmission pipelines with a total length of 40.6 km with nominal pipe diameters ranging from DN 150mm to DN 500 mm
2. Main BPS near Al-Jalameh with a balancing tank of 1,500m^3 capacity
3. Regional tank of 6,000m^3 capacity
4. Burqin Inline BPS and Qabatiya Inline BPS. There is no balancing tank at these sites.

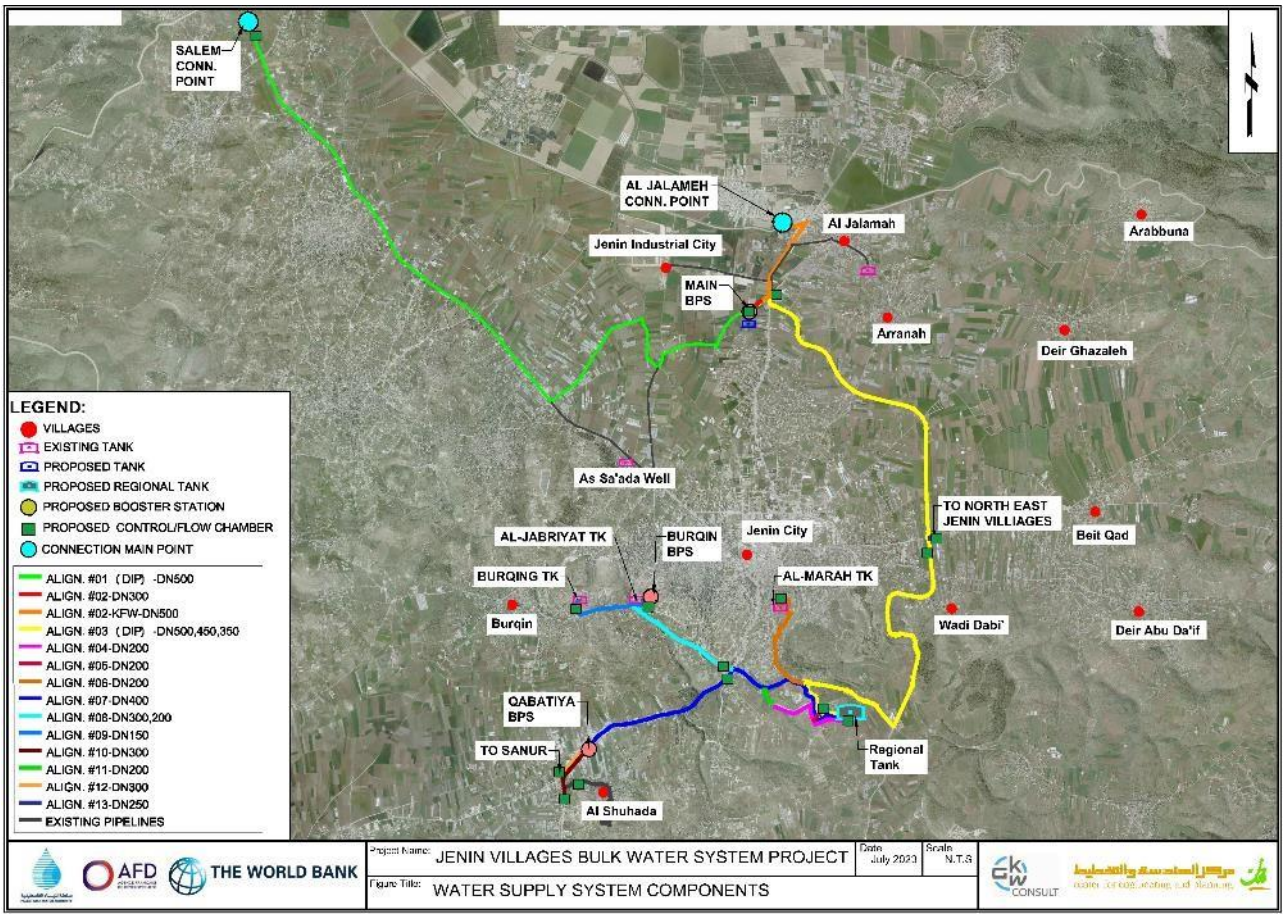

Figure 2-1: Jenin Bulk Water Supply System Components (Source: Consultant)

The PWA requested the Consultant to split the sub-project scope of works into three lots to allow for separate tendering for each. The three lots, which are presented in Figure 2-2, are as follows:

1. Lot 1 extends from the Salem connection point to the Al-Jalameh BPS (included)[4].
2. Lot 2 extends from Al-Jalameh BPS (excluded) to the regional tank (included).
3. Lot 3 extends from the regional tank (excluded) up to the tanks and service connection chambers of target communities (Qabatiya, Al-Shuhada and Sanour connection chambers, Al-Jabriyat tank/Jenin, Burqin tank, Qabatiya and Burqin in-line BPSs).

[4] Inclusion or exclusion of the specified water facility concerns the contents of each Lot.

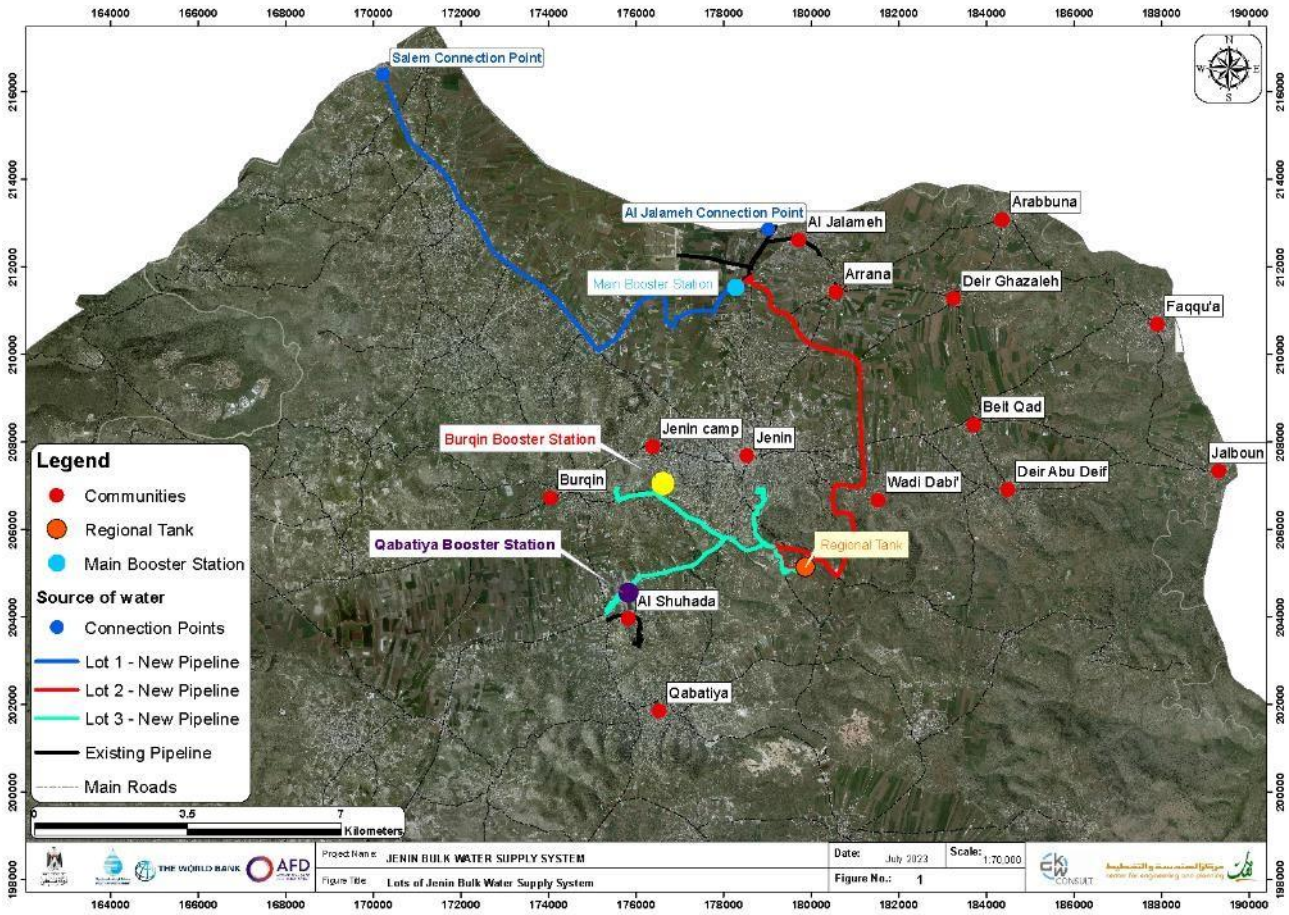

Figure 2-2: Lots of Jenin Bulk Water Supply System (Source: Consultant)

The characteristics of the water transmission pipelines presenting the alignment no., diameter and pipe material for each Lot are shown in Table 2-1. The pipe material is either welded carbon steel (WCS) or ductile cast iron (DCI). The allowable operating pressures are 20 to 55 bars and 30 to 40 bars for the WCS and DCI pipes, respectively.

Table 2-1: Characteristics of Water Transmission Pipelines for Each Lot

Lot No.	Alignment No.	Diameter (mm)	Length (m)	Material
1	1	500	13,035	DCI
	2	300	265	WCS
2	3	500	5,752	DCI
	3	450	5,761	DCI
	3	350	1,252	DCI
	13	250	60	WCS
3	4	200	1,585	WCS
	5	200	20	WCS
	6	200	2,034	WCS
	7	400	5,255	WCS
	8	300	2,290	WCS
	8	200	20	WCS
	9	150	1,516	WCS
	10	300	800	WCS
	11	200	321	WCS
	12	300	625	WCS

2.3 Sub-Project Components and Activities

The sub-project facilities are sized based on hydraulic analysis conducted by the Consultant per design criteria approved by the PWA. The sub-project is designed to have sufficient hydraulic capacity, storage capacity, transient protection against water surges to meet the water needs of the served communities up to 2040.

As mentioned in Section 2.2 above, the sub-project is composed of the following main water facilities:

1. Water Transmission Pipelines
2. Main BPS
3. Regional Tank
4. Burqin and Qabatiya Inline BPSs

The below section identifies the components for each water facility.

Water Transmission Pipelines: The characteristics of water transmission pipelines for each Lot in terms of diameter, length, and material are shown in Table 2-1. The layout of these pipelines is presented in Figure 2-1.

Main BPS: The main BPS at Al-Jalameh receives water from Salem and Al-Jalameh connection points and conveys it to the regional water tank in Jenin City. The layout of the station is presented in Figure 2-3.

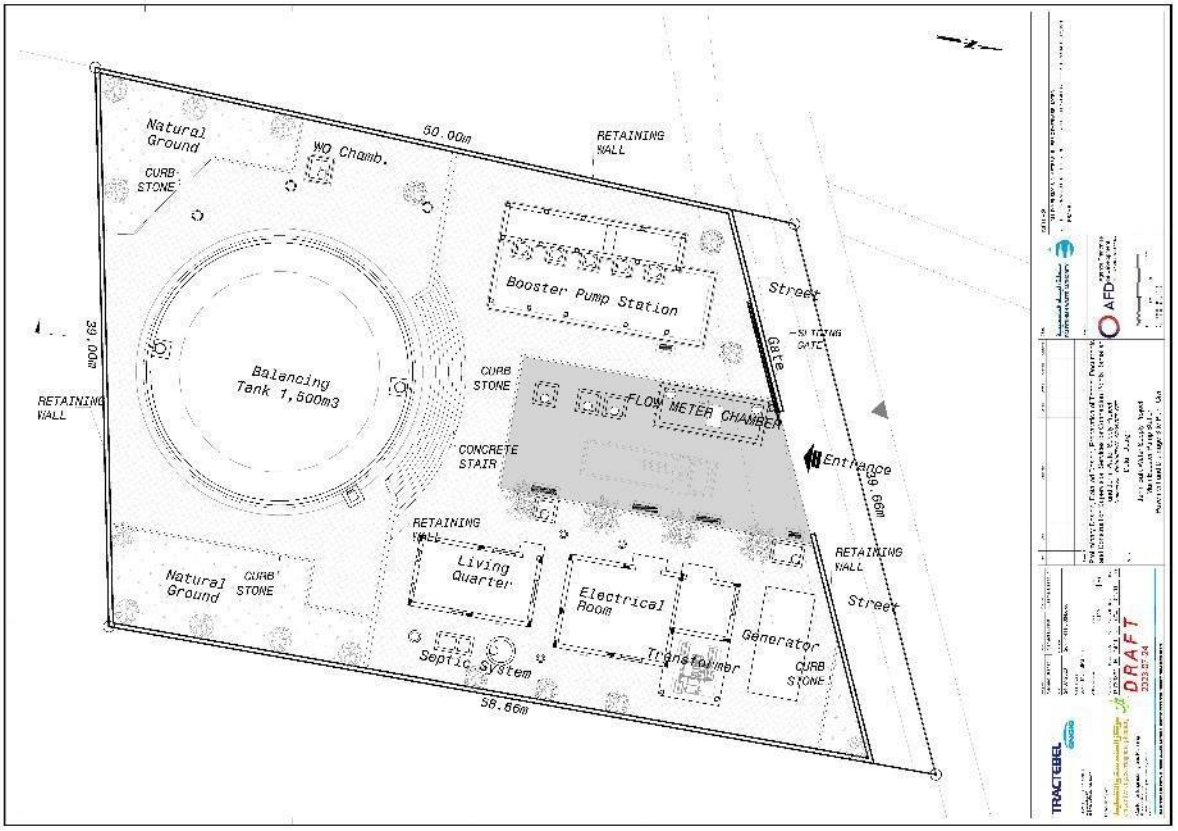

Figure 2-3: Facilities Layout of Al-Jalameh Main Booster Pumping Station (Source: Consultant)

The main booster pump station includes the following components:

- Five vertical line pumps with yard piping and valves
- 1,500m^3 on-ground balancing tank
- Electrical and control room
- Operators' room

- Transformer
- Diesel generator as backup power supply
- Surge protection system
- Wastewater disposal system, including septic tank
- Site grading and boundary wall

Regional Water Tank: 6,000m^3 on-ground regional tank in the Al Jenan neighborhood in Jenin City. The tank site also includes yard piping and valves, site grading, and a boundary wall. The layout of the tank is presented in Figure 2-4.

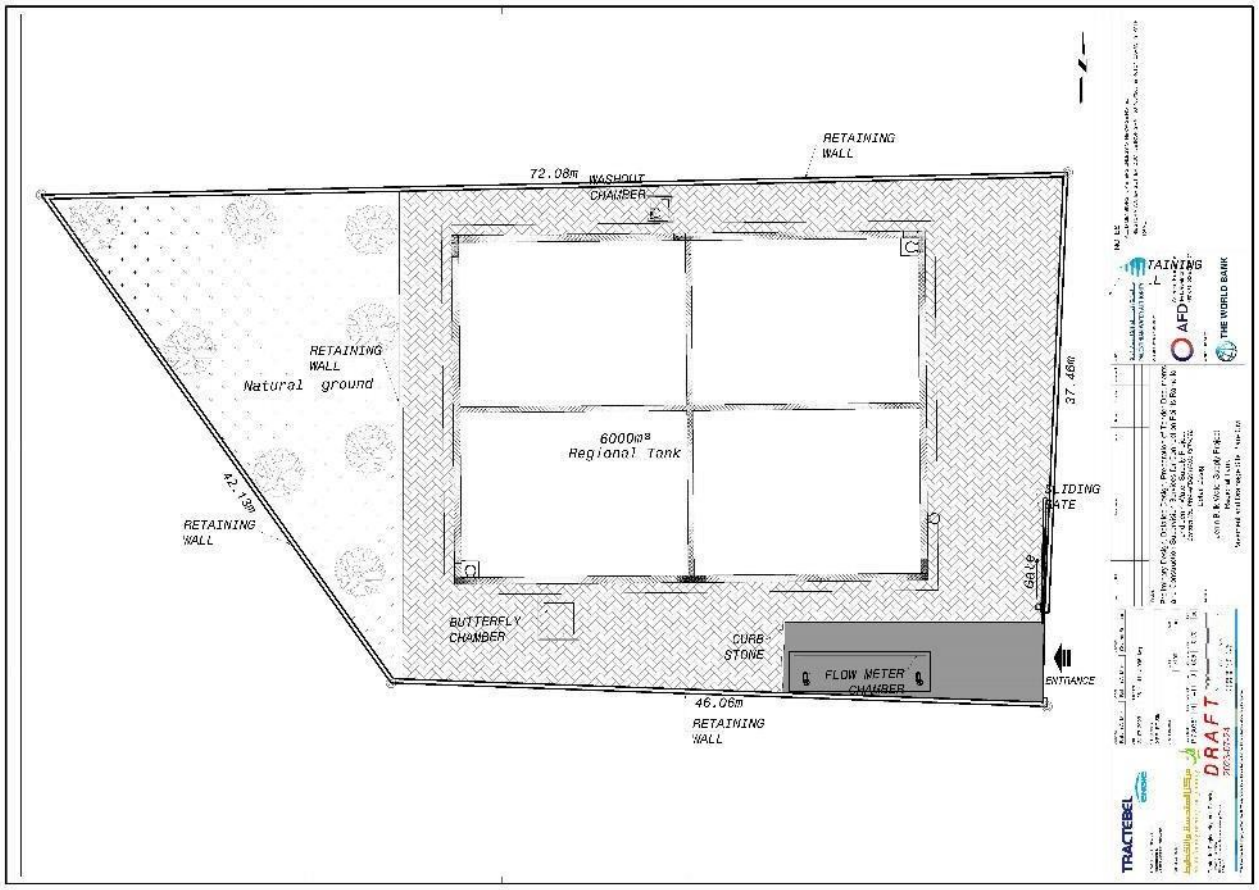

Figure 2-4: Facilities Layout of Regional Water Tank (Source: Consultant)

Burqin Inline BPS: The station will be built inside the fenced boundary of the existing Al Jabriyat water tank site to deliver water from the regional water tank to the Burqin tank. The layout of the station is presented in Figure 2-5.

The station includes the following components:

- Two vertical line pumps with yard piping and valves
- Underground control chamber
- Diesel generator as backup power supply

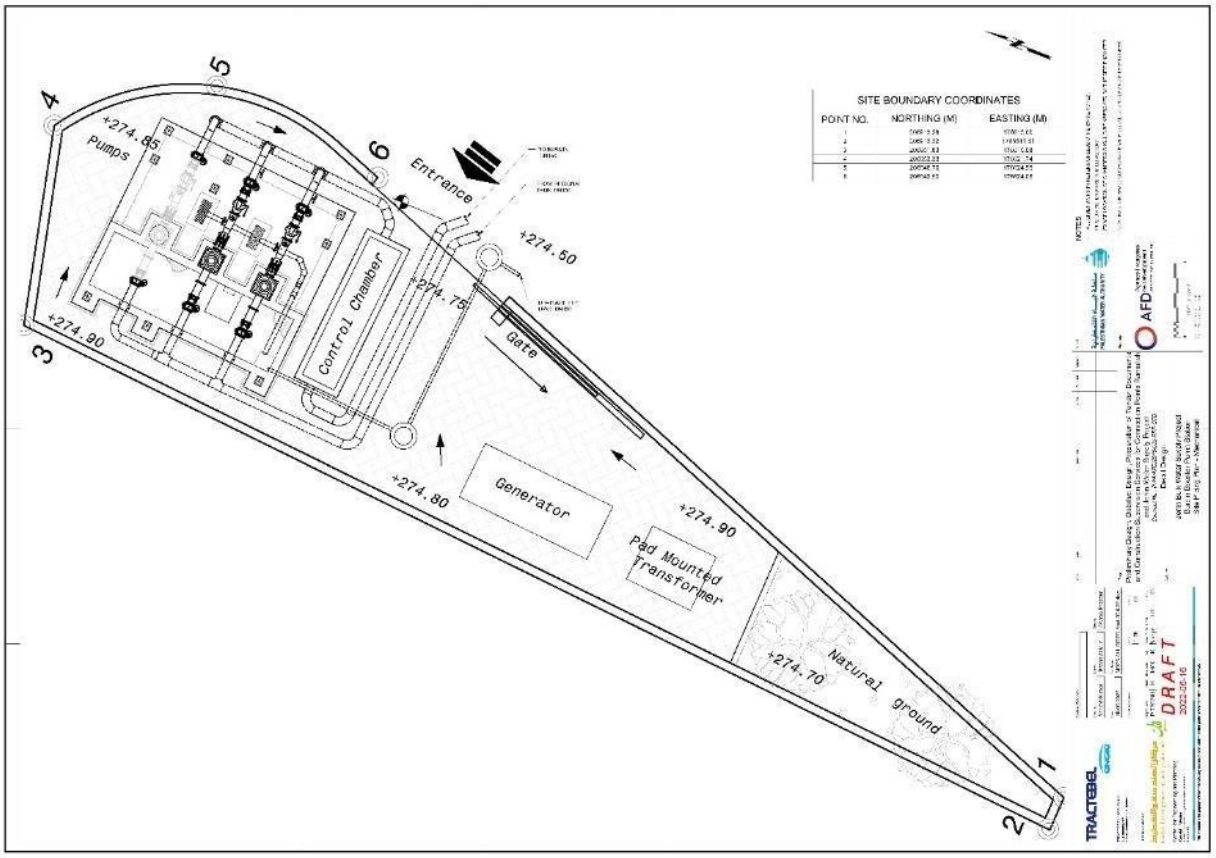

Figure 2-5: Facilities Layout of Burqin Booster Pumping Station (Source: Consultant)

Qabatiya Inline BPS: The station site is adjacent to Jenin-Nablus Road, and it will deliver water from the regional water tank to the Qabatiya and Al-Shuhada water tanks. The station layout is presented in Figure 2-6.

The station includes the following components:

- Three vertical line pumps with yard piping and valves
- Electrical and control room
- Operators' room
- Transformer
- Diesel generator as backup power supply
- Surge protection system
- Wastewater disposal system, including septic tank
- Site grading and boundary wall

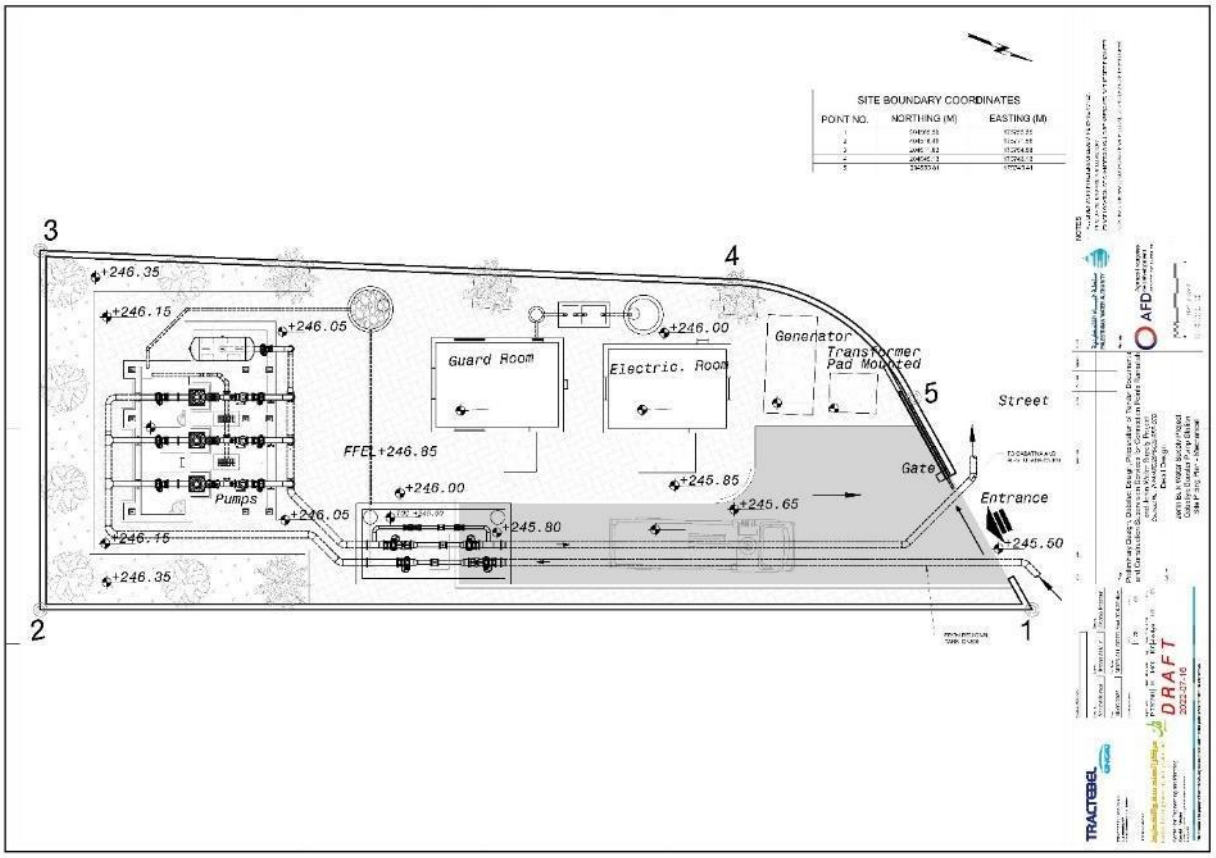

Figure 2-6: Facilities Layout of Qabatiya Booster Pumping Station (Source: Consultant)

The following activities will be followed up during the construction phase for each of the sub-project components:

1) Water Transmission Pipelines	• Excavation works for trenches and valves chambers
	• Transporting and disposing of excess excavated materials to appropriate and approved disposal sites
	• Spreading embedding materials
	• Formwork, steel rebar, and casting concrete for chambers
	• Laying out and joining pipes and valves
	• Pipes and valves testing, cleaning, disinfecting, and flushing
	• Backfilling works for trenches and chambers
	• Trenches and chambers backfilling
	• Roadway restoration and reinstatement
2) Water Tanks	• Earthworks, including excavation and backfilling works to the needed level
	• Transporting and disposing of excess excavated materials to appropriate and approved disposal sites
	• Formwork and steel rebar
	• Casting concrete
	• Epoxy external painting and internal insulation
	• Pipework and valves
	• Electrical work (lighting, instrumentation, and lightning)
	• Tank testing and disinfecting
	• Mechanical work for water tank and pipe yard
	• Electrical work for lighting, instrumentation, and lightning
	• Site grading and landscaping

3) Booster Pumping Stations	• Earthworks, including excavation and backfilling works to the needed level
	• Transporting and disposing of excess excavated materials to appropriate and approved disposal sites
	• Formwork and steel rebar for service buildings and BPS shed
	• Casting concrete
	• Mechanical work: installing booster pumps, pipes, valves
	• Supply and installing an electricity supply system
	• Electrical work for power, monitoring, and control systems
	• Site grading and landscaping

2.4 Institutional and Implementation Arrangement

The main actors concerning the sub-project implementation include the Project Coordination Unit (PCU) of PWA, MoLG, Municipalities and Local Government Units (LGUs), contractors, and supervision Engineer. The responsibilities of each actor concerning the sub-project implementation are described below.

PWA: The PWA will be the Implementing Agency for the WSRP-1 project. PWA will create a dedicated PCU hosted within PWA, which will be supported by field Engineers in Jenin. The PCU will be staffed with experts and specialists, hired on a competitive basis to support the management of Environmental, Social, Health and Safety (ESHS) risks and impacts of the WSRP-1 Project, including one Environmental Specialist, one Social Specialist, and one field Engineer.

The PCU will be responsible for reviewing sub-project designs and preparing bidding documents, monitoring physical implementation and reporting. The PCU will also be responsible for implementing the sub-project activities, including contract management, supervision and quality control, and the administration of the works contracts.

The PCU will be responsible for the sub-project's financial management functions, including preparing and submitting separate interim financial reports (IFRs); sub-project progress reporting and monitoring; and compliance with environmental, social, and fiduciary requirements in line with the ESF instruments and the Project Operational Manual (POM). The PCU will maintain the core team and support staff as needed during the sub-project period. The PCU will engage an international engineering firm for construction supervision (supervision Engineer). The main task of the environmental and social specialists at PCU is to oversee the implementation and monitoring of the ESMF and the associated ESIA/ESMP, Resettlement Framework and associated Resettlement Plans or similar instruments, Labor Management Procedures, Stakeholder Engagement Plan (SEP), and the performance of the Grievance Mechanisms (GMs), etc.

MoLG and LGUs: The MoLG, Municipalities and LGUs will also be involved as key stakeholders during the Project implementation. The Project counts on a Project Steering Committee (PSC) to be chaired by the Program Director and including representatives of the Ministry of Finance and Planning (MoFP), Ministry of Agriculture (MoA), Environment Quality Authority (EQA), MoLG, and local district-level stakeholders, West Bank Water Department (WBWD), Water Sector Regulatory Council (WSRC), newly established regional water utilities (RWUs), and representatives of Non-Governmental Organizations (NGOs) and academia. The PSC will facilitate higher-level support for the monitoring and follow-up on the Project and allow advanced discussions on the subsequent projects within the SOP.
The project implementation arrangements chart is presented in Figure 2-7 below.

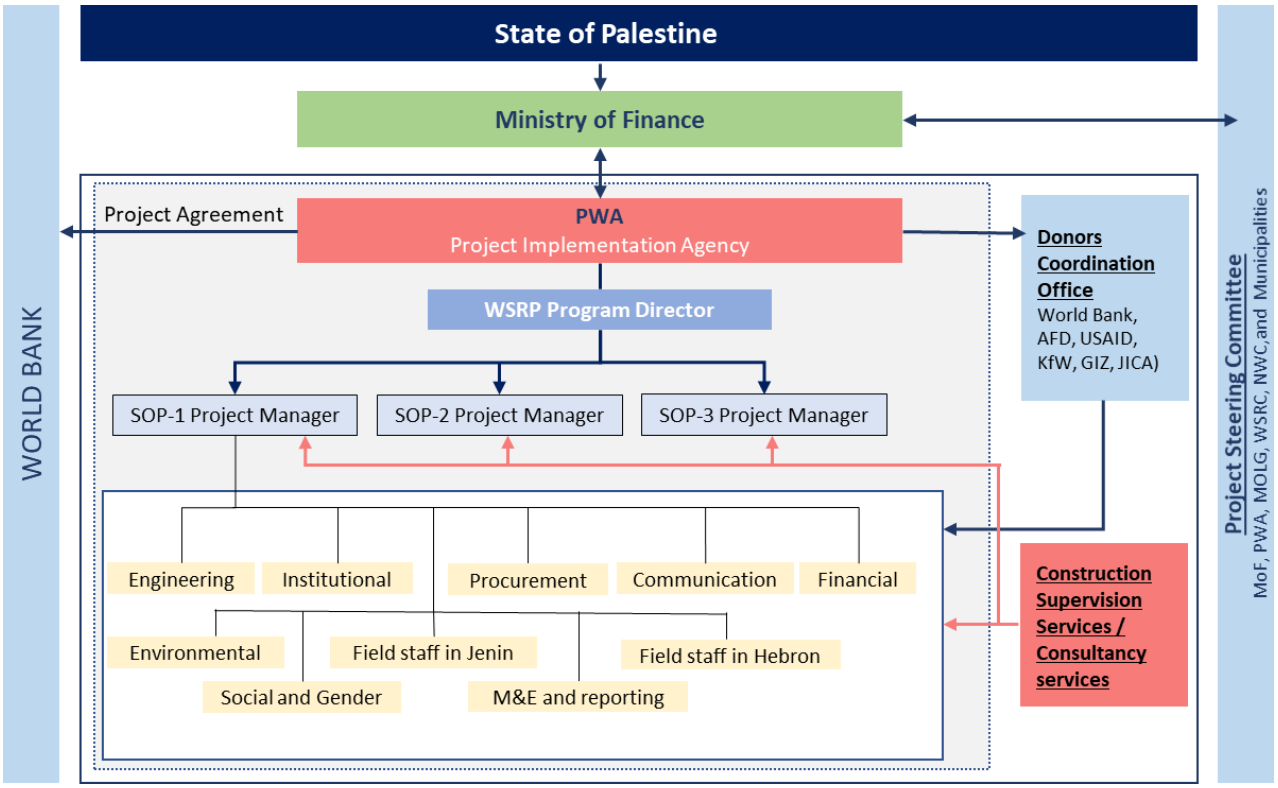

Figure 2-7: Project Implementaion Arrangements (Source: ESMF)

Supervision Engineer: The PWA will hire the services of an international engineering firm for construction supervision (supervision Engineer). The supervision Engineer shall include an ESIA/ESMP Engineer as part of his/her key personnel. The supervision Engineer will supervise construction works, ensuring compliance with all design parameters, including quality requirements, supervising the contractors' compliance with ESMP implementation, including social aspects, preparing monthly reports and submitting them to the PCU.

Contractors: The PWA will hire the services of contractors to implement the sub-project components as described above. Each contractor will be required to include an OHS specialist as part of his/her key personnel. The Contractors and their sub-contractors will implement the E&S mitigation measures and plans as laid out in this ESIA and ESMP Report. Mitigation measures required will be included and priced in agreements with the contractors. The contractors will be obliged to ensure that staff with ESHS experience and capacity is involved in construction works and can fulfil the reporting requirements on E&S, as elaborated in later sections.

In the operational phase, PWA/WBWD shall ensure E&S measures are taken to avoid adverse risks and impacts on the sub-project components. The focus of the WSRP-1 project on O&M will mainly prepare and train the respective operators to perform the relevant tasks.

2.5 No Action Alternative

The “No Action Alternative” is evaluated in this ESIA as a benchmark for decision-makers to compare the potential environmental effects of the proposed action with base line conditions. The “no project” alternative would imply that no “Bulk Water Supply System in Jenin” would be implemented, which means that the current water supply quantities will not be increased. Under this alternative, the purpose and need of the proposed action would not be met as the PWA would not construct the components of the sub-project to benefit from the new water sources for supplying Jenin communities with additional water quantities and would be kept serving by the inadequate current water quantities, which is incapably meeting the increasing demand.

The advantages of the “No Action Alternative” scenario would include no adverse environmental and social risks and impacts associated with the construction of the new sub-project components and associated activities. Similarly, the capital investment required for the sub-project would not be needed, nor would any O&M activities need to be carried out.

Under the “No Action Alternative”, which is a scenario in which the demand-supply gap will continuously increase without any incremental addition to the supply, thus any additional water demand in the communities of the Jenin Governorate will be met by cutting the water in the concerned communities and applying the rational distribution because the supply by current water sources is limited and cannot meet any additional demand. The inadequate water supplies would not be increased above the current per capita allocation of 60 l/c/d, and the 127 l/c/d water demand would not be met.

The communities, which currently do not have piped water system within the Marj Ibn ‘Amer Municipality, will not be supplied with water through the existing connection point and will keep depending on private water vendors to satisfy their water needs.

Also, the “No Action Alternative” implies the non-creating of new employment opportunities, particularly for the “Contracted Workers” employed by the contractors who would implement the construction works.

2.6 Lands for Sub-Project Facilities

As mentioned in Section 2.2, the sub-project includes implementation of four main facilities which are:

- Main booster pumping station near Al-Jalameh.
- Regional water tank of 6,000m^3 capacity in the Al Jenan neighborhood east of Jenin City.
- Booster pumping station in Burqin at the existing Al Jabriyat water tank site.
- Booster pumping station in Qabatiya adjacent to Jenin-Nablus Road.

The components and activities for each facility are presented in Section 2.3.

2.6.1 Main Booster Pumping Station Site

The selected land is located within the lands of Burqin per the Palestinian Land Authority (PLA) classification; it falls in Area B per Oslo Accord. The sub-project site is located at an altitude of 95.5m above mean sea level (AMSL). The coordinates of the site are 178,286 E and 211,530 N per the Palestinian Grid System. Figure 2-10 shows the location overview of the site.

The land parcel is private collective ownership. The President of Palestine State ratified on 28 September 2021 the Cabinet Decision dated 20 September 2021 per Law No.2 for the Acquisition of Land for Public Interest/Use of 1953 (the "Expropriation Law") to acquire the land to build the main booster station on it. Once the Presidential authorization is issued, the land becomes a State-Land for the public interest, and the owners or users must refrain from disposing of it in any way. The Head of the PLA sent to the Head of the PWA on 15 August 2018 the valuation report for the land, which is 20.80 Jordanian Dinars (JD)[6] per square meter. The compensation committee was chaired by a representative of the PLA and composed of representatives of the following governmental institutions: MoLG, MoPWH, Property Tax Department and Government Properties. To date, the Ministry of Finance and Planning (MoFP) has not compensated the landowners for acquiring the needed parcel. The PWA contacted the MoFP to accelerate the compensation process.

The parcel number is 6 located in block number 6 with the needed area for the station being 2,000 m^2. The parcel is located adjacent to an existing dirt road outside Urban Master Plan. According to the Geomolg Web-

[6] One JD is equivalent to about 1.4 USD.

site belonging to the MoLG, the parcel classification according to the Ministry of Agriculture's (MoA) classification is "High Agricultural Value Land", and the site is located outside any natural reserve or landscape area or biodiversity area. The land is an open area without a plantation.

According to the information provided by the Ministry of Tourism and Antiquities (MoTA), there is no presence of any archaeological sites within the land.

Figure 2-10: Overview of Main Booster Pumping Station Site (Source: Consultant)

Photo for Land of Main Booster Pumping Station

2.6.2 Regional Water Tank Site

The selected land is located within the lands of Qabatiya; it falls in Area B per Oslo Accord. The sub-project site is located at an altitude of 324m AMSL. The coordinates of the site are 179,852 E and 205,117 N per the Palestinian Grid System. Figure 2-11 shows the location overview of the site.

The land parcel is State Land i.e., owned by the State of Palestine. The title deed of the land is presented in Annex C. The parcel number is 2 located in block number 137 with the total area of the parcel being 2,128 m2. The parcel is adjacent to an existing asphalt road inside the approved Master Plan of Jenin City. According to the Geomolg Website, the parcel classification according to the MoA classification is “Low Agricultural Value Land”, and the site is located within a biodiversity area as per the National Spatial Plan. There are ten olive trees within the land. The ex-owner of the land still takes care of these trees by fertilizing, plowing and punning. He also harvests the annual crop of the trees. The PWA indicated that, although the PWA owns these trees as part of the acquired land, the PWA has no objection to uprooting and replanting these trees on nearby land owned by the ex-owner after coordination with Jenin Municipality and MoA.

According to the information provided by the Ministry of Tourism and Antiquities (MoTA), there is no presence of any archaeological sites within the land.

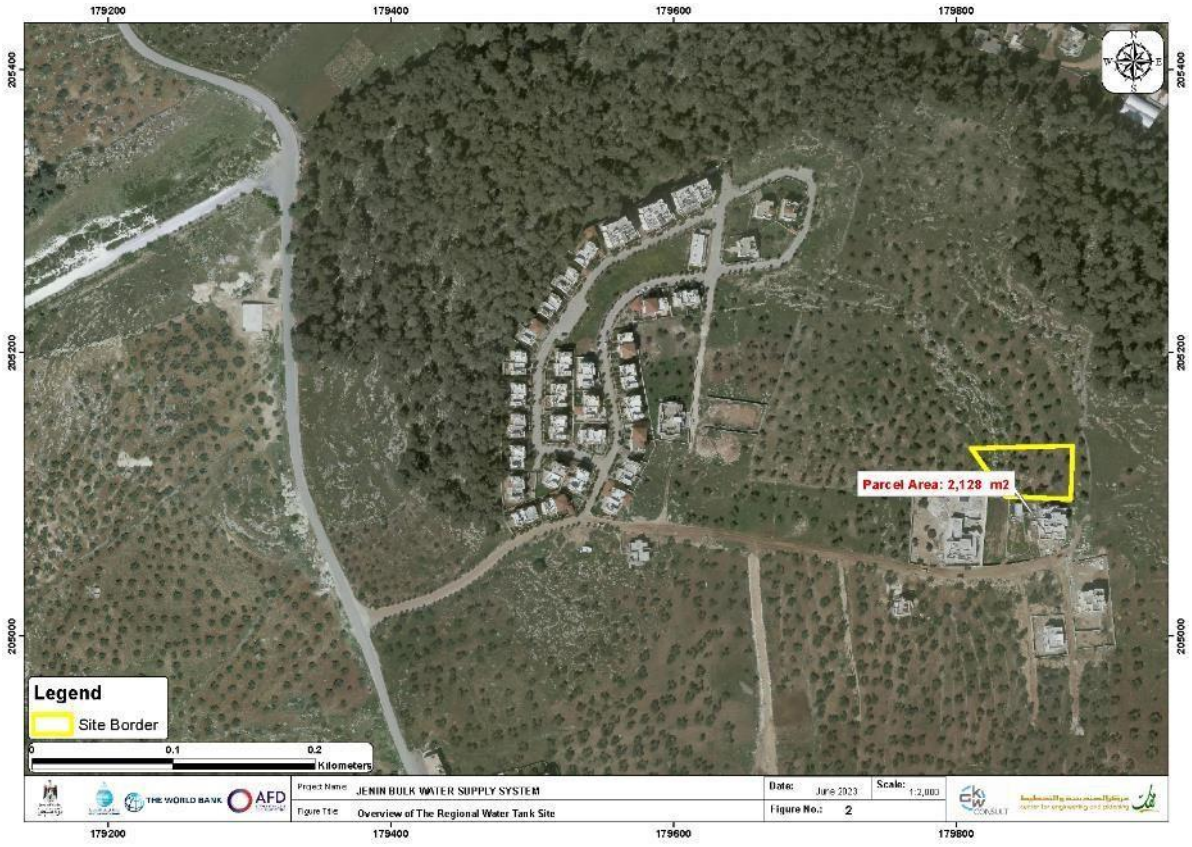

Figure 2-11: Overview of Regional Water Tank Site (Source: Consultant)

Photo for Land of Regional Water Tank

2.6.3 Burqin Booster Pumping Station Site

The selected land is located within the lands of Burqin; it falls in Area A per Oslo Accord. The sub-project site is located at an altitude of 274m AMSL. The coordinates of the site are 176,618 E and 206,939 N per the Palestinian Grid System. Figure 2-12 shows the location overview of the site.

Jenin Municipality (JM) owns the land, which also incorporates the Al-Jabriyat existing tank. JM sent a no-objection and customization statement to the PWA on 4 February 2023 to construct the proposed station inside the site (refer to Annex C). The parcel number is 4 located in block number 18 of a dedicated area of about 275 m^2 for the booster station. The parcel is adjacent to an existing asphalt road inside the approved Master Plan of Burqin Town. According to the Geomolg Website, the parcel classification according to the MoA classification is “Medium Agricultural Value Land”, and the site is located outside any natural reserve or landscape area or biodiversity area. There is no plantation within the allocated land for the station, and it is not used for any purpose.

According to the information provided by the Ministry of Tourism and Antiquities (MoTA), there is no presence of any archaeological sites within the land.

Figure 2-12: Overview of Burqin Booster Pumping Station Site (Source: Consultant)

Photo for Land of Burqin Booster Pumping Station within Al-Jabriyat Tank Site

2.6.4 Qabatiya Booster Pumping Station Site

The selected land is located within the lands of Qabatiya; it falls in Area A per Oslo Accord. the sub-project site is located at an altitude of 246m AMSL. The coordinates of the site are 175,756 E and 204,536 N per the Palestinian Grid System. Figure 2-13 shows the location overview of the site.

The land parcel is State Land. The title deed of the land is presented in Annex C. According to the Qabatiya Urban Master Plan, there is a proposed road crossing the land. The PWA Legal Department is following up with the MoLG to modify the layout of the proposed road to avoid crossing the land and the issue will be solved soon per the verbal communication with the PWA. The parcel number is 10 located in block number 22 of an area of 3,000 m^2 inside the approved Master Plan of Qabatiya Town. The parcel is adjacent to Jenin-Nablus Road. According to the Geomolg Website, the parcel classification per the MoA classification is “High Agricultural Value Land”, and the site is located outside any natural reserve or landscape area or biodiversity area. There is no plantation within the land, and it is not used by others for any purpose.

According to the information provided by the Ministry of Tourism and Antiquities (MoTA), there is no presence of any archaeological sites within the land.

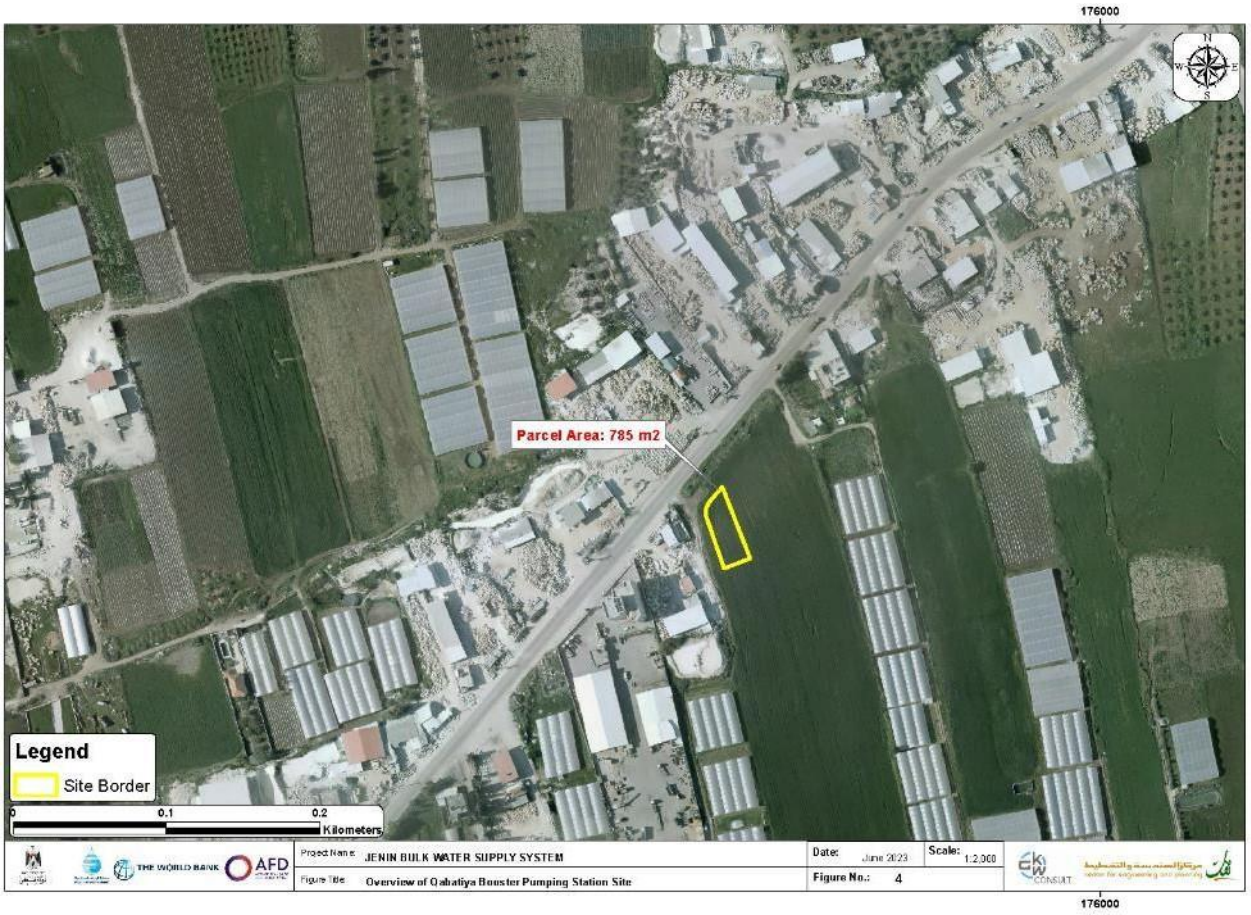

Figure 2-13: Overview of Qabatiya Booster Pumping Station Site (Source: Consultant)

Photo for Land of Qabatiya Booster Pumping Station Adjacent to Abu Arab Well

2.7 Sub-Project Resources and Generated Wastes During Construction Phase

2.7.1 Water

Small quantities of water will be mainly used during the construction phase for the daily use of the workers and staff. Water will be provided through a connection to the existing nearby municipal piped system in the sites of a regional water tank, Burqin and Qabatiya BPSs and via private water vendors/tankers for the main BPS, which is not adjacent to the municipal piped system. Water for the workers shall be per the requirements for domestic use. Water will be supplied via water tankers provided by the Contractor.

Water is needed for producing and curing the concrete for the water facilities of water tanks, service rooms, valve chambers and other concrete structures. The factories of ready-made concrete would secure the water quantities through their arrangements. Water is also needed for backfilling and reinstatement (e.g., asphalt works) for pipes trenches and facilities' yards. The Contractors would supply the water needs via water tankers. There is a need for 10-30m^3 daily during the construction stage, depending on the types and nature of the construction works.

Water for testing, disinfection, flushing and commissioning of sub-project facilities will be supplied through connection points to the new water sources (Salem and Al-Jalameh connection points) through arrangements between the contractors and the PWA/WBWD. The contractors will pay the PWA the cost of the supplied water.

2.7.2 Fuel

Fuel will be used mainly during the construction phase as follows:

- Diesel generators to generate electricity for various construction activities
- Trucks to supply the construction materials to the sub-project sites.
- Excavators
- Cranes for installing the pipelines

- Loaders
- Water tankers
- Compactors

The numbers of machinery depend on the number of construction sites the contractors will open for each Lot. The Contractors will be committed to providing fuel sources during the construction phase.

2.7.3 Electricity

The electricity demand during the construction phase will be met through the service providers in the sub-project area, which are the Northern Electricity Distribution Company (NEDCO) and Qabatiya Municipality for the construction sites close to the grids of these service providers.

On the other hand, the electricity demand will be met through mobile generators that the contractors will provide for the construction sites outside the areas served by NEDCO and Qabatiya Municipality.

2.7.4 Roads

All construction works are adjacent to existing asphalt and dirt roads. Thus, there is no need to construct any access road to reach any of these construction sites.

2.7.5 Employment

The construction activities of the sub-project will create new direct and indirect employment opportunities. The priority will be given to the employment of the residents of communities within the sub-project area if they satisfy the required qualifications. Section 2.10 below describes the labor management procedures, in line with the Project LMP. This section describes in detail the types, numbers, activities, and characteristics of the workers who will be involved during the sub-project implementation.

2.7.6 Wastes

Waste generated during the construction phase are:

A. Solid Waste

The solid non-hazardous wastes, including municipal solid waste from workers' daily activities such as paper, plastics, food waste, etc., shall be collected by the local councils at which the working areas and residential units are located. The collected solid wastes will be disposed of in the Zahret Al-Finjan landfill site, the licensed landfill used by these local councils. The Contractors shall pay the fees for this service to the concerned local councils. It shall not be allowed to litter the solid waste in the open areas under any circumstances. The estimated generated solid waste is about 30 kg daily.

B. Liquid Waste

Domestic wastewater generated from workers will be discharged through wastewater collection systems of the communities with wastewater collection systems, such as Jenin City or through temporary collection septic tanks allocated for the workers' camps. Septic tanks shall be evacuated via vacuum trucks and will be retransferred to the nearby licensed wastewater treatment plant (WWTP) by licensed firms contracted by the Contractors. The nearest WWTP to the sub-project sites is Jenin WWTP. The estimated generated wastewater quantity is about $2m^3$ daily.

C. Hazardous Waste

Hazardous waste generated during the construction phase is mainly:

- Spilled oil and fuel wastes.
- Electrical and electronic equipment wastes.
- Empty containers of insulation chemical materials used for painting the interior and exterior concrete surfaces of water tanks.

The Contractors are obliged to safely dispose of wastes generated by collecting wastes in drums and safely disposing of them through licensed firms/contractors as per the Palestinian regulations.

The waste generated during the construction phase and the handling of the waste are elaborated in detail in Section 6.6.3. The Contractors shall prepare waste management plans (WMPs) as a prerequisite before starting the implementation phase; the WMPs shall be reviewed and approved by the PCU and the supervision Engineer. The contractors shall implement the clauses of the approved WMPs during the construction phase.

2.7.7 Emissions and the Work Environment

A. Air Emissions

Dust will be generated due to construction activities, such as during excavation, backfilling, materials transportation and handling, and exhausts of trucks and machinery used for transporting materials and construction works, respectively. The emission of toxic gas might be generated when operating the mobile generators to supply electricity for the construction sites not served by the service providers. Dust and exhausts will be generated on roads along which water transmission pipelines will be laid and inside the booster stations and water tank sites. Dust and air emission will be controlled and reduced with the mitigation measures described in the subsequent chapters of this Report.

B. Noise and Vibration

Noise and vibration will be generated from excavations, backfilling, site restoration, equipment and machinery used, mobile generators, and the movement of trucks and machinery inside the sub-project's sites and on roads along which water transmission pipelines will be laid. These will be controlled and reduced per the mitigation measures described in the subsequent chapters of this Report.

The baseline of the air quality and noise level shall be measured by the contractors using specific instruments before starting the construction phase. These baselines shall be considered in evaluating the impact of the construction activities on the admissible air pollutants and admissible noise level and the necessity of applying the mitigation measures.

2.8 Sub-Project Resources and Generated Wastes During Operation Phase

2.8.1 Water

Small quantities of water will be used during the operation phase for the daily use of the staff operating the water system composed of the main BPS and Qabatiya BPS, which are the sites that accommodate the O&M staff. Water will be supplied from the new water system through a special arrangement to control the pressure. The estimated water quantity needed is about $1m^3$ daily.

2.8.2 Electricity

The electricity demand during the operation phase of the sub-project will be needed to operate the pumping stations and water tank sites. The electricity demand will be met through the existing electricity grids owned by the NEDCO and Qabatiya Municipality. The pumping stations will be furnished with standby generators to be used in case of electricity cut-off.

2.8.3 Fuel

Fuel will be used mainly during the operation phase of the sub-project for the trucks and maintenance vehicles for the Water Service Providers' O&M team. It will also be used for the standby generator(s) if provided in the pumping stations.

Fuel will be used mainly during the operation phase of the sub-project as follows:

- To operate the standby generators within pumping stations sites in case of electricity cut off.
- Fuel for trucks and maintenance vehicles for the WBWD/PWA O&M team.

The WBWD, which is the entity that will manage and operate the new system, will be committed to providing the fuel during the operation phase.

2.8.4 Solid Waste

The solid non-hazardous wastes, including municipal solid waste generated by the WBWD O&M team, such as paper, plastics, food waste, etc. will be collected by the local council at which the sub-project facilities of the main BPS and Qabatiya BPS are located. The collected solid wastes will be disposed of in the Zahret Al-Finjan landfill site used by these local councils. The estimated generated solid waste is about 10 kg daily.

Wastes might be generated by the O&M staff during maintenance works, such as replaced instrumentation, fittings, and accessories. In this case, the generated wastes shall be picked up by the O&M staff and handled per the procedures specified for the construction phase.

2.8.5 Wastewater

Domestic wastewater generated by the WBWD O&M team will be discharged through collection septic tanks. Septic tanks shall be evacuated via vacuum trucks and disposed of in the Jenin WWTP by a licensed firm contracted by the WBWD. The estimated generated wastewater quantity is about $1m^3$ daily.

2.8.6 Hazardous Waste

The sub-project will include installing two transformers at the main BPS and Qabatiya BPS. Polychlorinated Biphenyls (PCB), which is a hazardous material used as a dielectric fluid to provide electrical insulation in transformers, shall be stored, transported, and disposed of per the Palestinian bylaw of “Hazardous Waste Management System (HWMS), 2021”. The estimated generated quantity of the PCB ranges from 10 to 20 liters yearly.

2.8.7 Emissions and Work Environment

Air emission, dust, and noise might be generated during the operation phase due to the movement of the O&M team to the sub-project sites and for the inspection works, and the trucks and maintenance vehicles of the O&M team to fix any failure of the sub-project components. Also, the aforementioned emissions might be generated in case of replacing or maintaining any segment of the water transmission pipelines.

Air emissions might be generated when operating the standby generators if the electricity supply is cut-off. The booster pumps are specified with noise levels within the admissible limits.

The air emission, dust, and noise will be controlled per the mitigation measures in the subsequent chapters of this Report.

2.9 Labor Management Procedures

A Labor Management Procedure (LMP) has been developed by PWA and publicly disclosed to facilitate planning and implementation as well as manage labor related risks under the WSRP-1 Project. The LMP sets out the Project’s approach to meeting the national requirements as well as the World Bank’s Environmental and Social Framework, Labor and Working Conditions (ESS2), and Community Health and Safety (ESS4).

A description of the activities and works that will be carried out during the sub-project implementation is presented in Section 2.3.

2.9.1 Labor Use on this Sub-Project

As per ESS2, project workers including fulltime, part-time, temporary, seasonal and migrant workers are classified into the following four groups: Direct Workers, Contracted Workers, Community Workers, and Primary Supply Workers. Community workers will not be employed in this sub-project. The following subsections describe the workers engaged in the implementation of the sub-project activities.

Direct workers: Direct workers include PCU staff at PWA with contracts financed by WSRP-1 Project (i.e., PCU field engineers, Environmental Specialist, and Social Specialist). Moreover, direct workers will include the Supervision Engineer Team who will be responsible for the supervision and construction management of the sub-project. The Supervision Engineer Team are specialized in specific disciplines (i.e., Management of the Implementation of the Sub-Project, Supervision, Scheduling, Quality Control, Occupational Health & Safety, and Environmental and Social Relations). The Supervision Engineer will be hired by PWA under a

contract with a specific definition of the assigned tasks and responsibilities. The Supervision Engineer Team might include foreign staff. To these workers, WSRP-1's LMP applies.

PWA's civil servants are PWA's staff who work on this sub-project (full-time or part-time) but have not formally transferred to the WSRP-1 program. These workers will be subject to the existing terms and conditions stated in their job contracts. Nevertheless, the provisions of the ESS2 related to protection in the workforce (e.g., child labor, minimum age and forced labor) and Occupational Health and Safety (OHS) will apply to such employees.

The estimated number of direct workers and civil servants working on this sub-project is expected to be 20 workers. The direct workers include both males and females and they are skilled labor.

Contracted Workers: This group of workers include the workers of the Contractors who will be involved in the implementation of the sub-project, and the workers of the sub-contractors, who will be hired by the contractors to implement specific civil, mechanical, and electrical works in the sub-project.

Based on the contracting procedures followed by PWA, the Contractors will be responsible to implement the sub-project as turnkey project, including all preparation, civil, mechanical, electrical, instrumentation works, and hands-on training of the PWA staff. The Contractors' teams would likely include the Sub-Project Managers, Supervisors, Office Engineers, Site Inspectors, Environmental and Social Officers, Occupational Health Officer, and the Technical and Support Staff. The Contracted workers might include females, such as Office Engineers, Site Engineers, Environmental Specialists…etc.

The Contractors' workers will be subject to the terms and conditions as stated in their job contracts. The Contractors' staff will include technical staff with skills in engineering, environmental and social fields in addition to support staff such as technicians and none-technical workers.

The contractors will also recruit workers for the execution of the construction works. These workers might be hired on a casual or temporary basis. The estimated workforce varies between skilled labors, semi-skilled labors, drivers for excavators, and unskilled laborers. All the above workers most probably will be males. The number of the Contractors' Teams assigned for the sub-project might include 40-50 staff members for each Lot.

Most of the Contractors' labor will come from local communities. Workers under the age of 18 will not be permitted in the implementation of the sub-project. The Contractors' workers would be recruited from the local market with fixed terms or casual.

The labor terms and conditions for the contracted workers, including their rights related to hours of work, wages, overtime, compensation, and benefits, will be governed by the Palestinian Labor Law and the Project LMP, and where there are gaps, the provisions of the LMP will apply. No child labor will be involved in the sub-project.

Construction Materials Supply Workers: Construction materials supply workers would be engaged by the sub-project's suppliers to the sub-project materials, such as bedding material, concrete mix, asphalt mix, mechanical and electrical equipment, etc. The estimated workforce includes mainly drivers of concrete mixers and construction materials, drivers and operators of asphalting equipment, and drivers and managerial staff at the suppliers' and manufacturers' sides.

The Contractors shall be required to carry out due diligence procedure to identify if there are significant risks that the local suppliers and manufacturers are exploiting forced labor, child labor, and sexual exploitation and abuse/sexual harassment (SEA/SH) or exposing the workers to serious safety issues. In instances where foreign suppliers and manufacturers are likely to be contracted, the Contractor will be required to inquire during his/her procurement process whether the supplier/manufacturer has been accused or sanctioned for any of these issues and their corporate requirements related to forced labor, child labor, and SEA/SH, and any other serious safety and/or security issues pertaining to their work environment.

The Contractors should inquire during the procurement process whether the suppliers and manufacturers have been accused or sanctioned for any issues related to forced labor, child labor, and SEA/SH.

The estimated number of this kind of workforce ranges from 15-20 for each Lot. The staff includes both males and females and they are semi-skilled and skilled labor. The workforce might be national and international.

Table 2-7 summarizes the information about characteristics, timing, and the number of each worker category.

Table 2-7: Types, Characteristics, Timing and Numbers of Labor on the Sub-Project

No.	Category	Characteristics	Timing	Number
1. Direct Workers				
1.1	PCU Staff working in the sub-project (field engineers, Social Specialist, Environmental Specialist, etc.)	• Full time • National • Skilled workers and professionals in various disciplines • Males and females	Before sub-project commencement and during the sub-project implementation.	5-8
1.2	Supervision Engineer Team who will be responsible for the supervision and construction management of the sub-project (Construction Manager, Site Engineers, Electro-mechanical Engineer, ESIA/ESMP Engineer, etc.)	• Full time and part time • National and International • Skilled workers and professionals in various disciplines • Males and females	During the sub-project implementation and defect liability period.	12-15
2. Contracted Workers				
2.1	Personnel contracted by Contractors and sub-contractors under the sub-project (Project Managers, Site Engineers, Electromechanical Engineers, OHS Officers, Technicians, Skilled and Unskilled Workers, etc.)	• Skilled, semi-skilled and unskilled • Casual and fixed term • National and International • Males and Females	During the sub-project implementation and defect liability period.	40-50 for each Lot
3. Construction Materials Supply Workers				
3.1	Construction materials supply and manufacturers workers but working under the umbrella of the Contractors	• Skilled, semi-skilled or unskilled • Casual or fixed term • National and International • Males and Females	During the sub-project implementation.	15-20 for each Lot
4. Civil Servants				
4.1	PWA staff working in the sub-project management (procurement, contract management, coordination, monitoring, evaluation, reporting, etc.)	• Full time and part time • National • Skilled workers and professionals in various disciplines • Already appointed staff	Entire sub-project cycle	5-8

No.	Category	Characteristics	Timing	Number
		• Males and females		

2.9.2 Assessment of Key Potential Labor Risks

Risk Assessment and Adverse Impacts

As mentioned earlier, the sub-project contains civil (trench excavation, backfilling, concrete works, reinstatement), mechanical (pipes, valves, pumps), electrical (power, control, lighting, instrumentation) works activities.

The potential labor risks during construction include risks related to occupational health and safety (OHS) and communicable diseases. OHS Risks during construction, operation and maintenance of the water transmission pipelines, working on steep terrain, steel erection, shuttering and scaffolding works, and work at height (water tanks and overhead electricity transmission lines). The occurrence of the OHS incidents has low probability (possible but not likely) and could be minimized through abiding to tailored OHS plans for each activity.

As the construction activities will involve hazardous work, persons under the age of 18 will not be employed by the sub-project.

Based on the experience of the PWA of the previously implemented projects, WSRP-1 is assessed as low on gender-based violence (GBV), sexual exploitation and abuse (SEA), or sexual harassment (SH) risk[7]. The Project might experience minor labor influx issues or issues related to the presence of migrant workers; therefore, the fear of dangerous diseases being spread out to the other workers and community is rarely expected.

These risks will be mitigated and reduced by the application of the occupational health and safety guidelines, labor law as well as to the Environmental and Social Standard number 2 (ESS2) and specifically, the health and safety guidelines of the electrical transmission lines' projects.

Even though the activities of the construction and the operation will provide potentials of employment opportunities, the labor influx will not be an issue in the sub-project's locations and related risk minimal. The water transmission pipelines and other sub-project facilities (regional tank, BPSs) will require the workers to come from nearby towns and communities; however, there will be no labor camps. With respect to child labor, based on current conditions in the sector it is assessed that the risk of child is negligible and managed through national legislation. In addition, given that the workers are mainly from the surrounding communities, then the risk of spreading the dangerous diseases are also minimal.

Occupational Health and Safety

The Palestinian Labor Law No. 07 of 2000, the Palestinian Public Health Law No. 20 of 2004, the Council of Ministers Act 11, 2012, bylaw No. (10) for the year 2021, ESS2 requirements para 24-30, World Bank EHSG, and Good International and Industry Practices (GIIP) shall be adopted and followed. Each Contractor must engage a minimum of one safety representative/officer.

The following points among others set out in ESS2 shall be ensured:

- All potential risks to sub-project workers' health and safety will be identified by all parties who employs workers and develop and implement procedures to establish and maintain a safe working environment, including workplaces, machinery, equipment and processes under their control;
- The Contractors will prepare a detailed OHS plan for their correspondent contracts including risk assessment, mitigation measures, method statements and system of monitoring and reporting in accordance with WBG EHS Guidelines and WBG EHS Guidelines for Electric Power Transmission and Distribution. Communicable disease risk assessment will be included in the OHS plan with its mitigation measures.

[7] ESMF, WSRP-1, PWA, January 2023

- Appropriate protective measures will be provided. These measures include providing adequate personal protective equipment (PPE) ensuring adequate and free of charge supplies of PPE (particularly facemask, gowns, gloves, handwashing soap and sanitizer) at no cost to the sub-project workers;
- The Contractors will assign health and safety officers at construction sites;
- Sub-project workers will receive OHS training at the beginning of their employment and ongoing training on the procedures for all categories of workers.
- Training will cover the relevant aspects of OHS associated with daily work, including the ability to stop work without imminent danger and respond to emergency situations. Training records will be kept on file. These records will include a description of the training, the number of hours of training provided, training attendance records, and results of evaluations; The contractors will develop and implement reporting system for any accidents, diseases, incidents and near misses. Every incident will be reported to the contractor, investigated and relevant measures will be designed to avoid the incident in the future. Also remedies for adverse impacts such as occupational injuries, disabilities and diseases will be provided.

Obligations of the Contractors

The Palestinian Labor Law No. 07 of 2000, the Palestinian Public Health Law No. 20 of 2004, the Council of Ministers Act 11, 2012, and the health conditions and standards related to occupational health and safety at different workplaces apply to contracted workers. The same laws will be also applicable to the contracted workers. The following points among others set out in ESS2 and World Bank Group's Environmental Health and Safety Guidelines (EHSGs) will be ensured:

- All potential risks to sub-project workers' health and safety will be identified by all parties who employs workers and develop and implement procedures to establish and maintain a safe working environment to prevent hazards to sub-project workers, including processes under their control and sets out measures for emergency prevention and preparedness and response arrangements to emergency situations.
- Maintain a safe working environment;
- Protection measures for workers from exposure to any infectious disease depending on the type of work performed and exposure risk are put in place. Employers will adapt infection control strategies based on a thorough hazard assessment, using appropriate combinations of health and safety and administrative controls, safe work practices, and personal protective equipment (PPE) to prevent worker exposures;
- Provide resources necessary to carry out the work with safety;
- Sub-project workers will not be retaliated against or otherwise subject to reprisal or negative action for reporting or removing themselves from dangerous and unsafe situations;
- Sub-project workers will receive OHS training at the beginning of their employment. Training will cover the relevant aspects of OHS associated with daily work, including the ability to stop work without imminent danger and respond to emergency situations. Training records will be kept on file. These records will include a description of the training, the number of hours of training provided, training attendance records, and results of evaluations;
- Sub-project workers will be provided with facilities appropriate to the circumstances of their work, including access to canteens, hygiene facilities, and appropriate areas for rest;
- Conduct regular health checks for employees involved in any work that may cause physical ill health or for employees working with chemical or biological materials that may pose a threat to their health;
- The Contractors shall provide appropriate medical care and insurance for their workers during their employment. The Contractors shall provide for the contracted workers, injuries insurance during employment. Any injuries caused during the course of employment will be covered and compensated according to the Palestinian labor law;
- Facilitate first aid to employees who are involved in emergencies or accidents;

- Develop and implement reporting system for any accidents, diseases, incidents and near misses every incident will be reported, investigated and relevant measures will be designed to avoid the incident in the future. Also remedies for adverse impacts such as occupational injuries, disabilities and diseases will be provided.

Obligations of the Workers /Employees

Employees are required to:

- Maintain safe practices at work to avoid danger to the safety and wellbeing of the workers, which may be caused by inattentiveness to safety and security measures;
- Assist the employer in maintenance of measures designed to ensure health and safety in the work place;
- Regardless of specific exposure risks, it is always a good practice the following:
    - Frequently wash your hands with soap and water for at least 20 seconds. When soap and running water are unavailable, use an alcohol-based hand rub with at least 60% alcohol.
    - Avoid touching your eyes, nose, or mouth with unwashed hands.
    - Practice good respiratory etiquette, including covering coughs and sneezes
    - Avoid close contact with people who are sick.
    - Stay home if sick.
- Recognize personal risk factors related to infectious diseases. According to the WHO, certain people, including older adults and those with underlying conditions such as heart or lung disease or diabetes, are at higher risk for developing more serious complications from these infectious diseases;.
- Report to the employer any damage, loss of or destruction of protective gear or safety equipment;
- Inform the employer or his designated supervisor immediately of the occurrence of any incident which the employee believes may cause danger and which the employee is unable to resolve;
- Inform the employer or his designated supervisor of any accidents or damage sustained at work or related to work;
- Employees have the right to report work situations that they believe are not safe or healthy and abstain from work where there is a critical threat to health or life. The employees can file such complaints using the Workers' GM; and
- Abide by the Code of Conduct (CoC).

Terms and Conditions of Employment

The following provisions will apply for contracted workers of the Contractors:

- All sub-project workers will be provided with an employment contract with clear terms as per the Palestinian Labor law including information regarding their terms and conditions of employment including hours of work, wages, overtime, compensation and benefits, holidays, leaves, etc.
- List of contracted workers to be employed by the Contractor, with evidence of employment will be submitted to the supervision Engineer and PWA.
- All sub-project workers employed for the purpose of the project will be above 18 years. The use of forced labor to carry out any activities is also prohibited.
- An internal transparent and accountable system will be established within the contractor company to tackle issues of SEA/SH. Details of this system will be shared with PWA prior to signing contract.
- The leave policy of the contractor company will be shared and confirmed that it is in line with the Palestinian Labor Law.
- Maximum working hours for workers will not exceed 48 hours a week, unless otherwise stated in their employment contract in accordance with the Palestinian Labor Law.

- Equal training opportunity will be available to all workers working in the sub-project without discrimination, based on gender or otherwise.
- All workers will be entitled to breaks from work of one-hour meal break each workday taking into consideration that the worker shall not work for more than five consecutive hours. They will also be provided with the entitled leaves under the Labor Law.
- All sub-project workers will be provided with insurance against labor incidents.
- Workers will be provided a pension contribution and deductions will be made from their salaries for their contribution in accordance with the Labor Law.
- All workers will be made aware of the GM. They will also be able to lodge complaints to the special referral pathways for grievances on gender-based violence (GBV), sexual exploitation abuse (SEA), sexual harassment (SH).
- Ensure Non-discrimination and equal opportunity in the sub-project through transparent recruitment processes and female representation on hiring committees.
- Ban the use or support of child, forced or compulsory labor.
- Contracted workers should sign the GBV, SEA/SH, CoC. (Template is provided in Annex D).

Overview of Labor Legislation

An overview of the key aspects of the Palestinian Labor Law (No. 07 of 2000) and the requirements of the terms and conditions of work in the World Bank's Environmental and Social Standard ESS2, is addressed in detail in Sections 3.1.8 and 3.1.9.

3 LEGAL, REGULATORY AND INSTITUTIONAL FRAMEWORK

3.1 Introduction

The proposed sub-project would be constructed with funding from the World Bank. The sub-project aims to provide essential water services by increasing the per capita water availability, enhancing the water services, and gapping the water seasonal shortages. Therefore, the legal and administrative framework will discuss all the national laws and regulations pertinent to the sub-project implementation and the World Bank Environmental and Social Framework (ESF).Table 3-1 summarizes all relevant national laws and regulations pertaining to the proposed project.

Table 3-1:National Laws and Regulations Pertaining to the Sub-Project

Law/Regulation	Date
Water Law No. 3	2002
Decree No. 14 for Amending Water Law No. 3, PWA	2014
Environmental law No. 7 of year 1999 issued by Environment Quality Authority (EQA) - It shed light on consultation and community engagement activities required. - Consultation activities might be implemented in two stages, namely, scoping and public hearing	1999
Environmental Assessment Policy	
Environmental Strategy	
Public Health Law, Ministry of Health, Law No. 20	2004
Palestinian Labor Laws No. 7/2000 issued by Ministry of Labor - It was ratified in the year 2000 to replace the 1960 Jordanian Labor Law in the West Bank and the 1964 Egyptian Labor Law in the Gaza Strip. - It was drafted in line with Arab Labor Organization (ALO) and International Labor Organization (ILO) standards.	2000
Law of Antiquities	1966
Law No.2 for the Expropriation or Acquisition of Land for Public Interest/Use	1953
Law No. 11 for Cultural Heritage	2018
Amended Palestinian Constitution	2003
Committees and Supervisors of Occupational Safety and Health in Facilities Law No. 3	2019
Solid Waste Management System	2019
Hazardous Waste Management System (HWMS) No. 6	2021
Regulation on Complaints No. 8	2016
Procedure Manual of the Regulation on Complaints	2017

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National Administrative and Legal Framework

The Palestinian environmental legal and administrative framework has taken major strides towards protecting environmental resources and institutionalizing their sustainable management.

3.1.1 Water Laws, Policies and Strategies

The law governing the water sector is the Decree No. 14 for Amending Water Law, 2014 (New Water Law). Other relevant laws include the followings:

- Local Authorities Law No. 1 of 1997
- Water Law No. 3 of 2002
- Natural Resources Law No. 1 of 1999
- Public Health Law No. 20 of 2004

At the legislative level, the PWA adopted a Palestinian National Water Policy in 1995 to address the key issues in water management and planning, such as legislation and the structure and tasks of entities in the water sector. In 1998, the first Water Resources Management Strategy was published based on the principles of the National Water Policy. A National Water and Wastewater Strategy was prepared by the PWA in 2013, which was set to present the Palestinian framework for action in the water sector for the sustainable management of water resources.

The 1997 Local Authorities Law No.1, 1997 (Article 15, paragraph 3) states that the role of a local government unit in a defined geographic and administrative zone is to (a) provide the inhabitants with domestic water, (b) determine the specifications of its supplies in terms of meters and pipes, (c) determine the price of water and connection fees, and (d) protect the springs, canals, wells and basins from pollution. As for sewage, they are to construct, manage and monitor sewage facilities.

Water Law No. 3, 2002 was focused on further developing and better-managing water resources, and an Integrated Water Resources Management Plan was developed for the West Bank in 2003. In 2014, a new Strategic Water Resources and Transmission Plan and the Water Sector Policy and Strategy were issued, describing the sector's goals and needs and dealing with multiple water-related aspects, such as water quantities, groundwater, surface water, desalination, rainwater harvesting and wastewater reuse, wherein the latter was considered one of the water resources for agriculture.

Following issuing of the Water Plan and Strategy in 2014, an Amended Water Law Titled "Decree No. 14 for Amending Palestinian Water Law (PWL)" 2014 was endorsed, establishing a new organizational structure for this sector. The Amended Water Law "aims to develop and manage the Water Resources in Palestine, to increase their capacity, to improve their quality, to preserve and protect them from pollution and depletion, and to improve the level of water services through the implementation of integrated and sustainable water resources management.

Article 56 of the PWL provides the PWA the right to request the acquisition of any land, property or water facility for the public good, provided the owners of such are compensated for their property in accordance with the applicable laws. The Article also states that the PWA may enter lands or properties as required for the implementation of its activities. The owner of the land or the property, who suffers from damage resulting from such entry by the employees of the PWA to his property or resulting from the conduct of works in it for the public good, or resulting from depriving access to the Water Resource, has the right to receive adequate compensation for such damage, in accordance with the applicable laws and regulations[8].

Article 52 of the PWL provides the PWA, in coordination with other relevant parties, the right to consider any area that contains a Water Resource as a protected zone, in accordance with a regulation issued by the Cabinet of Ministers in this regard, in cases where water quality or quantity is under risk of contamination or depletion, or in cases where the implementation of the water policy requires so, provided that alternative water resources are provided as may be available.

For the needs of the current review, the following are the most important strategic documents and policies related to the water sector:

The National Water and Wastewater Policy and Strategy for Palestine 2013-2032, which aims at:

- Reinforcing the Palestinian Authority's approach to sustainable water resources management by ensuring that all arms of government work together in the pursuit of shared water resources management goals, and
- Establishing a framework for the coordinated development, regulation and financial sustainability of water supply and wastewater services to ensure concerted efforts towards improved water systems management, rehabilitation and maintenance.

The National Water Policy and Strategy will also act as a platform for ensuring close collaboration and cooperation among all water-related agencies and stakeholders at the national, governorate, municipal and local levels.

[8] The applicable laws and regulations are not specified in the PWL.

The Non-Revenue Water (NRW) Reduction Strategy (PWA, 2012) applies to both bulk and distribution water service providers. The objective of the strategy is to develop and assess levels and types of existing NRW, set targets and then enable service providers to progressively achieve the set targets. The strategic objective is not for purely economic benefits since it includes reducing NRW to increase available scarce resources where they are inadequate.

The Strategies for Sustainable Financing of the Water Sector (PWA, 2014b) aims at securing stable and sufficient long-term financial resources and allocating them on time and in an appropriate form to cover full cost recovery.

The Water Awareness Strategy (PWA, 2016a) is a broad framework of what needs to be communicated and outlines the possible target audiences and communication tools. This strategy will be used as a basis for developing national-specific implementation plans by Water Sector Organizations, including but not limited to the PWA; the Water Sector Regulatory Council (WSRC); the West Bank Water Department (or National Water Company in the recent future stages); the Regional Water Utilities, and other service providers in the West Bank and Gaza.

The Water Demand Management Policy Elements and Principles Report (PWA, 2016b) refers to all the measures aiming at increasing technical, social, economic, environmental and institutional efficiencies in all sectoral uses; it is one of the four main chapters constituting the 2010 Strategy for Water in the Mediterranean, developed under the Union for the Mediterranean Framework.

The National Agriculture Sector Strategy "Resilience and Development" 2014-2016 directly contributes to the achievement of the national objectives, which aim at enhancing resilience in its different dimensions. At the same time, it moves economic and social development forward through experience and appropriate responses to national objectives.

The Natural Resources Law No. 1, 1999 regulates major issues such as drilling and using underground water (e.g., irrigation usage, water provision for domestic use, etc.). Other relevant laws include Public Health Law No. 20, 2004, related to drinking water and public health.

3.1.2 Palestinian Environmental Law

The Palestinian Environment Law (PEL) No. 7 of 1999 and its amended decree no.11 for the year 2013 are comprehensive, covering the main issues relevant to environmental protection and law enforcement. Among the objectives of the PEL are:

- Protecting the environment from all sorts and types of pollution;
- Protecting public health and social welfare;
- Incorporating environmental resources protection in all social and economic development plans and promoting sustainable development to protect the rights of future generations;
- Conserving ecologically sensitive areas, protecting biodiversity, and rehabilitating environmentally damaged areas;
- Setting inter-ministerial cooperation regulations and standards in various environmental protection areas and jurisdictions; and
- Promoting environmental information collection and publication, public awareness, education and training.

The PEL addresses various environmental issues, including:

- Management and protection of various resources. Issues covered are related to land, air, water resources and aquatic environment, and natural, archaeological, and historical heritage protection.
- Environmental and Social Impact Assessment (ESIA) and auditing, permitting of development projects, monitoring of environmental resources and their parameters.
- Penalties to be applied in case of violation of any article presented under the law.
- Other issues addressed by the legislation include emergency preparedness, public participation, research training and public education.

The PEL addresses the "Water Environment" through article 28 of the standards for the quality and characteristics of drinking water. The PEL states in article 45, "The EQA, in coordination with the competent agencies, shall set standards to determine which projects and fields shall be subject to the environmental impact assessment studies. It shall also prepare lists of these projects and set the rules and procedures of the environmental impact assessment".

Article 47 of the PEL states: "The EQA, in coordination with the competent agencies, shall determine the activities and projects that have to obtain an Environmental Approval before being licensed. This includes the projects that are allowed to be established in the restricted areas".

Concerning water and wastewater disposal, Article 29 of the PEL (Aquatic Environment) states that: "The EQA shall formulate, in coordination with the competent authorities, the standards and criteria of dispose of the wastewater and rainwater in a sound manner which is consistent with the preservation of the environment and public health".

The PEL states the following articles related to the sub-project implementation:

Hazardous wastes, Articles 12 and 13: It is forbidden to import or dispose of any hazardous substance or waste unless in accordance with the orders and directives specified by the Ministry of Environmental Affairs, which is transferred to EQA in coordination with the competent agencies. This is applicable for oil/fuel spillways.

Air environment, Articles 22 and 23: It is prohibited to utilize machines, engines or vehicles that generate exhaust that does not comply with the standards specified in accordance with the provisions of the PEL. The threshold values of ambient air pollutants are specified in the Palestinian Standard (PS) no. 801 of 2010 published by the Palestine Standards Institute (PSI) as presented in Table 3-2. Also, it is forbidden to dispose of, treat or incinerate garbage and solid waste except in the sites designated for this purpose and in compliance with the conditions specified by the EQA to ensure the protection of the environment.

Table 3-2: Admissible Ambient Air Pollutants According to PSI (PS 801-2010)

Pollutant	Average Period	Maximum Allowable Value	Number of Allowed Exceedance
Particulate Matter (PM_{10})	24-hour	120µg/m^3	3 times during a year
	1-year	70µg/m^3	———
CO	1-hour	26mg/kg	3 times during a year
	8-hour	9mg/kg	3 times during a year
Pb	Season	1µg/m^3	———
	1-year	0.5µg/m^3	———
NO_2	1-hour	0.21mg/kg	3 times during a year
	24-hour	0.08mg/kg	3 times during a year
	1-year	0.05mg/kg	———
H_2S	1-hour	0.03mg/kg	3 times during a year
	24-hour	0.01mg/kg	3 times during a year
Total Suspended Particulate (TSP)	24-hour	260µg/m^3	3 times during a year
	1-year	75µg/m^3	———
SO_2	1-hour	0.3mg/kg	3 times during a year
	24-hour	0.14mg/kg	1 time during a year

Pollutant	Average Period	Maximum Allowable Value	Number of Allowed Exceedance
	1-year	0.04mg/kg	_____
O_3	8-hour	0.08mg/kg	_____
	1-hour	0.12mg/kg	_____
Cd	1-year	0.005µg/m^3	_____

Environmental nuisance and noise, Article 26: It is not allowed to exceed the permissible sound intensity and vibration levels upon operation of any machine or equipment, or during any other activities. The threshold values of sound are specified in the Palestinian Standard (PS) no. 840 of 2005 published by the PSI. The outdoor admissible noise levels have been characterized according to the outdoor conditions or location of the affected area (e.g., rural residential, recreational, schools, hospitals, industrial, commercial, etc.).

Table 3-3 lists the admissible outdoor noise levels as to the PSI (PS 840-2005).

Table 3-3: Outdoor Admissible Noise Levels According to PSI (PS 840-2005)

Outdoor Conditions	Maximum (dB (A)) 7:00 am – 8:00 pm	Maximum (dB (A)) 8:00 pm – 7:00 am
Rural Residential, Recreational, Schools, Hospitals	40	30
Residential Areas in Urban Centers	50	40
Residential in Commercial Centers and Public Roads	55	45
Commercial Areas	65	50
Industrial Areas	75	65
Public Parties and Conventions	85	75

The noise level guidelines in the World Bank Group (WBG) General EHS Guidelines require that noise impacts should not exceed the levels presented in Table 3-4, or result in a maximum increase in background levels of 3dB(A) at the nearest receptor location off-site.

Table 3-4: WBG EHS General Noise Guidelines Measured out of Doors

Receptor	One Hour LAeq (dB(A))	
	Daytime 07:00 – 22:00	Nighttime 22:00 – 07:00
Residential, Institutional, Educational	55	45
Industrial, Commercial	70	70

3.1.3 Palestinian Environmental Assessment Policy

The Palestinian Ministerial Council approves the Palestinian Environmental Assessment Policy (PEAP), through resolution No: 27-23/4/2000. This Policy shall be interpreted and implemented to support the sustainable economic and social development of the Palestinian people through assisting in meeting the following goals:

(1) Ensuring an adequate standard of life in all its aspects, and not negatively affecting the basic needs, and the social, cultural and historical values of people as a result of development activities.

(2) Preserving the capacity of the natural environment to clean and sustain it.

(3) Conserving biodiversity, landscapes and the sustainable use of natural resources.

(4) Avoiding irreversible environmental damage, and minimizing reversible environmental damage, from development activities.

According to the PEAP, there are three documents that represent sequential stages in the project life cycle and the Environmental Approval review process: An Application for Environmental Approval. An Initial Environmental Evaluation (IEE). An Environmental Impact Assessment (EIA). The EQA shall provide guidance on the content and preparation of these documents.

The IEE is for projects where significant environmental impacts are uncertain, or where compliance with environmental regulations must be ensured; whereas EIA is required for projects, which are likely to have significant environmental impacts. An EIA may be carried out as a result of an IEE.

Based on the Application for Environmental Approval, screening criteria are used to determine whether IEE or EIA is required for the determined project. An EIA shall be conducted for the following types of major development projects:

1. Power plants (including gas turbines, substations and super tension lines)
2. Quarries and mines
3. Wastewater treatment plants including main sewers
4. Cement plants
5. Solid waste disposal sites
6. Hazardous waste disposal sites
7. Plants producing, storing or using hazardous substances
8. Airports and landing strips
9. Seaports, jetties and harbors
10. Refineries
11. Industrial estates
12. Major dams and reservoirs
13. Major roads
14. Steel mills

Although the “Bulk Water Supply System” sub-project is not included in the above list that needs conducting an ESIA. However, after consultation with the EQA, they mentioned that the ESIA is sometimes requested by the relevant donor, which applies to this project.

The proponent submits the Application for Environmental Approval to the appropriate permitting authorities as part of his/her overall application package for initial approval. These authorities then refer the project to the EQA. The EQA may ask the proponent for further information to ensure the Application is sufficient for consideration under the PEAP. In consultation with these authorities and others through the EA Committee as required, the EQA then applies the screening guidelines related to the project.

The screening process will be based on requirements of relevant land use plans, and on whether the project is likely to:

1. Use a natural resource in a way that preempts other uses of that resource,
2. Displace people or communities,
3. Be located in or near environmentally sensitive areas such as natural reserves, wetlands, or registered archaeological and cultural sites,

4. Generate unacceptable levels of environmental impact,
5. Create a state of public concern, or
6. Require further, related development activities that may cause significant environmental impacts.

Once the EQA considers that an Application for Environmental Approval is complete, it has a maximum of 14 business days to determine the need for an EIA, or to determine whether the Environmental Approval will be granted based on the submitted ESIA report. Without limiting its content, an Environmental Approval may specify:

- Required measures to mitigate adverse environmental impacts or capture potential environmental benefits, including a compliance schedule.
- Measures that the proponent must implement in order to comply with relevant standards and requirements; and
- Monitoring and reporting duties of the proponent.

3.1.4 Palestinian Environmental Strategy

In 1999, the EQA developed the Palestinian Environmental Strategy (PES) as a basis for environmental action at that time over a ten-year period. The objective of the strategy is to identify and analyze the main environmental problems and their causes in Palestine and define the environmental targets and to present a series of prioritized measures that will help to reach these targets. The strategy identified the environmental issues, strategic objectives, and priorities at the national level. In addition, the PES included a work plan that translates the needs and gaps to projects and interventions, as well as monitoring indicators to measure the progress. The environmental sector strategy covers 6 strategic goals and its implementation would require, among other things, the monitoring of the environmental conditions in Palestine and the enhancement of public awareness of the people regarding environmental protection and conservation.

3.1.5 Laws and Regulations Related to Community Participation to Project Formulation

The Palestinian Environmental Policy has referred to the stakeholder (any person in his natural or legal capacity with an interest in or affected by a development activity) consultation in two stages:

(1) The Initial Environmental Evaluation (IEE) Report; where the policy stated that the stakeholder consultation is optional when undertaking an IEE. In consultation with the proponent and the EA Committee as required, the EQA determines whether stakeholder consultation is required and, if so, what the minimum requirements should be. It may be required during scoping and terms-of-reference preparation, and during the conduct of the IEE.

(2) The Environmental Impact Assessment (EIA) Report; where the policy stated that the stakeholder consultation is mandatory when undertaking an EIA. In consultation with the proponent and the EA Committee, the EQA determines what the minimum requirements for stakeholder consultation should be. It may be required during scoping and terms-of-reference preparation, and during the conduct of the EIA. At the minimum, the proponent must meet with the principal stakeholders to inform them about the proposed project and to solicit their views about it. More problematic projects should involve more extensive consultations. The methods and results of these consultations must be documented in the EIA Report.

3.1.6 Laws and Regulations Relating to Environmental Management and Monitoring

The Palestinian Environmental Law (PEL) No. 7 for 1999, under the third chapter, required the EQA to follow up the implementation of decisions that are issued concerning the environmental impact through cooperation with the competent authorities. The EQA shall, in coordination with the competent authorities, control the various corporations, projects and activities in order to ascertain the extent of its compliance with the approved specifications, standards and instructions for the protection of the environment and vital resources formulated by them according to the provisions of this law.

For the above purposes, the law entitles the EQA inspectors and other inspectors who are appointed in the Ministries and other authorities who have the capacity of judicial police as per the law may impound the environmental violations and crimes that take place in violation of this law. The EQA inspectors shall also have, in cooperation with the competent departments and authorities, the right of entry into the installations for the purpose of inspecting them, taking samples, carrying out the measurements and ascertaining the application of the standards and conditions of the environment protection and prevention of pollution. The owners of projects and other activities should enable the EQA inspectors and competent authorities to carry out their functions and provide them with the information and particulars that they deem necessary to obtain in implementation of the provisions of the Law.

Owners of Projects should also carry out self-supervision operations according to the standards and conditions formulated by the EQA in coordination with the competent authorities and submission of reports according to the instructions of the EQA.

The competent authority shall have the right, with respect to every installation or project which has violated the environmental conditions necessary for granting the license, to cancel the license or withdraw the same before the competent court.

The law has entitled the competent authorities to cancel or withdraw the license of any violating project. Should the project not remove the violation, the competent authority shall remove the same at the project's own account.

The Minister may decide to stop the work in any project or prohibit the use of any machine or material in part or in whole if, the continuation of work in the project or use of the machine or article involves a serious hazard to the environment. The stoppage or prohibition shall be for a period not exceeding two weeks and may not be extended except by judicial order from the competent court. Whoever was harmed from the stoppage or prohibition order may take exception towards it before the competent court.

3.1.7 Palestinian Land Expropriation and Resettlement Laws and Regulations

Article 21 of the **Amended Palestinian Constitution of 2003** states that "Private property is protected, the property is not expropriated, real estate is only seized for public benefit in accordance with the law in exchange for fair compensation or by judicial order and no confiscation except by a judicial order".

The Palestinian Civil Law (PCL) No.4 of 2012 Article 931 states that "It is not permissible for anyone to be deprived of his property or use of it, and no property shall be expropriated from anyone except for the public benefit, and all of this shall be in the cases determined by the law and in the manner, it depicts, and in return for fair compensation[9].

Law No.2 for the Acquisition of Land for Public Interest/Use of 1953 (the "Expropriation Law") applies concerning the land acquisition for the public interest. The party seeking the expropriation, herein called "Originator", must follow the main procedures as set out in Law No.2, per the following:

1. The Originator must publish in two local newspapers, at minimum, their intent to place property under Public Interest, as well as their intent to file a request to the Palestinian Cabinet to follow through with such. The term for publication spans (15) days.
2. Once such term expires, the Originator shall submit to the Palestinian Cabinet a request to place the property and/or encumbrances thereof under Public Interest, along with the supporting documents. The Cabinet subsequently reviews and assesses submission of all duly required documents and the legitimacy of the Originator's claim.
3. In the event the said request has been approved by the Cabinet, the Cabinet shall issue a decision, which it shall subsequently submit to the Palestinian President for further authorization.
4. If presidential authorization is attained, the Cabinet Decision shall then be published in the Official Gazette. Publication shall be deemed indisputable proof of placement of the property in question and/or encumbrances thereof for public interest.

[9] Fair compensation is not specified in the PCL

5. Pending approval of the Palestinian Land Authority (PLA), the Originator must file to PLA their request for land acquisition, along with the supporting documents, including title deeds of the property in question, as well as a scanned copy of the published Cabinet Decision.
6. All owners of the property in question and/or encumbrances thereof must then be duly notified by the Originator. Hereafter, negotiations shall commence between the Originator and owners to reach agreeable terms on the use of property and/or encumbrances, as well as compensation.

Land acquisition process is not without consideration of its limitations. Accordingly, fair, and equitable compensation must be granted to the aggrieved party, either pursuant to an agreement with the Originator (per para. 6 above) or, at times of failure, contingent on request of the aggrieved party, through judicial recourse.

Such a process is also limited by a 3-year limitation period. As such, the implementation of expropriation and utilization of the expropriated property strictly for public interest must be initiated before the lapse of three years from the date the property and/or encumbrances thereof are registered under the name of the Originator.

Failure to comply with the above limitations affords the aggrieved party, along with the above compensation, indemnity for any damages and/or losses and expenses incurred resulting from the expropriation process.

If there are buildings, trees, or assets in the land acquired, the entire value of the buildings, trees, and assets must be compensated for.

Once the process is completed and after paying compensation to the Owners, the land will be registered in the name of the Originator.

It is clear from the Expropriation Law that expropriation may take place and shall be considered valid even if the entity requesting it is a private entity for whose benefit the expropriation is to be carried out. All what needs to be proven to the Cabinet is that the expropriation is for a project that will be of public interest[10].

3.1.8 Labor Law

The PWA, supervision Engineer, and contractors will implement the following laws, which govern the rights of the employees and labors and the terms and conditions of the employment:

The Palestinian Labor Law (PLL) No.7, 2000 and the Council of Ministers Act 11, 2012 regarding the minimum wage. The Labor Law No.7 provides the basic conditions of employment with a view of improving the status of employees in Palestine. The Law explains the working hours, wages, leaves, the reward of work end, work contracts, etc. The Council of Ministers Act 11, 2012 deals specifically with the minimum wages in the Palestinian National Authority's locations and basic terms and conditions of employment.

3.1.9 Overview of Labor Legislation

The following sections present an overview of the key aspects of PLL No. 07, the Council of Ministers Act 11, 2012, and the terms and conditions of work in ESS2, para 11, which PWA, supervision Engineer, and Contractors will follow during the implementation of the sub-project.

Wages

The minimum wage limit is regulated by the Palestinian Labor Law. The specific minimum wage for contracted workers is 30 $/day (3.75 $/hour) and the minimum wage for direct workers is 415 $/month. A labor agreement will determine the form and amount of remuneration. Remuneration will be paid at least once a month.

The insurance to be made by the Contractor for the contracted workers will pay compensation to the contracted workers for work-related damage that caused any deterioration to the employee's health and will cover the subsequent, necessary treatment costs.

Deductions from payment of wages will only be made as allowed by the national law, and sub-project workers will be informed of the conditions under which such deductions will be made.

Working Hours

[10] There is no definition for the project of public interest in the Expropriation Law

The actual working hours shall be forty-eight hours per one week. The daily working hours shall be reduced by at least one hour in all hazardous or health damaging occupations, in addition to nightly jobs. Such occupations shall be defined through a decision issued by the Minister, after consulting with the concerned employers' and workers' organizations.

The daily working hours (8 hours per day) shall include one or more resting period/s, the total of such period/s shall not exceed one hour, taking into consideration that the worker shall not work for more than five consecutive hours.

The weekly working days are from Saturday to Thursday with Friday being the weekly rest period (holiday) unless the interest of the work requires the allocation of another day, provided that such day is taken by the worker on a regular basis.

Rest Breaks

The employees will have one-hour meal break each workday taking into consideration that the worker shall not work for more than five consecutive hours. Friday is the weekly rest period (holiday) unless the interest of the work requires the allocation of another day, provided that such day is taken by the worker on a regular basis.

Overtime Work

The extra working hours should not exceed twelve hours a week. The worker shall be paid the wage of one and a half hour for each extra working hour he/she works.

Leaves

The worker is entitled to a paid annual leave, the duration of which is two weeks per year he/she spends at the same work and three weeks for the work in hazardous or health damaging occupations and for those workers who have spent five years or more at the installation.

The worker will have the right of sick leave of fourteen days and is also entitled to another fourteen days' sick leave, where he/she will be paid half of his/her wage. The working woman who had spent a period of one hundred and eighty days at work prior to each delivery, she shall have the right to a paid maternity leave for a period of ten weeks, including at least six weeks after the delivery. The worker shall have the right to a paid leave on religious and official holidays, which is not considered or counted as annual leaves.

Women

Palestinian Labor Law includes provision for prohibition of discrimination between men and women. Employment of women is prohibited in the following jobs or under the following conditions: dangerous or hard works, extra working hours during pregnancy and during the first six months after delivery, and during night hours except for the works defined by the Council of Ministers. While "dangerous or hard works" is not further explained in the law, excavation works or tasks involving lifting heavy objects as might be involved in construction under the sub-project, may not be permitted for women.

Labor Disputes

Palestinian Labor Law includes provision for workers' exemption from legal fees arising from work-related disputes and allows to unionize. A bipartite committee will settle any disputes that may arise from the implementation of agreement. The court has jurisdiction over labor related disputes.

The PLL applies to direct workers and contracted workers, who are employed on full-time basis. Terms and conditions of direct/contracted workers hired on part-time basis are determined in their individual employment contracts.

Compensation

According to PLL, if the work injury prevented the worker from performing his/her work, he/she shall be entitled to (75%) of his/her daily wage starting from the date such injury took place and during the whole period of his/her temporary disability, provided that such disability to work does not exceed (180) days. If the work injury resulted in the death or in a permanent total disability, the heirs in the first instance and the injured worker in the second one shall be entitled to a cash compensation that is equal to the wage of (3500) working days or (80%) of his/her basic wage for the remaining period until he/she reaches the age of sixty years, whichever is greater. If the work injury resulted in a permanent partial disability, the injured worker shall be entitled to a cash compensation, which equals percentage of such disability compared to the permanent total disability. If the work injury resulted in more than one permanent partial disability, the injured worker shall be entitled to a cash compensation for the total percentages of the disabilities, provided that the total amount of such compensation does not exceed the compensation prescribed for the permanent total disability.

3.1.10 Decree for Law of Committees and Supervisors of Occupational Safety and Health in Facilities

The Decree for Law No.3 of 2019 regarding Committees and Supervisors of Occupational Safety and Health in Facilities aims to:

- Strengthen internal control in facilities and worksites to provide a healthy and safe work environment.
- Provide the requirements for occupational safety and health (OSH) contained in the applicable Labor Law.
- Minimize work accidents and injuries and occupational diseases.

The roles of the Minisry of Labor (MoL), which is the governmental institution responsible for applying the law, are as follows:

- Approving the OSH supervisor designated by the Employer and renewing his/her accreditation.
- Evaluating the supervisor's work, and following up his/her performance.
- Approving the formation of the OSH Committee in the facility, formed under the provisions of this Law.
- Evaluating the OSH committee's work and following up its performance.
- Accreditation of training institutions and training programs therein.

In order to assure that the Employers abide by the contents of this law, the MoL designates inspectors whose responsibilities are to monitor the implementation of the provisions of this law.

3.1.11 Law of Antiquities

The Law of Antiquities No.51 of 1966 deals with the movable and immovable antiquities which are deemed part of the cultural heritage. The second article of the Law defines the antiquities as "any historical movable or immovable iniquities made or composed or carved (inscribed) or built or explored or produced or modified by a human being before the year 1700 A.D including any part added to the antiquities or reconstructed after that date", Article 2. A.

Also falls under this definition according to Article 2. C "any movable or immovable antiquities that date after the year 1700 A.D that is proclaimed by the minister through an ordinance he/she issues and states that it is a historical remain".

Antiquities included in the above-mentioned definition shall be listed according to Article 9 and announced in the official newspaper: "the Director publishes in the official newspaper a table approved by the Minister that includes historical buildings and sites. He / She is allowed from time to time to add to this table and modify it."

Titled as the prohibited acts, Article 10 of the Law of antiquities states that any person either is not allowed without permission from the Minister to:

a) Excavate any historical site that is inscribed in the declared list or was mentioned in any later amendment to the list,

b) Start a process of excavation or construct a building, or open quarries, establishing irrigation actions or lime burning or alike in the historical buildings and sites or beside them or putting soil or dumping them or converting them into cemeteries,

c) Introducing transformations to any antiquities or adding to it or restoring it,

d) Destroy any antiquities, or demolish part of it or move it, or

e) Constructing buildings or walls that encroach any artefact or being adjacent to it.

Paragraphs d and e are not applied to historical buildings designated for religious purposes or owned by a religious body.

Sanctions are determined in Article 46. In paragraph 5, everyone who distorts, destroys, obliterates, or removes or blocks any historical artefact shall be punished by imprisonment for a term not exceeding two years or a fine of 20 Jordanian Dinars (JD) to 200 JD.

3.1.12 Tangible Cultural Heritage Law

The Palestinian Tangible Cultural Heritage Law (PTCHL) No. 11 was ratified in 2018. The PTCHL aims to protect the Palestinian heritage and archaeological sites from illegal excavations, looters, trafficking antiquities, and smuggling them abroad by antiquities smugglers. The following list presents the overview of the subjects in the PTCHL:

- Chapter I: Definitions and General Provisions.
- Chapter II: Heritage Advisory Board elaborating its members, responsibilities, meetings.
- Chapter III: Preservation of immovable cultural heritage elaborating definitions, preserving measures, handling, forbidden acts and organizing this kind of cultural heritage.
- Chapter IV: Protection of historical areas and cultural landscape defining the borders of historic areas, identifying prohibited acts and conditions for the construction works within these areas.
- Chapter V: Protection of movable Heritage, elaborating definitions, the commitment of possessors, heritage handling, forbidden acts, organizing relationships with other countries, and organizing this kind of cultural heritage.
- Chapter VI: Protection plan identifying the roles of other ministerial institutions, cooperation with the concerned international and local authorities.
- Chapter VII: National heritage register organizing the procedures for registration of national heritage.
- Chapter VIII: Survey and archaeological excavations addressing all issues related to exploration and surveying of archaeological heritage.
- Chapter IX: Promotion for cultural heritage.
- Chapter X: The penalties for violating the clauses of the PTCHL.
- Chapter XI: Final provisions addressing subjects not addressed in the previous chapters, issuing relevant regulations, settling the status of museums, relationship with relevant applicable laws and the repealed laws.

Law No. 11 of the year 2018 for cultural heritage aims to achieve the following:

1. Protect and preserve the state's heritage and preserve it for future generations.
2. Identify and manage Palestinian heritage in an optimal manner.
3. Preserving the cultural and civilizational identity of the State.

According to this cultural heritage law, tangible and not tangible cultural property is considered a heritage in one of the following cases:

A. It dates back to before 1917.

B. It dates back to 1917 and satisfies one of the following:

1) Cultural Importance: Historical, rare, aesthetic, artistic, social, scientific and religious value. architectural, spiritual, symbolic, representational and interactive cultural heritage for current generations and upcoming.

2) Economic Importance: Values associated with direct and indirect economic dimensions and impacts. It is a national resource that contributes to the local and national economy and its development.

3) Natural Importance: Values associated with heritage, and are part of its environment, components, cultural landscape and nature.

According to the PTCHL No. 11 of 2018:

1) Heritage found in the State or in its territorial waters, or discovered as a result of legitimate excavations or unlawful, or by chance, a public domain, except for the heritage of which the owners prove their ownership by legal basis.

2) Ownership of the property shall not give the holder the right to dispose of the heritage located on its surface or in the interior thereof, nor shall it grant it. The right of exploration, except in accordance with the provisions of this law.

3) State-owned heritage shall not be sold, donated, suspended or waived for any reason whatsoever.

4) Heritage remains in the hand of its holder, and the holder doesn't have the right of disposition of the remains except with the provisions of this resolution.

Immovable cultural heritage is considered as one of the following:

1. Archaeological sites: abandoned or destroyed sites or parts or any additions including soil, water, underground and groundwater containing associated constructors, heritage casts, and any other remains, in the form of a ruin, a Tell or a facility of a religious nature. These include villages, ancient cities and communities, where surveys show evidence of past civilizations.

2. Monuments (Monuments, structures): The material remains that appear individually or as part of buildings, installations or elements consisting of architectural works, sculpted monuments, archaeological or engineering constructs, in addition to their surroundings, attachments, installation, installation and equipment, and whose protection constitutes a public or national interest or regional or local.

3. Historic Areas: Areas with a homogeneous urban form such as the centers of cities and villages or parts thereof, which contain architectural elements, such as streets, alleys, squares and arches, and are considered interconnected and homogeneous and their location in the scene of historical, artistic, scientific or spiritual value.

4. Single buildings: Buildings that are outside and not connected to historical areas, and contain architectural elements.

The Law defines **the Cultural Landscape**: Areas that include a tangible and distinctive product of the inter-action between man and nature, are the legacy of many epochs of the cultural and natural development of many generations of human effort, and are of global, regional or national importance.

The competent authorities may not issue a license to carry out the following activities unless the applicant obtains prior written permission from the Ministry of Tourism and Antiquities (MoTA):

1. Place banners or commercial advertisements or install visible antennas or pipes on the facades and ceilings of immovable heritage or affix symbols to it.

2. Construction, demolition, demolition or addition of existing buildings.

3. Implementation of infrastructure works in the heritage site and the surrounding area.

4. Sell or buy tangible heritage.
5. Carry out any agricultural, investment, industrial or commercial activities in the heritage site and the surrounding area.
6. Transfer of ownership of the immovable heritage registered in the Register.
7. Demolition of the permanent heritage site in whole or in part.

Based on this law, the MoTA, in cooperation with local authorities, defines the borders of historic areas and the surrounding area to preserve them and protect their cultural landscape.

3.1.13 Regulation on Complaints No.8, 2016

The Regulation on Grievances/Complaints was issued by the Council of Ministers based on resolution No.8 of 2016 and applies to all governmental bodies. According to the regulation, a government body includes any ministry, department, public institution, authority, or any other agency whose budget is part of, or annexed to, the general budget of the State. This regulation applies to every grievance submitted by any service recipient or complainant who has been harmed by the government department's decisions, procedures, practices, or acts of refraining from performing the service.

According to this Regulation, a specialized unit shall be established in the governmental body within its organizational structure and is called the Grievances Unit. The unit is managed by qualified staff, and it reports to the competent minister. The unit is obligated to respond in writing or electronically to the complainant within a maximum period of thirty days from the date of submitting the complaint. Any personal information, data, and/or documents that are accessed by Grievances Unit staff are considered confidential and are dealt with on this basis.

Further to this regulation, and upon the Resolution of the Secretary General of the Council of Ministers No. (17/20) for the year 2017, a Grievance Redress Procedure Manual was issued. The Manual aims to guide the pertinent procedure for handling a grievance, starting from identifying the bodies responsible for receiving the complaints, accepting or rejecting the complaint, referring the complaints to the competent authority, investigating the complaints and the follow-up procedures, handling the complaint, closing the complaints, filing and reporting. The Manual also includes templates that are used during the complaint process.

Following the aforementioned regulation and resolution, the Grievances Unit at PWA was established and is responsible for effectively handling grievances received on PWA projects and works. The Unit resolves grievances within a stipulated time frame and reports to the Head of PWA on the status of all grievances received by the Unit. The grievance handling procedures encompass addressing grievances related to Gender-Based Violence (GBV), Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH), as well as anonymous grievances. To respect anonymity, the system includes a dedicated process for reporting complaints anonymously. All grievances and related correspondence are documented, and the grievance resolution process is systematically tracked. PWA keeps a log of the complaints.

3.2 Institutional Framework

The Amended Water Law 2014 has consolidated responsibility and clarified the roles of the entities within it. The sector is currently in a period of transition as structure and responsibilities are being shifted. This is apparent in the following:

- The PWA's role of regulating service providers is given to the Water Sector Regulatory Council (WSRC) as an independent entity, which was established in late 2014;
- The West Bank Water Department (WBWD) is undergoing a transitional period of financial and management upgrade and it was followed by establishing a publicly owned water company to cover the Gaza Strip and the West Bank. The new company is called the National Water Company (NWC);
- Individual water departments in the municipalities will first consolidate to form Joint Services Councils and eventually amalgamate even more to form regional water utilities (RU); ideally four in number; three in the North, Centre, and South of the West Bank and the fourth in Gaza. The Gaza structure is nearly clear but needs to be completed as the Coastal Municipal Water Utility (CMWU).

Palestinian Water Authority (PWA)

The PWA was established under the Presidential Resolution No. 90 of 1995 to act as the regulatory body for water resources management, development, and infrastructure planning in Palestine, as well as executing water policy. The PWA is responsible for governing water resources in Palestine through applying the principles of integrated and sustainable management, and regulating the water and sanitation sector by setting general policies and plans for the sector in light of economic and social needs. The PWA is also responsible for setting design and quality control standards and technical specifications for water projects and monitoring their implementation.

Accordingly, the planning, design, and construction of the proposed bulk water system sub-project are being undertaken under the authority of the PWA. The PWA also will own the sub-project components and will operate the system. The PWA will be the bulk water provider for the served municipalities and village councils that will benefit from the sub-project implementation.

National Water Company (NWC)

The 2014 Water Law provides for the establishment of a NWC as a state-owned enterprise that would be the bulk water provider for both the West Bank and Gaza. In March 2016, PWA drafted a road map, the “National Water Company Draft Action Plan”, for setting up the NWC through a phased transformation of the WBWD into the new company. The Palestinian government decided on November 2, 2020 to establish the "Palestine National Water Company", which is currently a project under study and establishment with the aim of enhancing water resources and achieving water, financial and institutional sustainability, to be a governmental company.

The WBWD, which will be transferred into the “Palestine National Water Company” will manage and operate the new “Bulk Water Supply System in Jenin” and will be responsible for distributing the bulk water supply to the service providers, which are the local authorities in the sub-project area.

Water Sector Regulatory Council (WSRC)

The WSRC was established in 2014 by Water Law No. 14 of 2014. The WSRC is a financially and administratively independent institution that reports directly to the Palestinian Council of Ministers, per Article 18 of the Water Law No. 14. The WSRC is responsible for monitoring all matters related to the operation of water service providers, including production, transmission, distribution, consumption and wastewater management, to ensure water and wastewater service quality and efficiency to consumers in Palestine at affordable prices.

Water Service Providers (WSPs)

The WSPs aim to provide water and wastewater services to consumers for different uses. The WSPs provide domestic water with reasonable quality and wastewater collection services within the suitable and safe collection of wastewater and treatment. Local authorities, including municipalities and village councils, are considered the WSPs in several communities in Jenin District. The local authorities, as per the Local Authorities Law No. 1 of 1997, are responsible for providing drinking water to their communities. In some areas, a coalition of municipalities has formed a joint services council to serve this purpose, while others provide this service directly.

Other Institutions

In addition to the above-mentioned institutions, there are other Ministries and entities involved in this sub-project, mainly during the review and approval of the ESIA study of the sub-project, which are:

- EQA, in consultation with the members of the inter-agency Environmental Assessment Committee;
- AFD as the funding agency for the consultancy services of preparing the design and tender documents; and
- World Bank as the funding agency for implementing the sub-project components

3.3 World Bank Environmental and Social Framework

The World Bank Environmental and Social Framework (ESF) 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 (ESS's), these are:

ESS1: Assessment and Management of Environmental and Social Risks and Impacts.

ESS2: Labour 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.

All the above ESSs are relevant to this sub-project except ESS7 and ESS9. The relevance of these ESSs is explained in Section 6.4.

3.4 World Bank Group General EHS Guidelines

The World Bank Group Environmental, Health, and Safety (EHS) General Guidelines, called ("WBG EHS General Guidelines"), which are technical reference documents with general industry-specific examples of Good International Industry Practice (GIIP), are required to be applied. Also, the WBG EHS Guidelines for Electric Power Transmission and Distribution Guidelines shall be applied in this Sub-Project.

The WBG EHS General Guidelines focus on the below four sectors:

1) Environmental – The first chapter of the WBG EHS General Guidelines is dedicated to ensuring a project's environmental impact is minimized. The environmental section focuses on Air emissions and Air Quality, Energy Conservation, Wastewater and Ambient Water Quality, Water Conservation, Hazardous Materials Management, Waste Management, Noise, and Contaminated Land.
2) Occupational Health and Safety – These guidelines are in place to ensure all reasonable precautions are implemented to protect the health and safety of workers. The chapter examines General Facility Design and Operation, Communication and Training, Physical Hazards, Chemical Hazards, Biological Hazards, Radiological Hazards, Personal Protective Equipment, Special Hazard Environments, and Monitoring.
3) Community Health and Safety – This section complements the previous two chapters and addresses key aspects pertaining to project tasks outside of a traditional project's scope. The chapter focuses on Water Quality and Availability, Structural Safety of Project Infrastructure, Life and Fire Safety, Traffic Safety, Transportation of Hazardous Materials, Disease Prevention, and Emergency Preparedness and Response.
4) Construction and Decommissioning – The final chapter details preventative and control measures to ensure community health and safety impacts that may occur at any point during the project's life (Pre, during, and post) are minimized. The chapter goes into further detail in the guidelines presented in the prior three chapters.

3.5 International Conventions and Treaties Ratified by State of Palestine

The State of Palestine is a signatory to international conventions and treaties which are relevant to this sub-project and are elaborated on below.

Convention on Biological Diversity (CBD): The convention aims to conserve the biological diversity and to ensure the sustainable use of its components. The convention was entered into force on 29 December 1993. The State of Palestine ratified the convention on 2 January 2015.

Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal: The convention recognizes the right of the states to prevent the entry or disposal of hazardous materials and waste that were not produced in their territories, and to give priority to the proper environmental disposal of waste and hazardous materials generated within the borders of the state. The agreement requires member states to ensure that the production of hazardous materials and waste is reduced within their borders through national disposal systems. The agreement calls on member states to adopt legislation that serves the objectives of the agreement. The State of Palestine ratified the Convention on 2 January 2015.

United Nations Framework Convention on Climate Change (UNFCCC): This convention aims to reduce emissions that cause climate change and minimize global warming. The convention was entered into force on 21 March 1994. The State of Palestine ratified the convention on 18 December 2015.

Vienna Convention for the Protection of the Ozone Layer: is a multilateral environmental agreement signed in 1985 that provides frameworks for international reductions in the production of chlorofluorocarbons due to their contribution to the destruction of the ozone layer. The State of Palestine ratified the Convention on 18 March 2019.

United Nations Convention to Combat Desertification (UNCCD): The Convention aims to combat desertification and mitigate the effects of drought through national action programs that incorporate long-term strategies supported by international cooperation and partnership arrangements. The Convention was entered into force in December 1996 and the State of Palestine ratified the Convention on 29 December 2017.

Convention Concerning the Protection of the World Cultural and Natural Heritage: The primary aim of the Convention is to identify and protect the world's natural and cultural heritage considered to be of Outstanding Universal Value that its conservation is important for current and future generations. The State of Palestine ratified the Convention on 8 December 2011.

Convention for the Safeguarding of the Intangible Cultural Heritage: The convention aims to (i) safeguard the intangible cultural heritage, (ii) ensure respect for the intangible cultural heritage of the communities, groups and individuals concerned, (iii) raise awareness at the local, national and international levels of the importance of the intangible cultural heritage, and of ensuring mutual appreciation thereof; and (iv) provide for international cooperation and assistance. The State of Palestine ratified the Convention on 8 December 2011.

Convention on the Elimination of All Forms of Discrimination against Women: The Convention is an international legal instrument that requires countries to eliminate discrimination against women and girls in all areas and promotes women's and girls' equal rights. The State of Palestine ratified the Convention on 2 April 2014.

Convention on the Rights of Persons with Disabilities: The Convention aims to protect the rights and dignity of persons with disabilities. Parties to the Convention are required to promote, protect, and ensure the full enjoyment of human rights by persons with disabilities and ensure that persons with disabilities enjoy full equality under the law. The State of Palestine ratified the Convention on 2 April 2014.

Convention on the Rights of the Child (CRC): The Convention is an international human rights treaty which sets out the civil, political, economic, social, health and cultural rights of children. The State of Palestine ratified the Convention on 2 April 2014.

ILO Conventions: The West Bank and Gaza, as designated occupied territories, are unable to be a member of the ILO, and as such, they have not ratified any ILO Conventions.

3.6 Gap Analysis of World Bank Environmental and Social Framework and the National E&S Legislative Framework

A comparison between the Palestinian environmental and social legislative framework and the World Bank ESF is presented in the below Table 3-5.

Table 3-5: Comparison Between the Palestinian E&S Legislative Framework and World Bank ESF

ESF	Palestinian Legislative Framework	Gaps
ESS1: Assessment and Management of Environmental and Social Risks and Impacts		
Identify, assess, evaluate, and manage environment and social risks and impacts.	Article 2 of the Palestinian Environmental Law (PEL) aims to protect the environment against all forms and types of pollution, protection public health and welfare, insertion the bases of environmental protection in social and economic development plans; and encouragement of sustainable development of vital resources in a manner that preserves the rights of future generations, protect biodiversity and environmentally sensitive areas, as well as improve environmentally harmed areas	The PEL broadly covers this requirement
To adopt a mitigation hierarchy approach to: Anticipate and avoid risks and impacts; Where *avoidance* is not possible, minimize or reduce risks and impacts to acceptable levels; Once risks and impacts have been minimized or reduced, mitigate; and Where significant residual impacts remain, compensate for or offset them, where technically and financially feasible.	Mitigation measure is defined in the Palestinian Environmental Assessment Policy (PEAP) as the measure included in the plan for a development activity to avoid, reduce or rectify an adverse environmental impact, or to compensate for an adverse environmental impact by replacing or providing substitute resources.	The PEAP broadly covers this requirement
To adopt differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable.	No provision in the National laws for adopt differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable	This is a gap between ESS1 and the national laws.
To utilize national environmental and social institutions, systems, laws, regulations and procedures in the assessment, development and implementation of projects, whenever appropriate.	There are many Palestinian institutions, regulations, and laws that support the environmental protection and the sustainable development as well as to the international environmental conventions that are adopted. The PEL represents the general legal framework regulating rights, duties in protecting the environment. EQA adopted the PEAP, United Nations Framework Convention on Climate Change (UNFCCC) and United Nations Convention to Combat Desertification (UNCCD).	This sub-project is using the national and the international systems and regulations

ESF	Palestinian Legislative Framework	Gaps
To promote improved environmental and social performance, in ways which recognize and enhance Borrower capacity.	Improve and support the environment, for example: Sub-Project to assess and strengthen the capacity of the PWA in the field of supervision and inspection.	The Sub-Project in itself is an opportunity to enhance the environmental and social management systems within PWA and the Water Service Providers (WSPs)
ESS2: Labor and Working Conditions		
To promote safety and health at work.	Article 2 of Law No. 3 of 2019 on the "Committees and Supervisors of Occupational Safety and Health at Establishments" aims to enhance internal oversight in establishments and workplaces, provide the requirements of occupational health and safety, and reduce work accidents and occupational diseases. The following resolutions and ministerial instructions address the health conditions and standards related to occupational safety at different Workplaces: -The ministerial decrees No. 15, 17, and 21 of 2003 concerning health conditions and standards at workplaces, medical assistance procedures at the workplace, and safety standards at companies. -The Decision of the Council of Ministers No. (49) of 2004 concerning the preventive list of work hazards and career diseases and work accidents. -Instructions by the Minister of Labor No. (1) of 2005 concerning the precautions to protect workers in construction sites.	The national legislations broadly cover this requirement.
To promote the fair treatment, non- discrimination and equal opportunity for project workers.	According to Palestinian Labor Law (PLL), work is the right of any Palestinian without any kind of discrimination (Article 2); it is prohibited to discriminate between men and women (Article 100).	The PLL broadly covers this requirement
To protect project workers, including vulnerable workers such as women, people with disabilities, children (of working age, in accordance with this ESS) and migrant workers, contracted workers, community workers and primary supply workers, as appropriate.	The PLL states the followings: -Article 2: working is a right for every citizen that can work and it is on the basis of equal opportunity & without any kind of discrimination. -Article 13: The employer is obliged to employ a number of qualified disabled workers in work commensurate with their disability at least (5%) of the size of the workforce in the establishment.	The PLL broadly covers this requirement

ESF	Palestinian Legislative Framework	Gaps
	-Article 93: Children employment before 15 years is prohibited. -Article 100: discrimination between men and women is prohibited. -Article 101: Employment of women is prohibited in the three following cases; dangerous work, additional working hours during pregnancy and the first six months of giving birth, night working hours except the occupations that the ministries council defines. The Council of Ministers Act 4, 2021 determines the minimum wage of the worker: -The minimum monthly wage in all areas of the Palestinian National Authority and in all sectors shall be (1,880 NIS). -The minimum wage for day laborers, especially those who work daily, shall be irregular, in addition to seasonal workers (85 NIS). -The minimum wage per hour per worker shall be (10.5 NIS). According to the PLL, the workman compensation shall be as follows: -Article 119: If a worker is temporarily incapacitated and has lost his or her ability to perform his / her temporary work, he / she is entitled to receive 75% of his / her daily wage up to a maximum of 180 days. -Article 120: The amount of monetary compensation in the case of permanent total disability or death with 3500 working days or 80% of his basic wage until he reaches the age of sixty, whichever is higher.	
To prevent the use of all forms of forced labor and child labor.	Article 93 of the PLL states that “the employment of children before they reach the age of fifteen years shall be prohibited”. Article 95 of the PLL states that “minors shall not be employed in the following jobs: dangerous industries or those harmful to health; night jobs or during official or religious holidays or official off days; extra working hours; and at work areas which are remote or distant from inhabited areas. Article 13 of the Palestinian Constitution states that “No one shall be subjected to any coercion or torture.	The Palestinian legislation broadly covers this requirement

ESF	Palestinian Legislative Framework	Gaps
	Article 14 of the Palestinian Child Law states that “Children employment before 15 years is prohibited”. Forced labor is not addressed by the PLL.	There is a gap between ESS2 and the national laws concerning forced labor.
To support the principles of freedom of association and collective bargaining of project workers in a manner consistent with national law.	Article 5 of the PLL states that “In accordance with the provisions of the Law, both workers and employers shall have the right to establish union organizations on professional basis with the aim of supporting their interests and defending their rights”. Article 49 of the PLL states that “the collective negotiations shall be the dialogue that takes place between any of workers’ unions or representatives and the employer or employers or their representatives in order to settle the collective dispute or to enhance the work conditions and requirements or to elevate productivity competency”. General Federation of Palestinian Workers’ Union aims to “organize the labors based on professional grounds, improve the labor conditions, follow up the labor demand issues, and defend the workers in case of labor disputes”.	The PLL broadly covers this requirement
To provide project workers with accessible means to raise workplace concerns.	There are no precise regulations or grievance procedures that raise the workplace concerns. Also, there are no specialized labor courts.	The national legislation do not specify the grievance mechanism to raise workplace concerns
Where accommodation services are provided to project workers, policies will be put in place and implemented on the management and quality of accommodation to protect and promote the health, safety, and well-being of the project workers.	There is no mentioning in the PLL or any other policy or regulation on the quality and management of the accommodation and provision of basic services.	The PLL does not specify any requirement for accommodation of workers.
Contracted and primary supply labor.	There is no mentioning in the PLL or any other policy or regulation on the specific requirements on the use of contracted labor or on the use of primary supply labor.	There is a gap between ESS 2 and the national laws for such kinds of labor.
Forced labor which consists of any work or service not voluntarily performed that is exacted from an individual under threat	Forced labor is not addressed by the PLL. There is no specific provision in national legislation punishing the exaction of forced labor.	There is a gap between ESS 2 and the national

ESF	Palestinian Legislative Framework	Gaps
of force or penalty, will not be used in connection with the project.		laws concerning forced labor.
ESS3: Resource Efficiency and Pollution Prevention and Management		
To promote the sustainable use of resources, including energy, water and raw materials.	Article 2 of the PEL aims to protect the environment against all forms and types of pollution, protection public health and welfare, insertion the bases of environmental protection in social and economic development plans; and encouragement of sustainable development of vital resources in a manner that preserves the rights of future generations.	The PEL broadly covers this requirement
To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities.	Article 2 of the PEL aims to protect the environment against all forms and types of pollution, protection public health and welfare, insertion the bases of environmental protection in social and economic development plans; and encouragement of sustainable development of vital resources in a manner that preserves the rights of future generations, protect biodiversity and environmentally sensitive areas, as well as improve environmentally harmed areas. Article 46 of the PEL states that "when authorizing any facility, the competent agencies shall avoid environmental hazards by encouraging transfer to projects that use substances and operations less harmful to the environment". Article 2 of the PEAP aims to avoid irreversible environmental damage, and minimizing reversible environmental damage, from development activities.	The PEL broadly covers this requirement
To avoid or minimize project-related emissions of short and long-lived climate pollutants.	According to Article 19 of the PEL, the EQA has specified the standards to regulate the percentage of pollutants in the air which may cause harm or damage to public health, social welfare and the environment. Article 24 of the PEL addresses the reduction of ozone depletion in accordance with the provisions of international conventions to which Palestine is committed to.	The PEL broadly covers this requirement
To avoid or minimize generation of hazardous and nonhazardous waste.	According to Article 7 of the PEL, the EQA has issued the "Solid Waste Management Regulations, 2004". The regulations address issues related to solid waste collection in addition to key guidelines for landfills. The "National Strategy for Solid Management in the Palestinian Territory" was endorsed by	The PEL and HWMS broadly cover this requirement.

ESF	Palestinian Legislative Framework	Gaps
	the Cabinet in May 2010 and represents the first cross-sectoral strategy for solid waste in Palestine. Policy 6 is concerned with diverting waste from landfills through waste minimization, reuse and recycling. Article 8 of the PEL encourages undertaking appropriate precautions to reduce the generation of solid waste to the lowest level possible; re-use it as much as possible, recover its components or recycle it. The EQA, according to Article 9 of the PEL, determines the standards of solid waste disposal sites. Article 11 of the PEL addresses the lists of hazardous substances and wastes through issuing the "Hazardous Waste Management System (HWMS)" in 2021. The HWMS addresses the ways of hazardous waste minimization.	
To minimize and manage the risks and impacts associated with pesticide use.	Article 14 of the PEL designates the environmental conditions for the import, distribution, manufacturing, use, and storage of pesticides. Article 15 of the PEL sets instructions and standards specified for the agro-chemicals that are allowed to be imported, manufactured and distributed in Palestine.	The PEL broadly covers this requirement
To consider ambient conditions and apply technically and financially feasible resource efficiency and pollution prevention measures in accordance with the mitigation hierarchy.	Article 45 of the PEL states that EQA shall set standards to determine which projects and fields shall be subject to the environmental impact assessment studies. It shall also prepare lists of these projects and set the rules and procedures of the environmental impact assessment. The PEAP aims, as one of its objectives, to address potential adverse project impacts on existing ambient conditions.	The PEL broadly covers this requirement but without providing provisions.
Hazardous materials management	The "Hazardous Waste Management System, 2021" specifies that all precautions must be taken when handling hazardous waste (HW) to avoid any environmental damage. The HWMS addresses the following subjects related to HW: definition, roles and responsibilities of EQA for management of HW, permit procedure for persons working in HW management, obligations of persons working in HW management, obligations of HW producer, ways of HW minimization, precautions to be considered, tracking document for handling the HW from the production stage to its	The HWMS broadly covers this requirement.

ESF	Palestinian Legislative Framework	Gaps
	disposal stage, obligations of HW transporter, and procedure for HW transit and export to other countries.	
ESS 4: Community Health and Safety		
To anticipate and avoid adverse impacts on the health and safety of project- affected communities during the project lifecycle from both routine and non- routine circumstances.	The issues related to the adverse impacts and how to mitigate these impacts are addressed in the PEAP.	The PEAP broadly covers this requirement.
To promote quality and safety, and considerations relating to climate change, in the design and construction of infrastructure, including dams.	There are relevant international treaties regarding climate change and the environment that Palestine has signed and is implementing, which are: -United Nations Framework Convention on Climate Change (UNFCCC). -Stockholm Convention on Persistent Organic Pollutants (POPs) - Basel Convention. Article 77 of the PEL states that the international environmental conventions and agreements, of which Palestine is a party, are considered an integral part of the national legislation and are valid.	Palestine applies the international environmental conventions and agreements, of which Palestine is a part.
To avoid or minimize community exposure to project-related traffic and road safety risks, diseases and hazardous materials.	The Traffic Law No 5, 2000 provides for the compliance of all the conditions of the vehicles that should have in the roads as well as the traffic safety procedures. Article 7 of the PEL sets out a plan of solid wastes management plan. Article 11 of the PEL defines a list of the most dangerous wastes. Article 12 of the PEL restricts the use of the dangerous materials by setting out many instructions and regulations. Article 13 of the PEL bans any dangerous wastes and restricts their access through the Palestinian lands. Article 34 of the Public Health Law No 20, 2004 identifies the health conditions to be met by workers in the occupations, trades, and industries that may affect their health; it also identifies the initial and preventive tests that	There is gap resulted from the fact that the national laws only provide general guidelines. This can be accomplished by the preparation of an ESMP specifically for respective component addressing this requirement.

ESF	Palestinian Legislative Framework	Gaps
	are vital for workers in their occupations, trades, and industries.	
To have in place effective measures to address emergency events.	There are no specific laws or regulations addressing the emergency events.	There is a gap between ESS 4 requirement and the national laws.
To ensure that the safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the project-affected communities.	The Palestinian laws and regulations have not addressed avoiding or minimizing risks to the project-affected communities.	There is a gap where there is no coverage for this issue in any national document.
ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement		
ESS5: Eligibility Classification Affected persons may be classified as persons: -People who have formal legal rights to land or assets -People who do not have formal legal rights to land or assets, but have a claim to land or assets that are recognized or recognizable under national law; -People who have no recognizable legal right or claim to the land or assets they occupy or use.	According to the national laws, people occupying land without formal, traditional, or recognizable usage rights are not authorized for compensation.	The national legislations do not specify compensation for people occupying lands without formal and recognizable usage rights.
To avoid involuntary resettlement or, when unavoidable, minimize involuntary resettlement by exploring project design alternatives.	Article 931 of the Palestinian Civil Law (PCL) No. 4, 2012 states that “No one shall be deprived of his property or of the use thereof, no property shall be expropriated except for the public benefit, all this shall be in the cases prescribed by the law and in the manner prescribed by it, and in return for fair compensation”. Article 21 of the Palestinian Constitution states that “Private property is protected; property is not expropriated except for the public benefit in accordance to the law in exchange for fair compensation or by judicial order.”	The Palestinian laws and regulations are in line with the ESS5 objective “To avoid involuntary resettlement or, when unavoidable, minimize involuntary resettlement by exploring project design alternatives”.
To mitigate unavoidable adverse social and economic impacts from land acquisition or restrictions on land use by:	The following Articles of the Land Acquisition summarize the procedure for dealing with the landowners: Article 5 is related to the publication of expropriation in an official newspaper and inventory for the affected groups.	Although the national laws **recognize** the right of compensation, but they do not consider assisting displaced people in their efforts to improve, or at least restore, their

ESF	Palestinian Legislative Framework	Gaps
(a) Providing timely compensation for loss of assets at replacement cost and (b) Assisting displaced people in their efforts to improve, or at least restore, their livelihoods and living standards, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.	Article 6 is about informing of landowners. Article 7 considers the publication in the official newspaper as conclusive evidence. Article 9 states that the originator must negotiate with the landowner, or any person entitled to it and agree with him to buy, dispose of it, or use it for a limited period, or to own any right there in required by the project. Article 10 states that in the case of presence of persons with the right of benefit or lease the land, the landowner must inform the originator of their names within fifteen days at the most from the date of notifying the expropriation decision, otherwise he will be solely responsible to others for the compensation they request; the tenants and beneficiaries shall be entitled to compensation by the originator if they have a contract with a fixed date prior to the expropriation decision, and in this case, compensation is estimated in the same way as compensation for landowners. According to the national laws and regulations, the landowner is compensated according to the prevailing market value. There are no written regulations for compensation values.	livelihoods and living standards, in real terms, to pre-displacement levels. There is a gap between ESS5 and the national legislative framework in estimating the compensation value and the basis to be considered in this regard.
To improve living conditions of poor or vulnerable people who are physically displaced, through the provision of adequate housing, access to services and facilities and security of tenure.	There is no national framework for resettlement of displaced persons.	The national legislations do not specify measures to improve living conditions of physically displaced persons with security of tenure at resettlement sites.
To conceive and execute resettlement activities as sustainable development programs, providing sufficient investment resources to enable displaced persons to benefit directly from the project, as the nature of the project may warrant.	There is no national framework for resettlement of displaced persons.	The national legislations do not specify measures to provide sufficient investment resources to enable displaced persons to benefit directly from the project.
To ensure that resettlement activities are planned and implemented with appropriate disclosure of information, meaningful consultation, and the informed participation of those affected.	There is no national framework for resettlement of affected persons and disclosure of information.	There is a gap between ESS5 and the national legislative framework in resettlement framework.

ESF	Palestinian Legislative Framework	Gaps
When land acquisition or restrictions on land use cannot be avoided, the Borrower will offer affected persons compensation at replacement cost, and other assistance as may be necessary to help them improve or at least restore their standards of living or livelihoods.	Such considerations of adverse impacts and sequence compensation are not addressed in the national laws and regulations.	This is a gap between ESS5 and the national legislative framework.
Where livelihoods of displaced persons are land-based, or where land is collectively owned, the Borrower will offer the displaced persons an option for replacement land in accordance with paragraph 35(a), unless it can be demonstrated to the Bank's satisfaction that equivalent replacement land is unavailable.	Such kind of land-based compensation has not been addressed in the local laws and regulations.	Land-based compensation has not been addressed in the national legislation.
Community engagement including the followings: The Borrower will engage with affected communities, including host communities, through the process of stakeholder engagement. Decision-making processes related to resettlement and livelihood restoration will include options and alternatives from which affected persons may choose. Disclosure of relevant information and meaningful participation of affected communities and persons will take place during the consideration of alternative project designs, and thereafter throughout the planning, implementation, monitoring, and evaluation of the compensation process, livelihood restoration activities, and relocation process.	The following Articles of the Land Acquisition summarize the procedure for dealing with the landowners: Article 5 is related to the publication of expropriation in an official newspaper and inventory for the affected groups. Article 6 is about informing of landowners. Article 7 considers the publication in the official newspaper as conclusive evidence. Article 9 states that the originator must negotiate with the landowner, or any person entitled to it and agree with him to buy, dispose of it, or use it for a limited period, or to own any right there in requirement of the project. Article 10 states that In the case of presence of persons with the right of benefit or lease the land, the landowner must inform the originator of their names within fifteen days at the most from the date of notifying the expropriation decision, otherwise he will be solely responsible to others for the compensation they request; the tenants and beneficiaries shall be entitled to compensation by the originator if they have a contract with a fixed date prior to the expropriation decision, and in this case, compensation is estimated in the same way as compensation for landowners.	The national legislations do not consider community engagement for decision-making processes related to resettlement and livelihood restoration, disclosure of relevant information and participation of affected communities and persons during the planning, implementation, monitoring, and evaluation of compensation payments.

ESF	Palestinian Legislative Framework	Gaps
	There are no references in the national laws to deal with disclosure of relevant information and participation of affected communities and persons during the planning, implementation, monitoring, and evaluation of compensation payments, livelihood restoration activities.	
The Borrower will ensure that a grievance mechanism for the project is in place, in accordance with ESS10 as early as possible in project development to address specific concerns about compensation, relocation or livelihood restoration measures raised by displaced persons (or others) in a timely fashion.	The grievance mechanism has not been addressed in the national laws and regulations.	The national legislation has not addressed the grievance mechanism.
Economically displaced persons who face loss of assets or access to assets will be compensated for at full replacement cost: -In cases where land acquisition or restrictions on land use affect commercial structures, affected business owners will be compensated for the cost of re-establishing commercial activities elsewhere, for lost net income during the period of transition, and for the costs of the transfer and reinstallation of the plant, machinery, or other equipment. -In cases affecting persons with legal rights or claims to land which are recognized or recognizable under national law, replacement property (e.g., agricultural or commercial sites) of equal or greater value will be provided, or, where appropriate, cash compensation at full replacement cost. -Economically displaced persons who are without legally recognizable claims to land will be compensated for lost assets other than land (such as crops, irrigation infrastructure and	The compensation procedure and the compensation values for the assets have not been addressed in detail in the national laws and regulations. Article 21 of the Expropriation Law addresses the way for estimating the compensation value resulting from land expropriation to construct or widen a road: -If the portion of the land acquired does not exceed a quarter of its total area, he will not be compensated unless it is proven that he will get a significant harm if he will not be compensated. Then the Council of Ministers has the right to decide for the compensation amount that it deems appropriate considering the circumstances of the case. -If there are buildings, trees, or other fixed assets in the land acquired, the entire value of the buildings, trees, and assets must be paid regardless of the area of the acquired land, and this is done according to the experts' valuation. If there is a dispute in the price valuation, the court valuates based on a lawsuit filed by one of the two parties. -If the portion of the land that was acquired exceeds a quarter of its total area, compensation must be paid for what exceeds the quarter, provided that the estimate will consider the full price of the land. -If a quarter of the land area is acquired without compensation, then it is not permissible after that to take possession of any part of the	In ESS5, economic displacement is not only related to land acquisition (people owning the land), but it also addresses loss of land use for people informally using the land – this is not the case in the Palestinian law.

ESF	Palestinian Legislative Framework	Gaps
other improvements made to the land), at full replacement cost.	remaining part without compensation even if its ownership is transferred. -When acquiring land under this law for the purpose of road widening, the amount by which the road has been widened on both sides must be equal. Article 15 of the Expropriation Law provides rules for valuation of the compensation to be paid to the landowners.	
The cut-off date: The ESS5 requires a cut-off date in order to prevent people influx to the project area. This measure is stipulated in order to protect the project owner and preventing wasting of resources.	Such requirement has not been addressed in the local laws and regulations.	Cut-off date has not been addressed in the national legislation.
Monitoring and evaluation: Arrangements for monitoring of displacement and resettlement activities by the implementing agency, supplemented by third-party monitors as considered appropriate by the Bank.	Monitoring or evaluation measures are not stipulated in Palestinian regulations.	There is a gap between ESS5 requirement and the various national laws and regulations.
ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources		
To protect and conserve biodiversity and habitats.	According to Article 40 of the PEL, the EQA shall prescribe bases and standards for the protection of natural reserves and national parks. Article 41 of the PEL bans any hunt or killing any wild and marine animals.	The PEL broadly covers this requirement.
To apply the mitigation hierarchy and the precautionary approach in the design and implementation of projects that could have an impact on biodiversity.	Article 42 of the PEL states that the EQA, in coordination with the competent agencies, shall specify the conditions necessary to guarantee the preservation of biodiversity in Palestine. One of the goals of the PEAP as stipulated in Article 2 is to conserve the biodiversity, landscapes and the sustainable use of natural resources.	The PEL and PEAP broadly cover this requirement
To promote the sustainable management of living natural resources.	One of the PEAP goals is to conserve biodiversity, landscapes and the sustainable use of natural resources (Article 2).	The PEAP broadly covers this requirement
To protect and conserve biodiversity of the following categories of habitat with specific mitigation measures for each: -Modified Habitat	The PEL or any other Palestinian laws and regulations have not specified the different categories of the habitats and the correspondent measures.	The national legislations do not identify the different categories of the habitats and the correspondent measures.

ESF	Palestinian Legislative Framework	Gaps
-Natural Habitat -Critical Habitat -Legally Protected and Internationally Recognized Areas -Invasive Alien Species		
Ensure sustainable management of living natural resources.	The PEL and the PEAP have set the principles for ensuring the sustainable management of living natural resources.	The PEL and PEAP broadly cover this requirement but without specifying provisions.
ESS8: Cultural Heritage		
To protect cultural heritage from the adverse impacts of project activities and support its preservation.	One of the PEL objectives as stated in Article 5 is to protect the country's natural fortunes and economic resources, besides the preservation of its historical and cultural heritage without any harms or side effects that are likely to occur sooner or later as a result of the variant industrial, agricultural or constructional activities. According to Article 3 of the PTCHL, the Law aims to (i) protect and preserve the state's heritage and preserving it for future generations, (ii) to identify and manage the Palestinian heritage in an optimal manner, and (iii) to preserve the cultural and civilizational identity of the State.	The Palestinian laws (PEL and PTCHL) broadly cover this requirement
To address cultural heritage as an integral aspect of sustainable development.	Article 5 of the PEL presents the regulations regarding the cultural and historical regions to guarantee their protection.	The PEL broadly covers this requirement
To promote meaningful consultation with stakeholders regarding cultural heritage.	According to Article 8 and Section 2.3 of the PEAP, Stakeholder consultation is mandatory when undertaking an EIA.	No significant gaps between ESS8 requirement and the PEAP.
To promote the equitable sharing of benefits from the use of cultural heritage.	The national legislations do not address equitable sharing of benefits from the use of cultural heritage.	The national laws and regulations have not addressed the promotion of the equitable sharing of benefits from the use of cultural heritage.
According to ESS8, the cultural heritage encompasses (i) tangible cultural heritage, which includes movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or	Article 2 of the PTCHL states that the provisions of the Law shall be applied to the tangible cultural heritage located on the surface or in the ground or underwater in whole or in part in the State. Article 4 of the PTCHL considers tangible cultural property, movable or immovable, as a heritage in one of the following cases: (i) It dates back to before 1917, (ii) It dates back to	The intangible forms of culture have not been addressed in the PTCHL.

ESF	Palestinian Legislative Framework	Gaps
other cultural significance (ii) intangible cultural heritage, which includes practices, representations, expressions, knowledge, skills—as well as the instruments, objects, artifacts and cultural spaces associated therewith that communities and groups recognize as part of their cultural heritage, as transmitted from generation to generation.	1917 and satisfies one of the following: (a) cultural importance: historical, rare, aesthetic, artistic, social, scientific and religious value, architectural, spiritual, symbolic, representational and interactive cultural heritage for current generations and upcoming; (b) economic Importance: values associated with direct and indirect economic dimensions and impacts; and (c) natural Importance: values associated with heritage, and are part of its environment, components, cultural landscape and nature.	
Develop provisions for managing chance finds through a chance find procedure.	The PTHCL has not addressed the chance find procedure but only to stop the work.	The national legislations do not identify a procedure for a chance find.
The Borrower will identify stakeholders that are relevant for the cultural heritage that is known to exist or is likely to be encountered during the project life cycle.	According to Article 8 of the PEAP, the Proponents are required to consult stakeholders during the scoping and conducting of EIA.	The PEAP broadly covers this requirement.
ESS10: Stakeholder Engagement and Information Disclosure		
To establish a systematic approach to stakeholder engagement that will help borrowers identify stakeholders and build and maintain a constructive relationship with them, in particular the project-affected parties.	According to Article 8 of the PEAP, the Proponents are required to consult stakeholders during the scoping and conducting the EIA. Also, the PEAP defines participation of stakeholders in many stages like in the TOR preparation stage, the policy also includes that wider participation in case of projects that may affect the environment, and the methods and the results of the meetings should be documented in the EIA.	There are no significant gaps between ESS10 requirements and the various national laws during preparation phase. However, there is no explicit mentioning of stakeholder engagement during construction and operation phase.
To assess the level of stakeholder interest and support for the project and to enable stakeholders' views to be considered in project design and environmental and social performance.	According to Article 8 of the PEAP, the Proponents are required to consult stakeholders during the scoping and conducting of EIA. However, it is not clearly stated in the PEAP or any other Palestinian to consider the stakeholders' views in project design and environmental and social performance.	There is a slight gap between ESS10 requirement and the various national laws.
To promote and provide means for effective and inclusive engagement with project-affected parties throughout the project life cycle on issues that could potentially affect them.	There are no clear regulations about inclusive engagement with project –affected parties throughout its lifecycle.	Significant gap between ESS10 requirement and the various national laws.
To ensure that appropriate project information on environmental and social risks and im-	According to Part 1 of the PEAP, PEAP seeks to facilitate stakeholder consultation in the environmental assessment of development activities to be carried out within Palestine, and	The PEAP broadly covers this requirement.

ESF	Palestinian Legislative Framework	Gaps
pacts are disclosed to stakeholders in a timely, understandable, accessible and appropriate manner and format.	to provide public access to the information on which those environmental assessments are based on.	
Information may need to be disclosed at key stages in the project cycle and on any specific issues that the disclosure and consultation process or grievance mechanism has identified as of concern to stakeholders.	The national legislation does not address the details for disclosure of information relevant to the development projects.	There is a gap between the ESS10 and the national legislation.
To provide project- affected parties with accessible and inclusive means to raise issues and grievances, and allow Borrowers to respond to and manage such grievances.	There is no mentioning in the PEL or any other policy or regulation on grievance mechanism.	The PEL and PEAP do not address and specify any requirements or procedure for grievance mechanism raised by affected parties.

Wherever the Palestinian requirements are less strict than the ESSs or do not cover certain issues, the ESSs will be applied.

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4 ENVIRONMENTAL AND SOCIAL BASELINE

This Chapter represents an overview of the existing environmental and social conditions of the sub-project area. The data on different environmental and social components were collected and compiled based on secondary data from reliable sources, site visits, and field surveys. All the data have been collected and compiled to identify the overall environmental and social conditions within the sub-project area that will be addressed during the sub-project implementation phase. The extent and focus of the study are on the areas within and directly influenced by the sub-project.

The secondary sources include the Palestinian Central Bureau of Statistics (PCBS), the Palestine Meteorological Department (PMD), and the Geomolg website, which is the formal website of the MoLG. Primary data has been collected during field visits in the study area, as described in Section 1.4.

The following sections describe the physical environment, ecological environment, and socioeconomic environment of the sub-project area.

4.1 Sub-Project Location

The Jenin Bulk Water Supply Sub-Project is located within Jenin Governorate in the North of the West Bank. Figure 4-1 presents the location map for the sub-project area. The communities served by the Bulk Water Supply System Project include Jenin City, Jenin Camp, Jenin Industrial Zone, Al Shuhada, Burqin, Al Jalameh, Qabatiya, and Marj Ibn Amer Municipality comprising the northeast villages of Beit Qad, Deir Abu Da'if, Faqqu'a, Jalbun, Deir Ghazaleh, Arabbuna, 'Arrana, and Wad ad Dabi'.

4.2 Geopolitical Status of Sub-Project Area

The sub-project components are located in Areas A, B and C based on the Oslo II Interim Agreement signed on 28th September 1995 between the Palestinian Liberation Organization (PLO) and Israel. The connection points at Al-Jalameh and Salem are located within Area C. The transmission pipeline from the main booster station at Al-Jalameh up to the regional tank is located mostly in area C. Based on the Oslo II Interim Agreement, the area of the West Bank was divided into the following three categories.

- Area A is under full Palestinian territorial[11], functional[12] and personal[13] jurisdiction. It comprises most of the large West Bank cities.
- Area B comprises land in which the Palestinian Authority exercises only functional and personal jurisdictions over the Palestinians living within this zone but not on security-related aspects. It comprises most of the Palestinian villages.
- Area C comprises the rest of the West Bank outside Zones A and B, and constitutes around sixty percent of the territory. The only jurisdiction exercised by the Palestinian Authority in Zone C is personal jurisdiction over those Palestinians living there. The Israeli Civil Administration (ICA) and army exercise all other powers and jurisdictions over Area C including full control over zoning, land use and planning and construction permits.

[11] Territorial jurisdiction means jurisdiction over land, subsoil and territorial waters in accordance with Article 17.2 of the Interim Agreement between Israel and the PLO of September 28, 1995

[12] Functional jurisdiction means jurisdiction over all the matters transferred to the Council in accordance with Article 17.2 of the Interim Agreement between Israel and the PLO of September 28, 1995, which includes agriculture, archeology, banking, electricity, education, health, taxation, insurance, labor, parks, postal services, quarries and social welfare

[13] Personal jurisdiction means jurisdiction over matters of personal status, such as marriage, divorce and inheritance as well as other civil matters

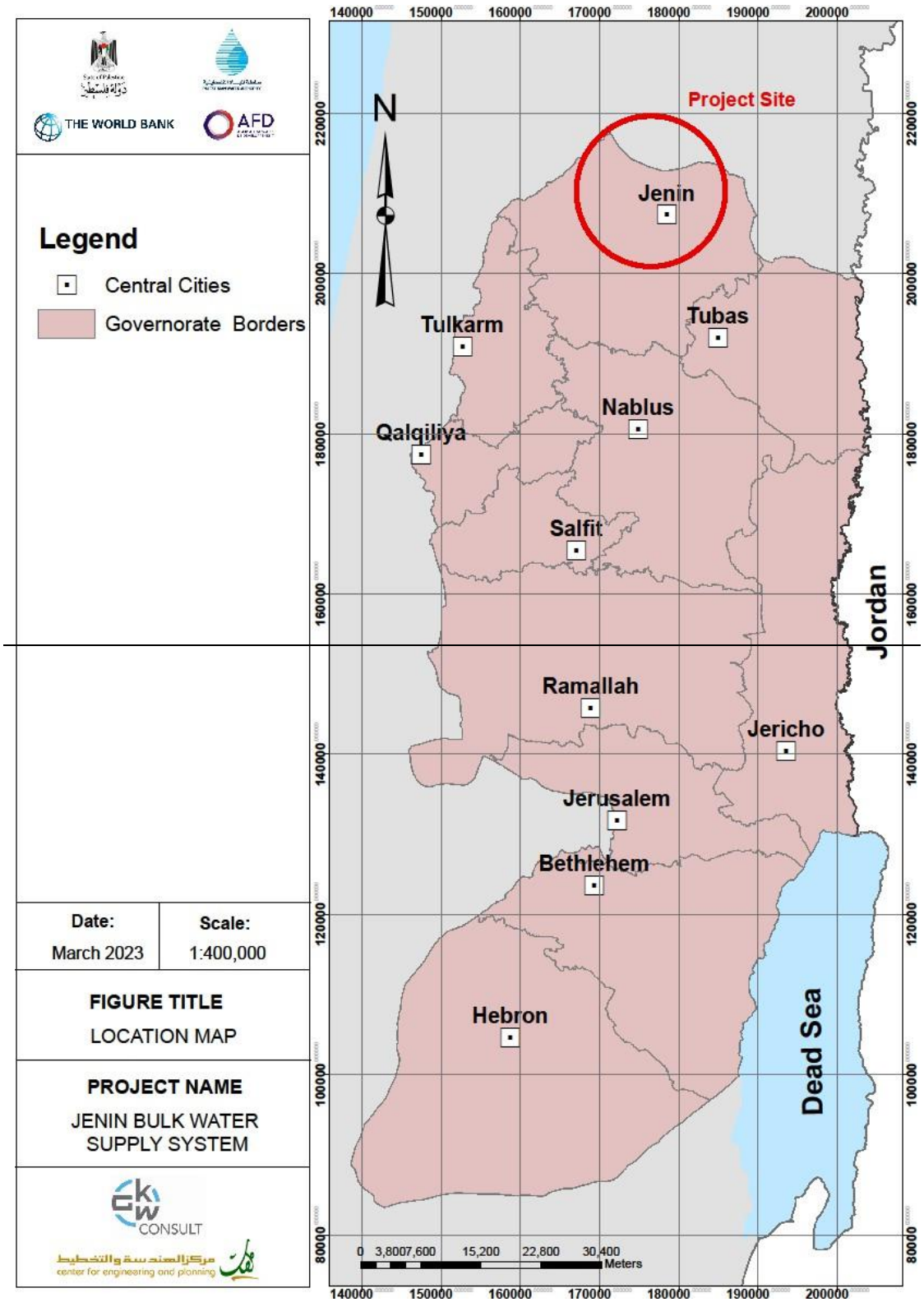

Figure 4-1: Location Map of Sub-Project Area [Source: Consultant]

The permit for the construction works of the components of the sub-project located in Area C shall be issued by the ICA. The PWA is following up with the ICA to get the permits for these components. Figure 4-2 shows the geopolitical classification of the sub-project area.

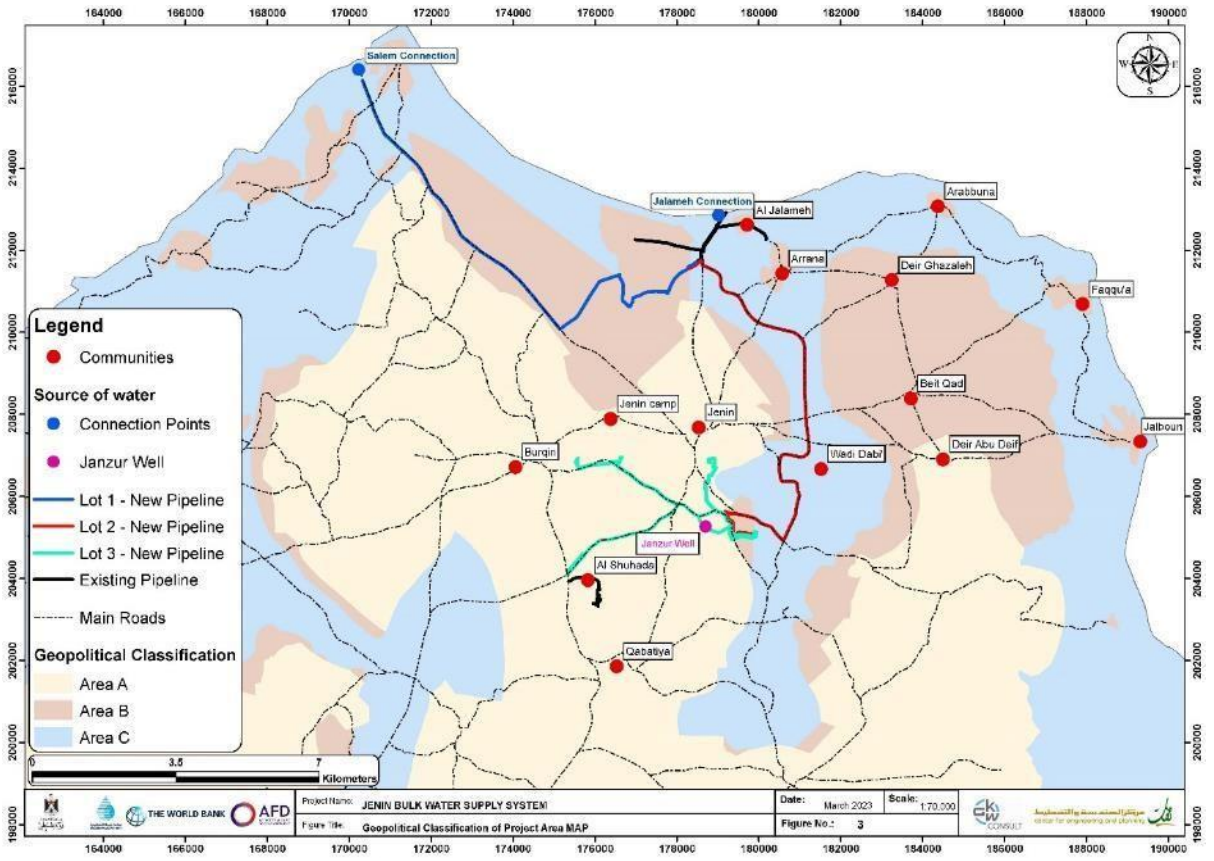

Figure 4-2: Geopolitical Classification of Sub-Project Area [Source: Geomolg Website]

4.3 Environmental Features of Sub-Project Area

4.3.1 Topography

The sub-project area is located in the north and northeastern part of Jenin Governorate, north of the West Bank. The topography of Jenin Governorate generally slopes from south to north and east to west. The topography of the sub-project area is dominated by a series of hills separated from each other by narrow valleys. The high point in the sub-project area has an elevation of approximately 465m above the mean sea level (AMSL) at Qabatiya's existing water tank and a low of 86m AMSL near Al-Jalameh.

Figure 4-3 presents the variation of the topographic features of the sub-project area.

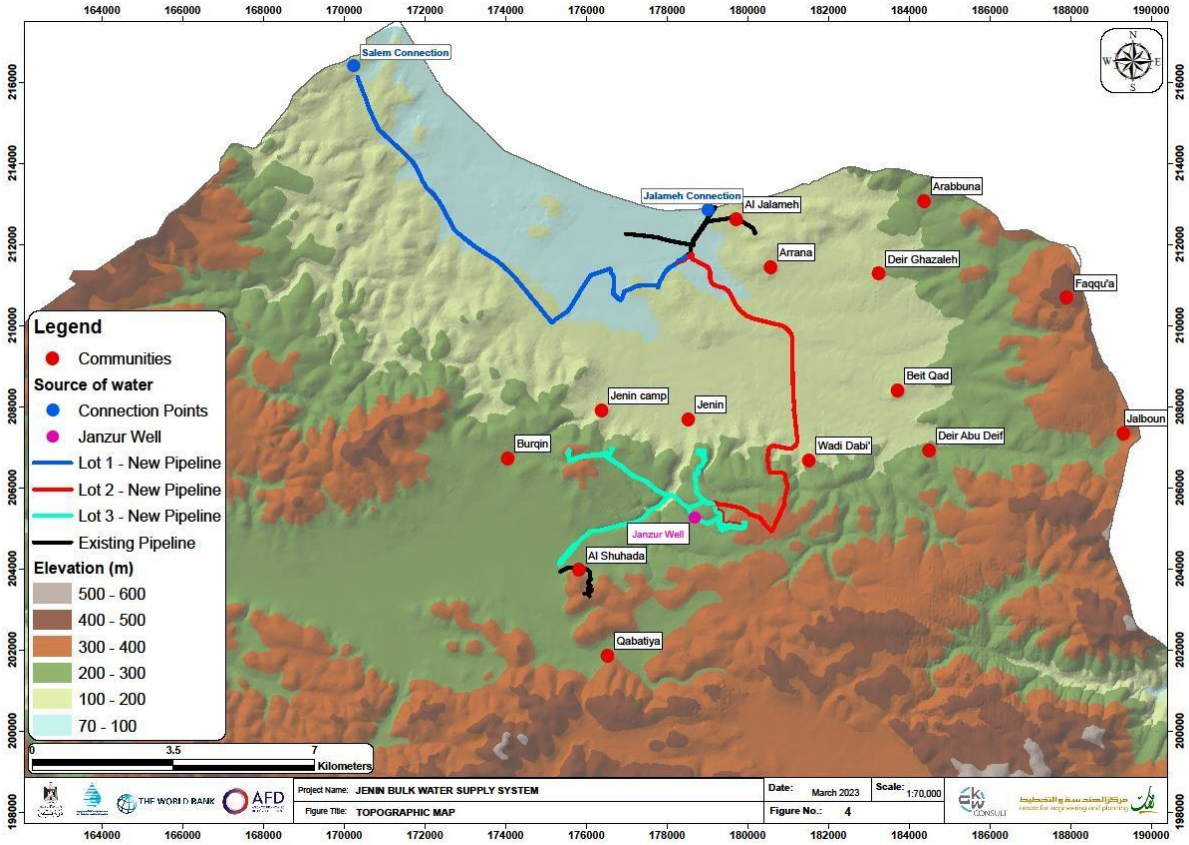

Figure 4-3: Topographic Features of Sub-Project Area [Source: Geomolg Website]

4.3.2 Geology and Rock Formation

The Jenin Governorate is composed of the following geological formations:

- Quaternary Formation: This consists of unconsolidated, laminated marl with some siliceous sand known as alluvium rocks. It has a red color and fine texture due to its derivation from limestone.
- Eocene Formation (Jenin Formation) This formation is mainly composed of limestone, chalk, marl, marly-limestone, and chert. Figure 4-4 presents the geological formation of the sub-project area.

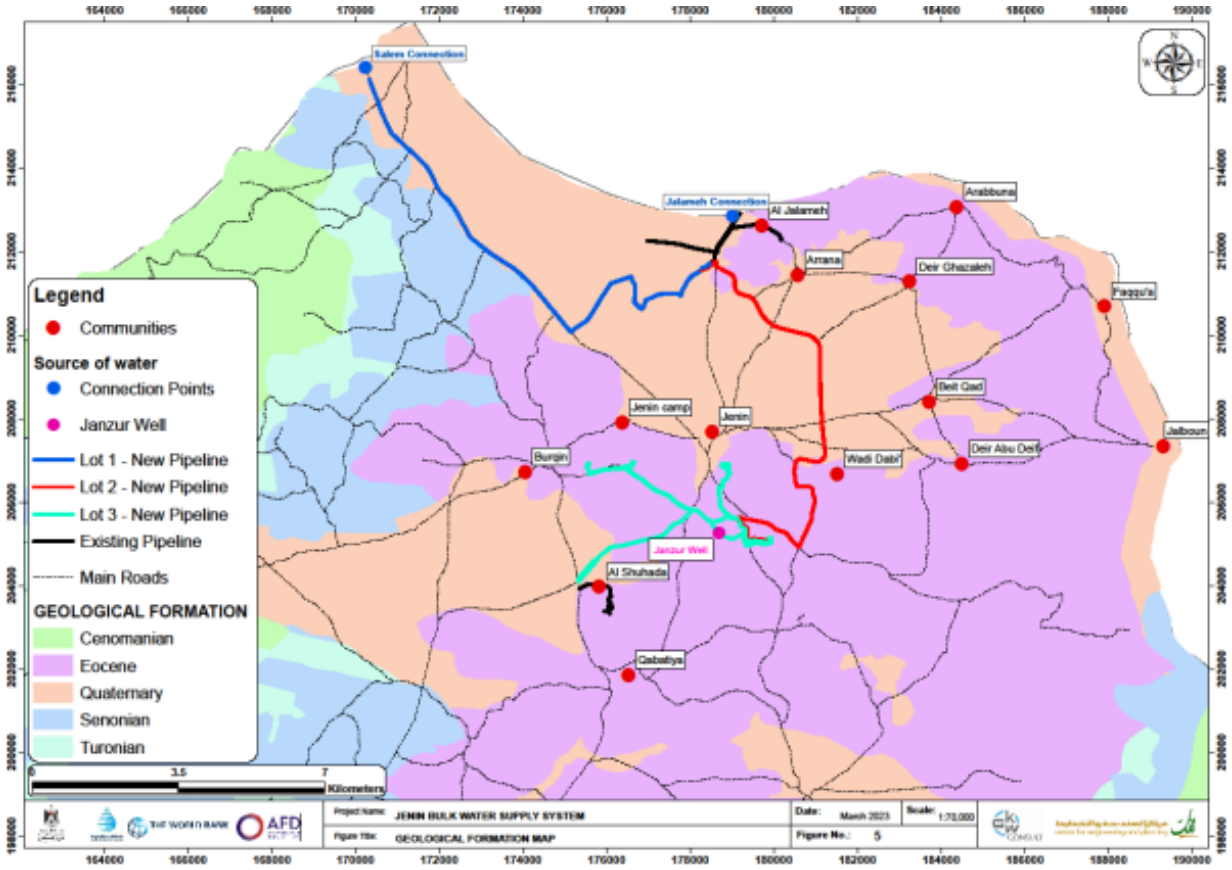

Figure 4-4: Geological Formation of Sub-Project Area [Source: Geomolg Website]

4.3.3 Climate Features

The sub-project area is highly influenced by its Mediterranean climate, which is characterized by long, hot, dry summers and short, cool, rainy winters.

Temperature: Being a Mediterranean climatic zone, the temperature of the region does not vary considerably from season to season. The average monthly ambient temperatures at the sub-project site is shown in Figure 4-5. The region's summer season starts from May and lasts until the end of September and is generally hot and dry. The winter season is between November and April. Winter is generally cold, humid and rainy. January is the coldest month, with average temperature of 12.1°C, and August is the warmest month with average temperature of 27.6°C. The average air temperature for a typical year has been recorded around 20.3°C (Palestinian Meteorological Department (PMD)/ Ministry of Transport's database[14]).

[14] Climatic Averages, PMD, https://www.pmd.ps/en/climatic-averages

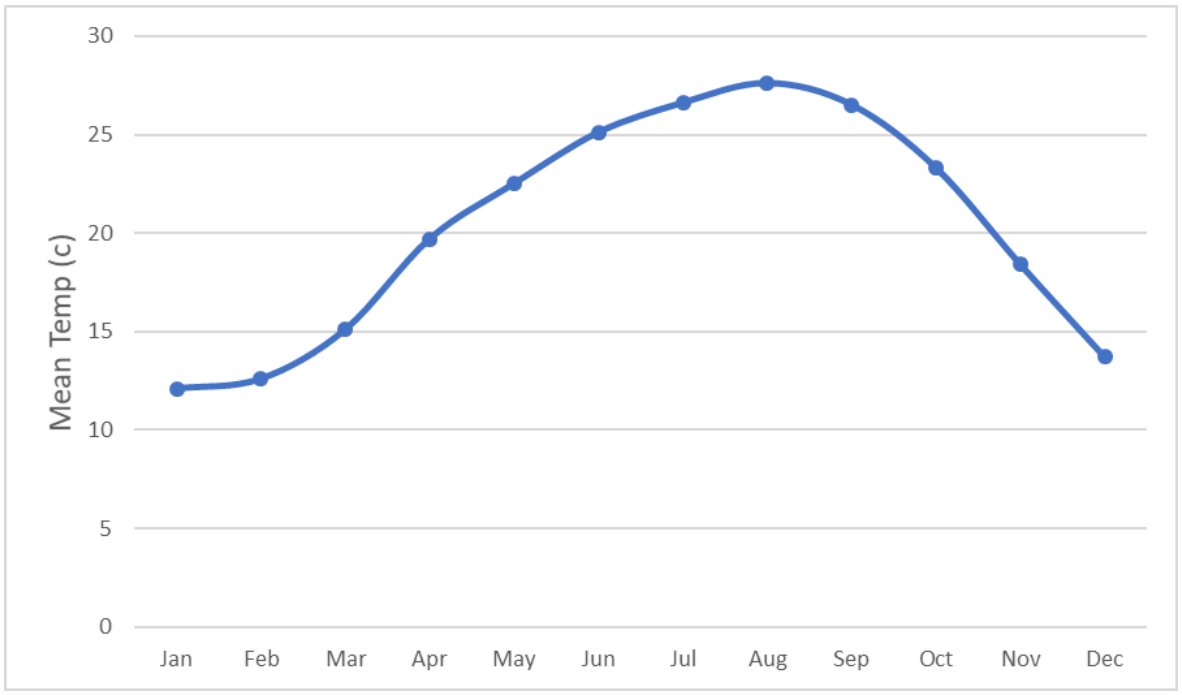

Figure 4-5: Average Monthly Ambient Temperature at the Sub-Project Area [Source: PMD]

Relative Humidity: The average annual relative humidity in the sub-project area is 68.9%. The maximum mean monthly relative humidity is 84% during February whereas the minimum mean monthly relative humidity is 60% during May. Figure 4-6 presents the average monthly relative humidity in the sub-project area over a typical year.

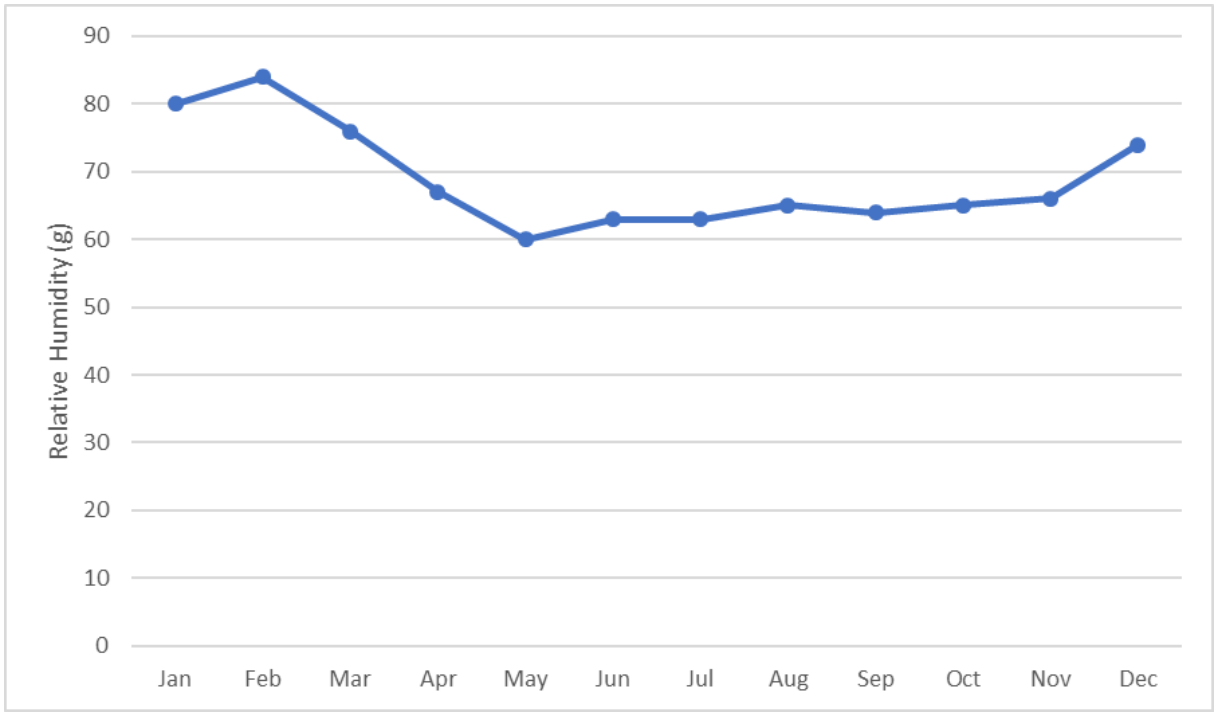

Figure 4-6: Relative Humidity Profile at the Sub-Project Area [Source: PMD]

Rainfall: The rainfall period generally starts in October and ends in May, where most precipitation occurs between December and March. The main rainfall decreases as shown in Figure 4-7 from the west to east in

the sub-project area. The average annual rainfall in the sub-project area varies from 450 to 550mm with an average annual rainfall of 486mm.

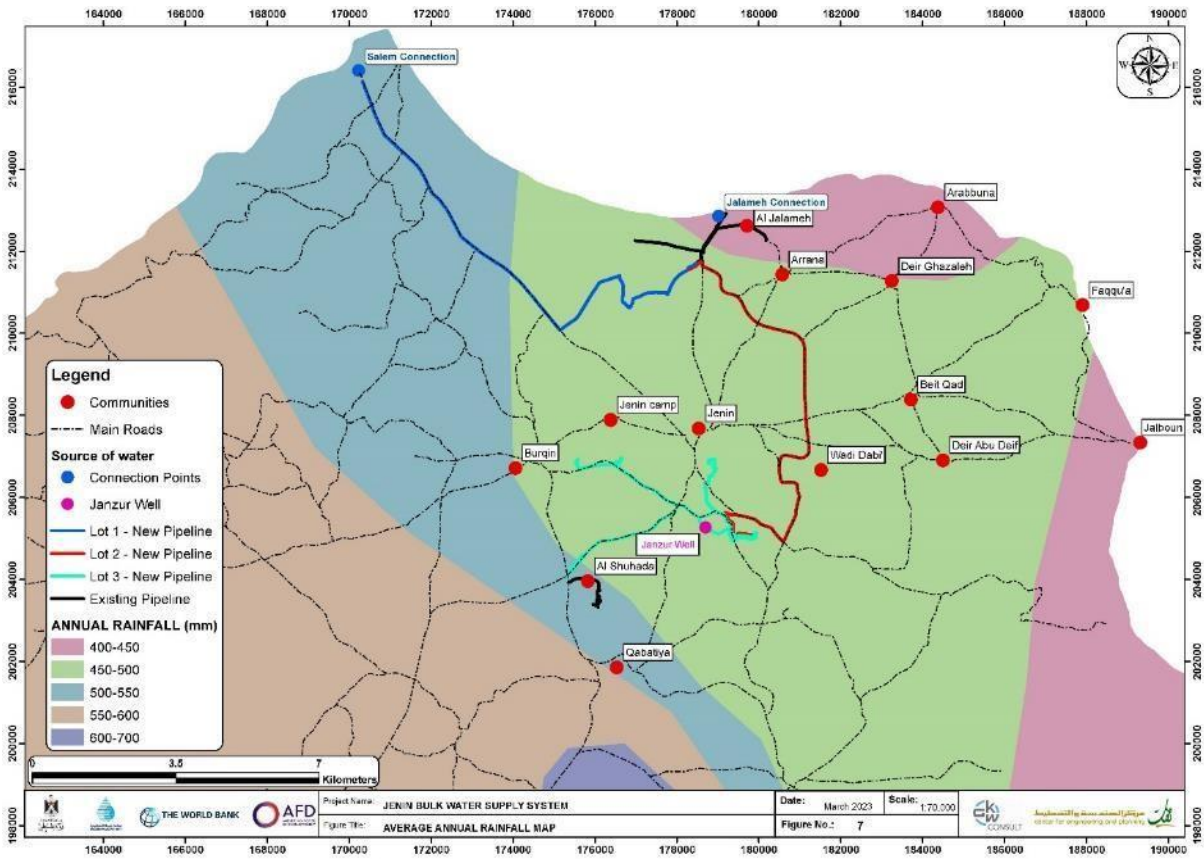

Figure 4-7: Average Annual Rainfall at the Sub-Project Area [Source: Geomolg Website]

Wind: Winds blowing in north-west and south-west directions are predominant in the region during the entire year. Figure 4-8 below presents the monthly wind speed at the Sub-Project site over a typical year. The average wind speed in the Sub-Project area is 2.2m/s (PMD).

The Khamaseen wind, desert storm, may occur during the period from April to June. During these storms, the temperature increases, the humidity decreases and the atmosphere become hazy with the dust of desert origin.

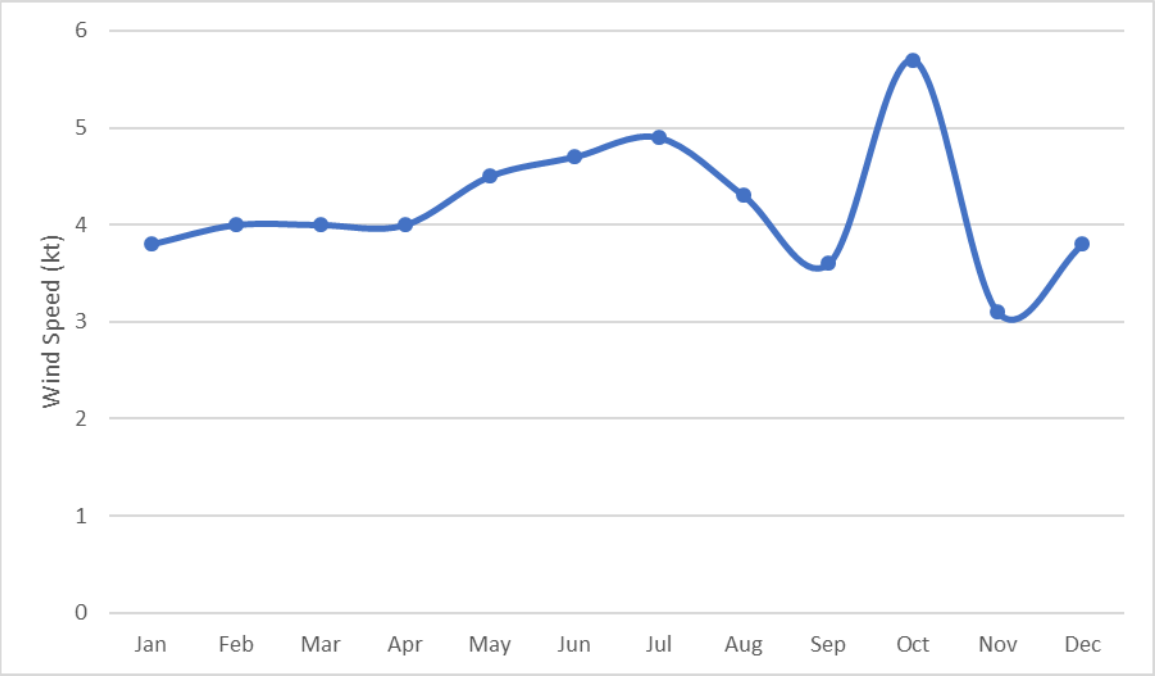

Figure 4-8: Wind Speed at the Sub-Project Area [Source: PMD]

4.3.4 Soil

The soil types in the sub-project area are Grumusols in the plain area and Terra Rossa and Brown Rendzinas in the hilly area, as presented in Figure 4-9.

Grumusols are formed initially from textured alluvial or Aeolian sediments. The topography of this kind of soil is almost flat, and it's suitable for cultivation. The American classification that represents this soil is *Xererts* (ARIJ, 1996)[15].

Terra Rossa and Brown Rendzinas Soil are characteristics of the hilltop region, with 30to 50 per cent of their extent being rock outcrops. The soils occur on various slopes, according to variations in topography and elevation. These soils are formed from the parent materials dolomite and hard limestone. In general, these soils have a loam soil texture. Soil has a reddish-brown with a sub-angular blocky structure (ARIJ, 1996).

[15] Environmental Profile of the West Bank, Volume 7, Jenin District, Applied Research Institute Jerusalem (ARIJ), 1996

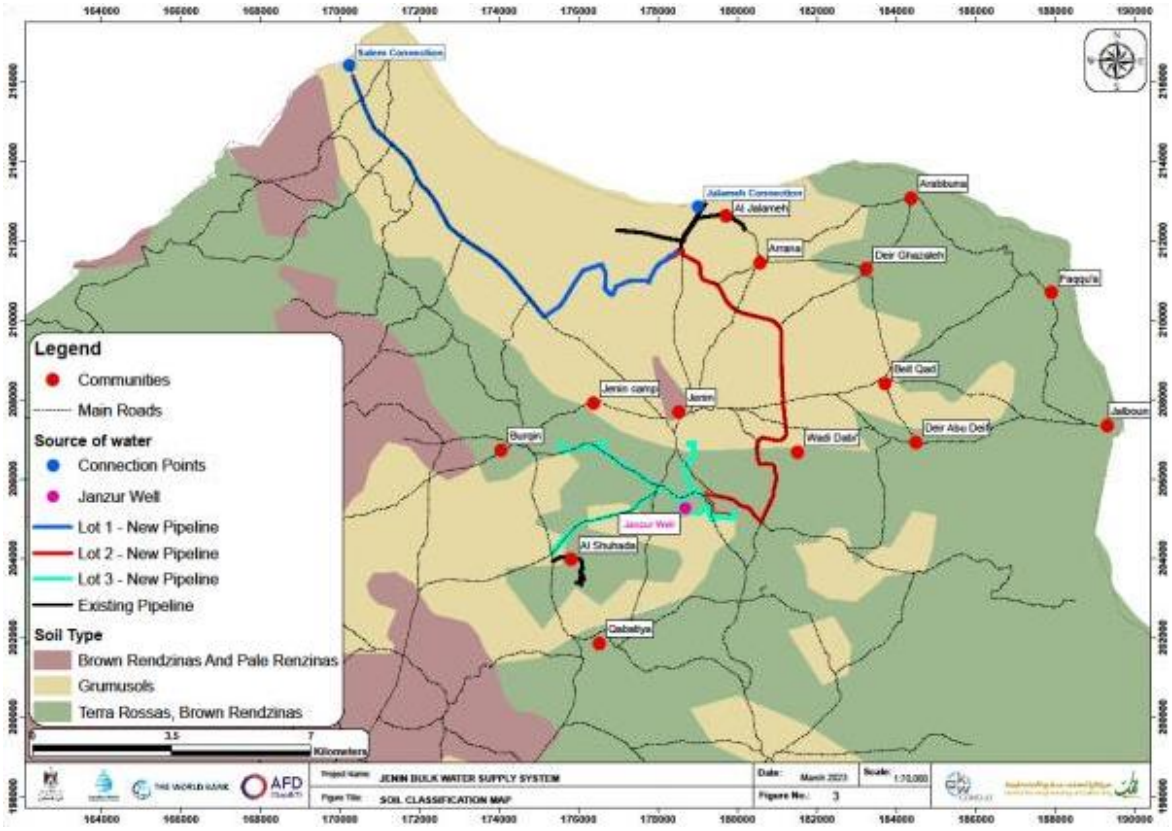

Figure 4-9: Soil Classification [Source: Geomolg Website]

4.3.5 Ground and Surface Water

There are three groundwater basins in the West Bank: Western, Eastern, and Northeastern basins. The sub-project area lies completely over the Northeastern groundwater basin (Figure 4-10).

The sub-project area lies within the Al Moqatta'and Al Khodera-Abu Nar catchment areas, two of the thirty-three catchment areas in the West Bank. The Al Moqatta' and Al Khodera-Abu Nar catchments drain to the west, crossing the Israeli border (Green Line) before reaching the Mediterranean Sea. The streams in the catchment are seasonal, running only during the winter rainy season. The groundwater aquifers in the Jenin Governorate are the shallow Eocene aquifer and the deep Turonian-Upper Cenomanian aquifer. The Eocene aquifer is a local aquifer tapped by ten operational agricultural private wells distributed in the region. The total discharge capacity from these wells is approximately 9.0 million cubic meters annually, per the PWA database. The water depth in this aquifer ranges from 10 to 180 m below the ground surface. Generally, wells drilled in the Eocene aquifer are shallow with depths ranging between 100 and 250 m.

The extensive use of fertilizers in agricultural activities, lack of sewerage systems, and uncontrolled sewage disposal in the sub-project area are considered potential sources of pollution to the groundwater of the shallow Eocene aquifer. The shallow and deep aquifers are separated by Senonian chalks that form a strong aquiclude, a solid, impermeable zone between the aquifers. The aquiclude provides a natural protection for the deep aquifer from surface pollutants and mixing with the Eocene aquifer water[16]. The physical, chemical and biological water quality of two deep wells in the Jenin area, Al-Saadeh well and Qabatiya well, are presented in Table 4-1.

[16] ESMF-WSRP-1; PWA/January 2023

Table 4-1: Water Quality of Al-Saadeh Well and Qabatiya Well

Parameter	Qabatiya Well[17]	Al-Saadeh Well[18]
Na (mg/l)	57.5	NA
Cl (mg/l)	81.5	180
F (mg/l)	NA	0.06
SO_4 (mg/l)	NA	32
NO_3 (mg/l)	0.1	9
NO_2 (mg/l)	NA	0
Total dissolved solids (TDS, mg/l)	NA	508
Hardness (mg/l as $CaCO_3$)	NA	390
Turbidity (NTU)	NA	2
pH	7.25	7.79
Electrical Conductivity (EC, microS/cm)	832	1,017
Feacal Coliform (number/100ml)	0	0
Feacal Coliform (number/100ml)	0	0

The streams and wadis in the sub-project area flow northward and northwestward from their sources near the watershed and are seasonal, running only during the winter and rainy seasons. The routes of the water transmission pipelines cross these shallow wadis, as shown in Figure 4-10.

[17] Source: PWA records.
[18] Source: Jenin Municipality records.

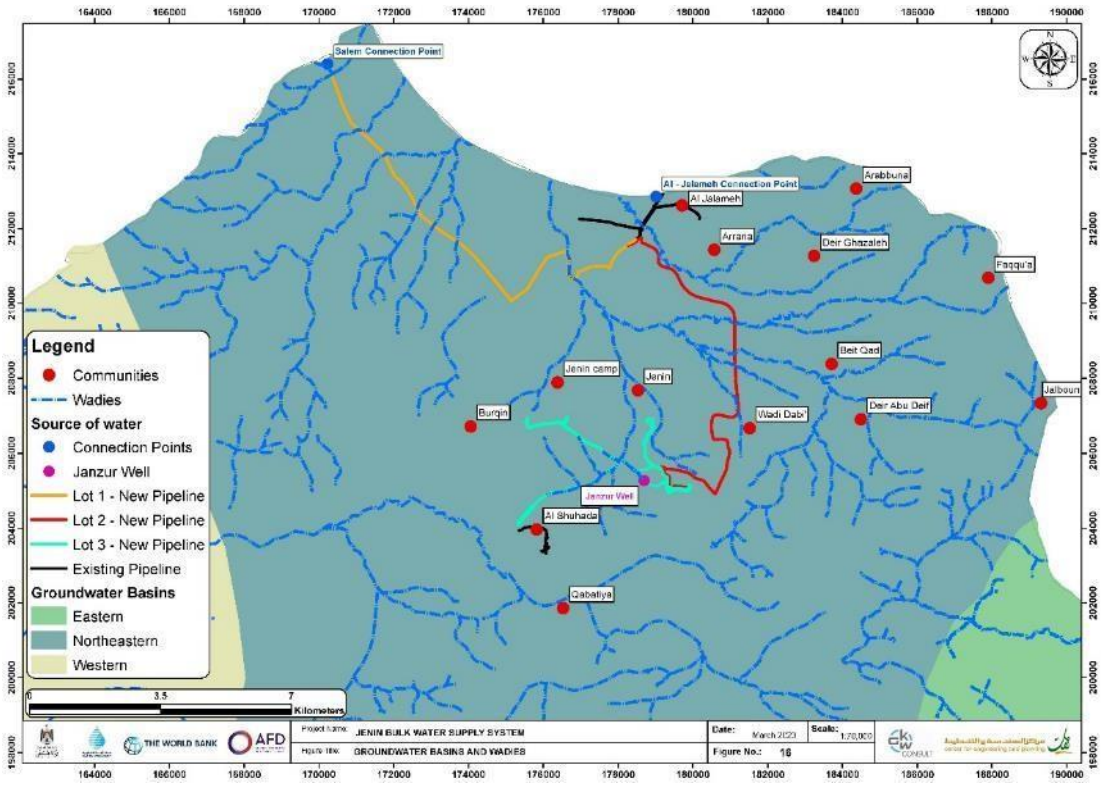

Figure 4-10: Groundwater Basins and Wadis [Source: Geomolg Website]

4.3.6 Agricultural Land

According to the "National Spatial Plan (NSP)", 2014, prepared by the "National Spatial Planning Team" composed of many concerned Palestinian ministries, the NSP classifies the lands into three categories in terms of agricultural value: high-agricultural value, medium-agricultural value, and low-agricultural value. Most of the sub-project area is in the high-agricultural value, as presented in Figure 4-11. Near but not within the sub-project area, an area classified as forest (Al-Suweitat forest), as per the "National Spatial Plan", is planted with Cupressus trees. However, no sub-project components would be constructed in or adjacent to the forest. The forest is a few hundred meters from the proposed site for the regional water tank in the Al Jenan neighborhood east of Jenin City.

Cultivated areas represent less than 15 per cent of the total land area of the West Bank. The cultivated areas represent 31 per cent of the land area of Jenin Governorate. The plain of Marj Ibn 'Amer, north of Jenin Governorate, is heavily utilized for agricultural purposes, including cereals (wheat, barley, lentils, chickpea) and vegetables. Part of the cultivated lands is rain-fed agriculture, while the other is irrigated by water extracted from local agricultural wells. The cultivated lands are located away from the sub-project components, particularly the water transmission pipelines, which are located within opened roads.

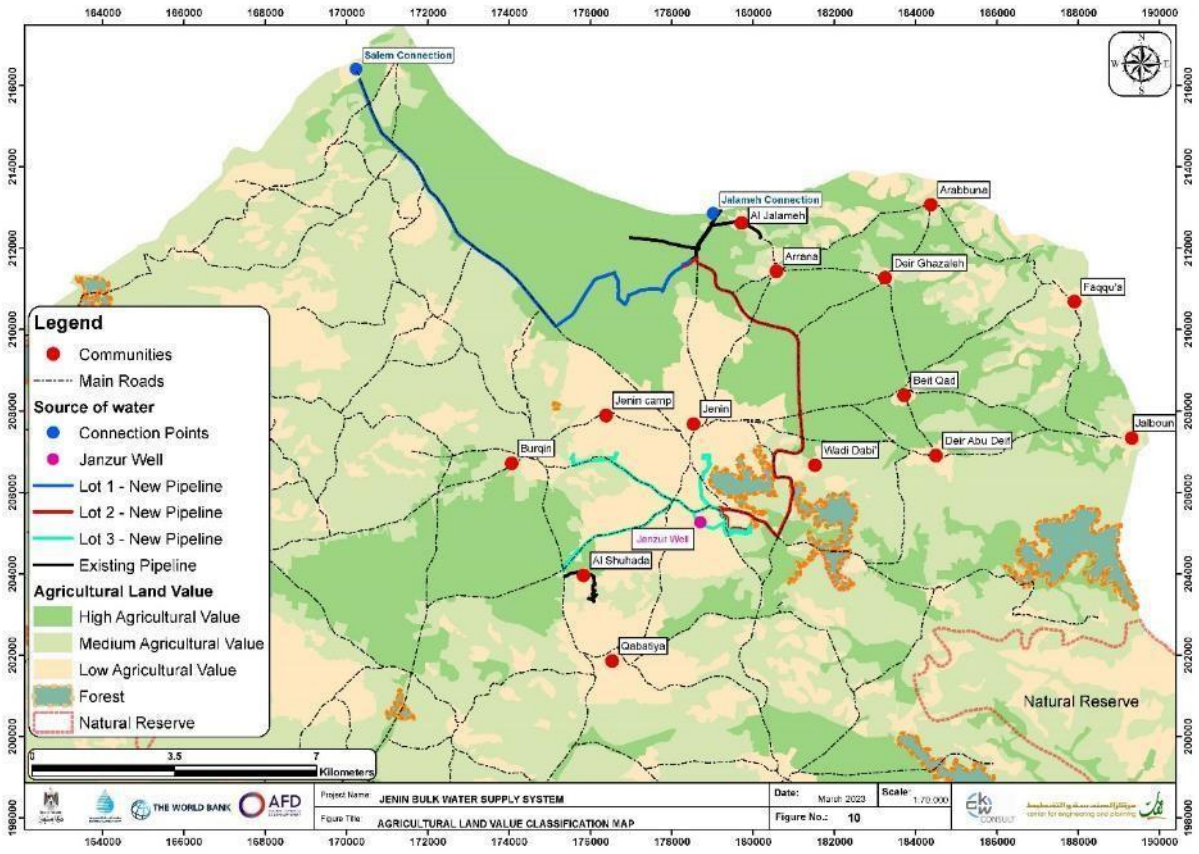

Figure 4-11: Agricultural Land Value Classification [Source: Geomolg Website]

4.3.7 Land Use

Most of the water transmission pipelines are located close to non-irrigated cultivated lands, while the other part is located within irrigated arable lands and open spaces with little or no vegetation. The other water facilities, including the regional tank, main booster station, and two online boosters are located within open and unused areas. The land use of the sub-project area is presented in Figure 4-12.

4.3.8 Air and Air Quality

There is no data on air pollutant emissions in the West Bank since there is hardly any adequate measurement infrastructure, and air quality assessment relies on estimated emissions rather than measured air quality levels. The knowledge base and data availability are poor for air quality and do not allow a detailed analysis.

The stone quarries and crushers are large point sources of air pollution; other typical air polluters, such as power plants or heavy industry, do not operate in the West Bank. The other sources of air-borne emissions are the transport sector, mainly due to the increasing intensity of traffic in urban areas, and the air emissions generated from the heavy industries inside the Israeli settlements in the West Bank and power plants in Israel. Unmanaged burning of household and agricultural waste is not practiced in the sub-project area because the Joint Services Council for Solid Waste Management - Jenin (JSCSWM) is managing the collection and disposal of solid waste into the regional sanitary Zahret Al Finjan Landfill (ZFL).

Though there are different types of industries in the Jenin district, stone-cutting and aggregate quarrying are the major sources of suspended particulate and gas emissions. Stone-cutting factories can be considered the main industry in the Jenin district and are distributed in many areas. The amount of suspended particulate and dust emitted is large, causing a nuisance to surrounding people and polluting the atmosphere around the area.

The primary source of carbon monoxide, lead, hydrocarbons, nitrogen oxides, and other particulates emitted into the environment is transportation. The concentration of all these pollutants has risen dramatically over the past decade, considering that the district inhabitants constitute about 10.8% in 2023 of the total population of

the West Bank (2023 PCBS data[19]) and that Jenin's district residents own 11.6% of the total number of vehicles in the West Bank[20].

The dust level in Jenin district, as elsewhere in Palestine, is high at certain seasons due to the dry sandy wind that blows from Saudi Arabia and the Sinai Peninsula (Khamaseen wind).

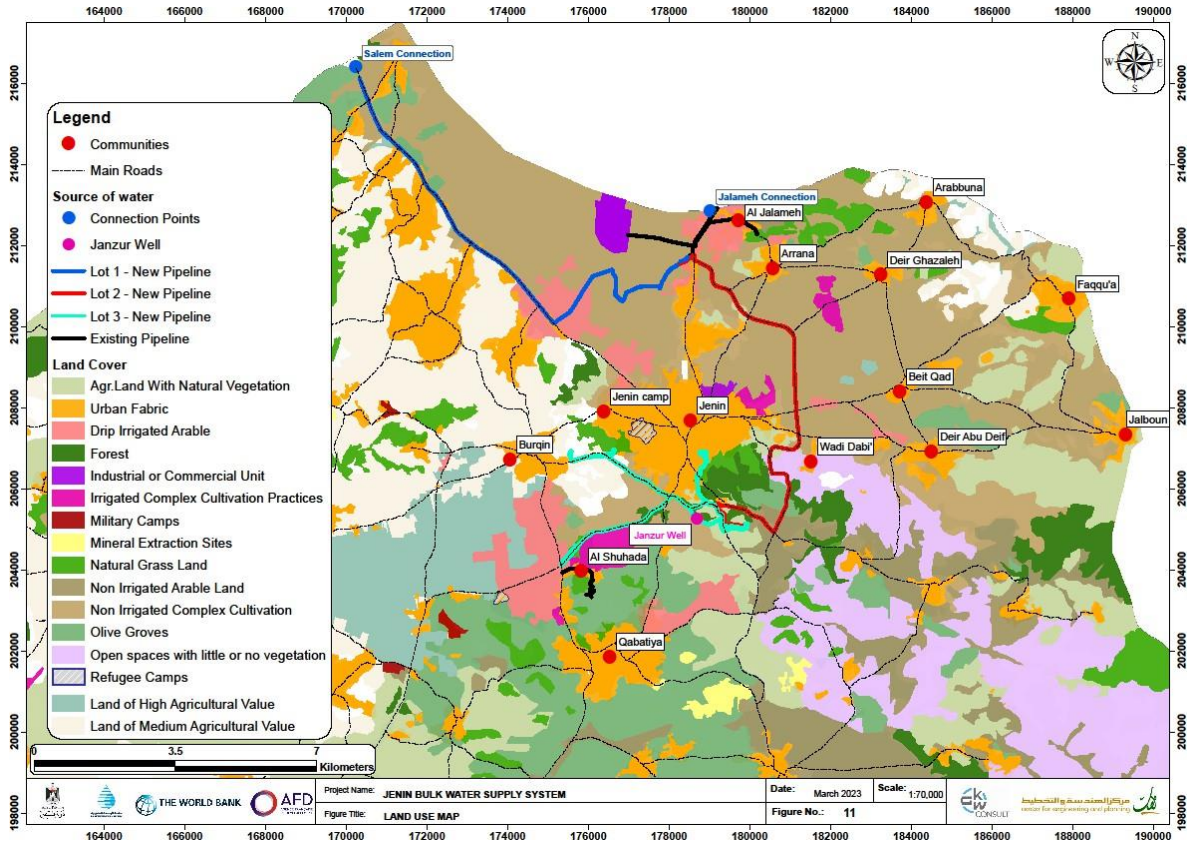

Figure 4-12: Land Use [Source: Geomolg Website]

4.3.9 Biological Environment

4.3.9.1 Overview

Palestine has a very rich biotic diversity, which is reflected in the high density of biotic species (flora and fauna). There are 2,750 plant species within 138 families in Palestine (Danin, 2004). This number includes about 200 species that are found in Mount Hermon in the Golan Height region and are absent from other districts in Palestine. This richness in biodiversity is due to natural, geographical and historical factors which can be summarized as follows:

- The land is located at the crossroads of the two largest continents (Asia and Africa), creating the only land bridge between these two gigantic biotic zones.
- The land is also located between two water bodies; each is connected to a major and different marine biotic system:
- The Red Sea connecting to the Indian Ocean biotic system; and
- The Mediterranean Sea connecting to the Atlantic Ocean biotic system.

[19] Estimated Population in the Palestine Mid-Year by Governorate,1997-2026, Palestinian Central Bureau of Statistics (PCBS)
[20] Transportation and Communications Statistics in Palestine, Annual Report: 2022, PCBS, July 2023

- Palestine has varied and diversified relief and topography, diversified rock formations and soil types, different climates and climatic zones with numerous microclimates.
- Palestine is part of one of the most important global geological and biotic phenomena on earth, namely the Afro-Asian Rift Valley; with all its biotic richness and its role in stimulating and facilitating the spreading, the movement and migration of fauna and flora.
- The land is one of the oldest cultural landscapes on earth, with a very rich and dramatic history, not only wars but also peaceful trade and cultural exchange that lasted for millennia and enriched the biodiversity of domesticated and natural plants and animals.

4.3.9.2 Flora

The flora of Palestine is divided into the following four groups:

- Mediterranean species, which are distributed around the Mediterranean Sea.
- Irano-Turanian species, which inhabit Asian steppes of the Syrian desert, Iran, Anatolia in Turkey, and the Gobi Desert.
- Saharo-Arabian species, which grow in the Sahara, Sinai, and Arabian deserts.
- The Sudanian penetration species, which grow in the Rift Valley territory.

The Mediterranean zone, which dominates in the sub-project sites, is characterized by presence of stone oaks, pistachia, carrob formation (*Olea europeae, Quercus calliprinos, Ceratonia silqua, Pistacia palaestina, Pistacia lentiscus, Chiliadenus iphionoides, Calicotome villosa, Teucrium capitatum, Rhamnus lycioides (palaestinus), Urginea maritima and Sarcopoeterium spinosum*). In spite of the positive factors enriching the bio-resources and biodiversity of Palestine, there are several dangers threatening and affecting these resources (birds, mammals and reptiles) summarized as follows:

- Long history of natural resources exploitation and the lack of proper management during most of Palestine's history;
- High population density and growth rate in the area;
- Pollution resulting particularly from sanitation problems; and
- Tree cutting and firing; this practice led to the reduction and almost extinction of the natural vegetation cover, an increase in soil erosion and an increase in unpalatable and poisonous species.

According to the classification presented in the Geomolg website, small part of the sub-project area is located within biodiversity area[21] (Figure 4-13).

The biodiversity assessment has been carried out by considering the following methodology:

1. Field survey and exploring the sub-project sites. The GKW/CEP Biodiversity Specialist walked through the sub-project sites from January to February 2023 and recorded the existing plant species and vegetation cover on the sites and any traces of the animals.
2. The Biodiversity Specialist interviewed local communities living in the sub-project sites and asked them about the animals (mammals, reptiles and birds) that exist within and surrounding the sub-project area.
3. Desktop assessment by a thorough review of the available sub-project description and publications on biodiversity in the region and internet searches for the information (nationally and internationally) relevant to the sub-project area.
4. The Biodiversity Specialist interviewed local expert scientists for the target group of plants and animals and consulted with them to evaluate the likelihood of these species present within the sub-project area.

According to the assessment done by the Biodiversity Specialist, it was found that all of the existing plant species in the sub-project area are common and abundant weed and thistles species and none of which are endangered. Figure 4-14 below shows some photos for the existing plants within the sub-project sites. There

[21] A Biodiversity area is an area that contains exceptional wild flora or fauna

are no rare, endangered, threatened or protected species in the construction route area of the proposed water transmission pipelines, regional tank, and booster stations. The detailed study of the flora done by the Biodiversity Specialist is presented in Annex E.

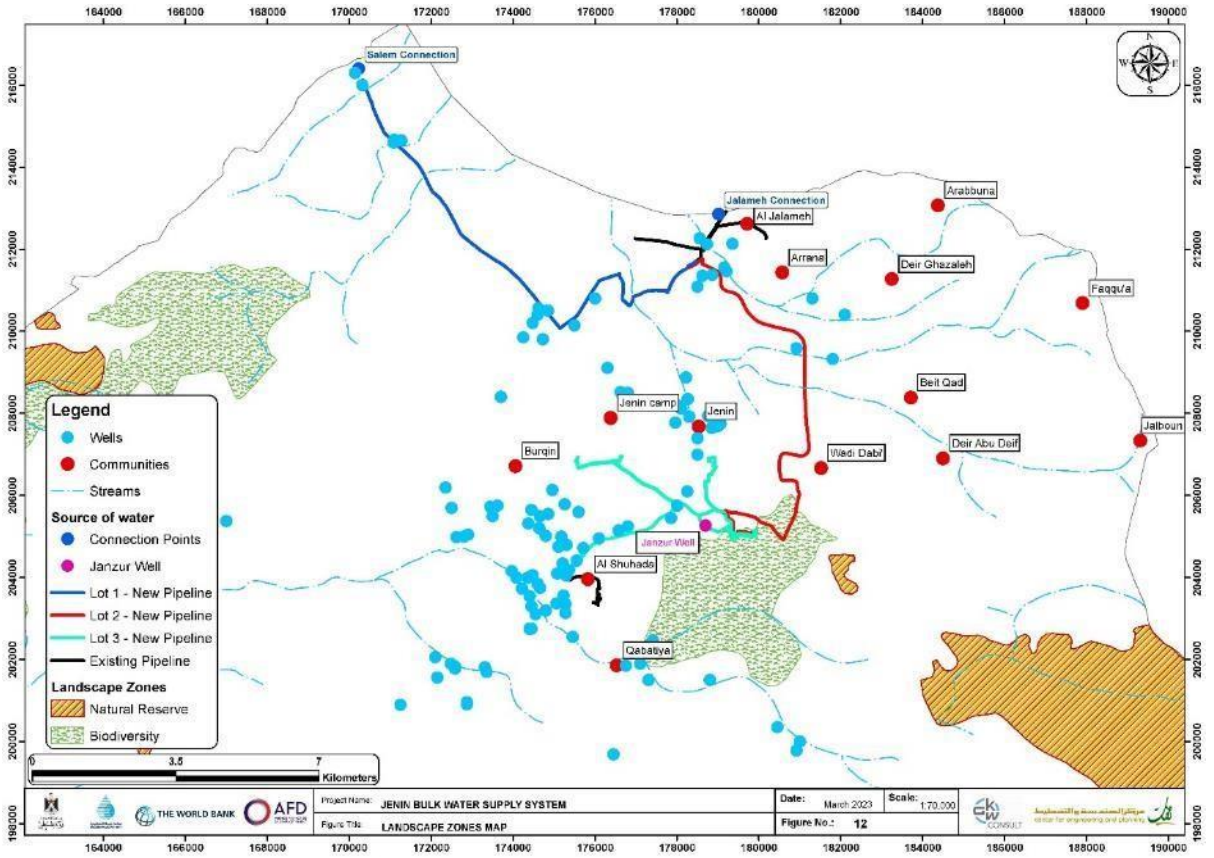

Figure 4-13: Landscape Zones of Sub-Project Area [Source: Geomolg Website]

Plant vegetation on the dirt roadside of Alignment No.1

Plant vegetation on the roadside of Alignment No.3

Figure 4-14: Photos of Existing Plants within Sub-Project Sites

4.3.9.3 Fauna

Palestinian fauna consists of 67 families of birds (470 species), 33 families of mammals (113 species) and 93 species and sub-species of reptiles (Zohary, 1962).

A thorough assessment of the existing faunal species within the sub-project sites was conducted during the biodiversity study, and both major and minor components were identified. The following subsections provide details of the findings.

4.3.9.3.1 Mammal

Jenin governorate was home to a variety of large mammals. It is now facing a bleak scenario due to illegal hunting and pesticide use. The Mountain Gazelle (*Gazella gazelle*), which used to roam in groups across the region, is now rarely spotted. Indian Crested Porcupines (*Hystix indica*) and Eurasian Badgers (*Meles meles*) still inhabit the area but often fall victim to traffic accidents. Wild Boars (*Sus scrofa*) have proliferated as hunting has decreased.

The Egyptian Mongoose (*Herpestes ichneumon*) is the most commonly observed carnivore in residential areas, and their presence has caused issues in local poultry farms. The Striped Hyena (*Hyaena hyaena*) has not been seen in the area, especially in the sub-project area and near the roads. Red Foxes (*Vulpes vulpes*) and Cape Hares (*Lepus capensis*) are mostly active at night, particularly in spring, while Eastern European Hedgehogs (*Erinaceus concolor*) have taken refuge in the urban areas. These mammals play an important role in maintaining the ecological balance in the region and contribute to the overall biodiversity of the area.

4.3.9.3.2 Birds

All the existing bird species in the sub-project sites and surrounding area are common, and none are endangered, rare or threatened species. The birds that the Biodiversity Expert has recorded in the sub-project sites are incorporated in Annex E.

It is important to note that Palestine, including the Jenin region, is a crucial location for bird migration due to its location between Europe and Africa. However, the sub-project sites are not expected to significantly impact migratory birds or birds in general, as the sub-project components include buried pipelines and facilities of water tanks and service rooms with limited height. These facilities do not incorporate risks for birds that might collide with these facilities.

4.3.9.3.3 Reptiles and Amphibians

Jenin governorate is home to a diverse range of reptiles and amphibians, with over 40 species recorded in the region. In addition, there are two species of amphibians present in the area.

Among the reptiles in the Jenin governorate, the Mediterranean Spur-Thighed tortoise (*Testudo graeca)* is a common species found in the mountains. Another species recorded by farmers is the Caspian Turtle (*Mauremys caspica*), which can be observed in ponds during spring and early summer.

4.3.9.3.4 Invertebrate

The number of invertebrate species present in Jenin governorate is difficult to estimate. Unfortunately, the variety and number of species are declining due to the insecticides use and other chemicals in agriculture. It is worth noting that no study has been conducted in Palestine to examine the biodiversity of invertebrates.

During our observations, we recorded six types of butterflies, over 15 types of moths, and various other insects, such as beetles, on plants and under stones along the roadsides and within the sub-project's areas of influence. Spiders were also highly diverse, along with centipedes and millipedes.

The declining population of invertebrate species in Jenin governorate is concerning and highlights the need for conservation efforts to mitigate the impact of chemicals used in agriculture. Further studies on invertebrate biodiversity in the region are necessary to better understand, and protect these important species.

For example, the presence of butterflies like Danaus Chrysippus feeding on the nectar of Dittrichia viscosa is an indication of the importance of road flora for invertebrates. Restoring native vegetation after construction can help to ensure that the local ecosystem can continue to support the needs of various wildlife species, including invertebrates.

Figure 4-15: Danaus Chrysippus Butterfly Feed on Dittrichia Viscosa Nectar

Hence, the sub-project sites do not include any endangered species; thus, it will not harm these species. The detailed study of the fauna done by the CEP Biodiversity Specialist is presented in Annex E.

4.3.10 Cultural Heritage Resources

Based on the field visits and site surveys that the Consultant team carried out on November 9th and 22nd, 2022, there is no indication of any cultural or heritage features or touristic or recreational areas in the sub-project area. The municipalities of Jenin and Burqin and Al-Shuhada village council confirmed that there are neither registered archeological sites nor cultural heritage within or close to the sub-project sites. The Consultant team met with the staff of the Jenin Directorate of Tourism and Antiquities (DoTA) as part of the stakeholder consultation and to provide information about the presence of archeologic sites and cultural heritage close to or located within the sub-project sites. The DoTA provided names and coordinates for the archaeological sites and monuments close to the sub-project sites, which are coincident with the coordinates of the archeological sites per the Geomolg website as presented in Figure 4-16. The archeological sites are not close to the water transmission pipelines and other water facilities. The DoTA asked the PWA and contractors to coordinate with them to find an appropriate solution that does not hinder the sub-project and bypasses these sites.

However, during sub-project implementation, a chance find may occur whereby historical and cultural property is inadvertently found. The Chance Find Procedures clauses for avoiding potential risks and impacts will be inserted into the implementation works contracts to ensure that the necessary measures are put in place during the construction phase.

According to PTCHL No. 11, 2018, the Contractors shall inform and coordinate with the DoTA before starting the implementation stage, particularly before starting earthworks on the sites. In case the Contractors would find any archeological remains, then they shall inform the DoTA immediately and make available laborers with the required tools to work under the supervision of the DoTA staff in these archeological sites.

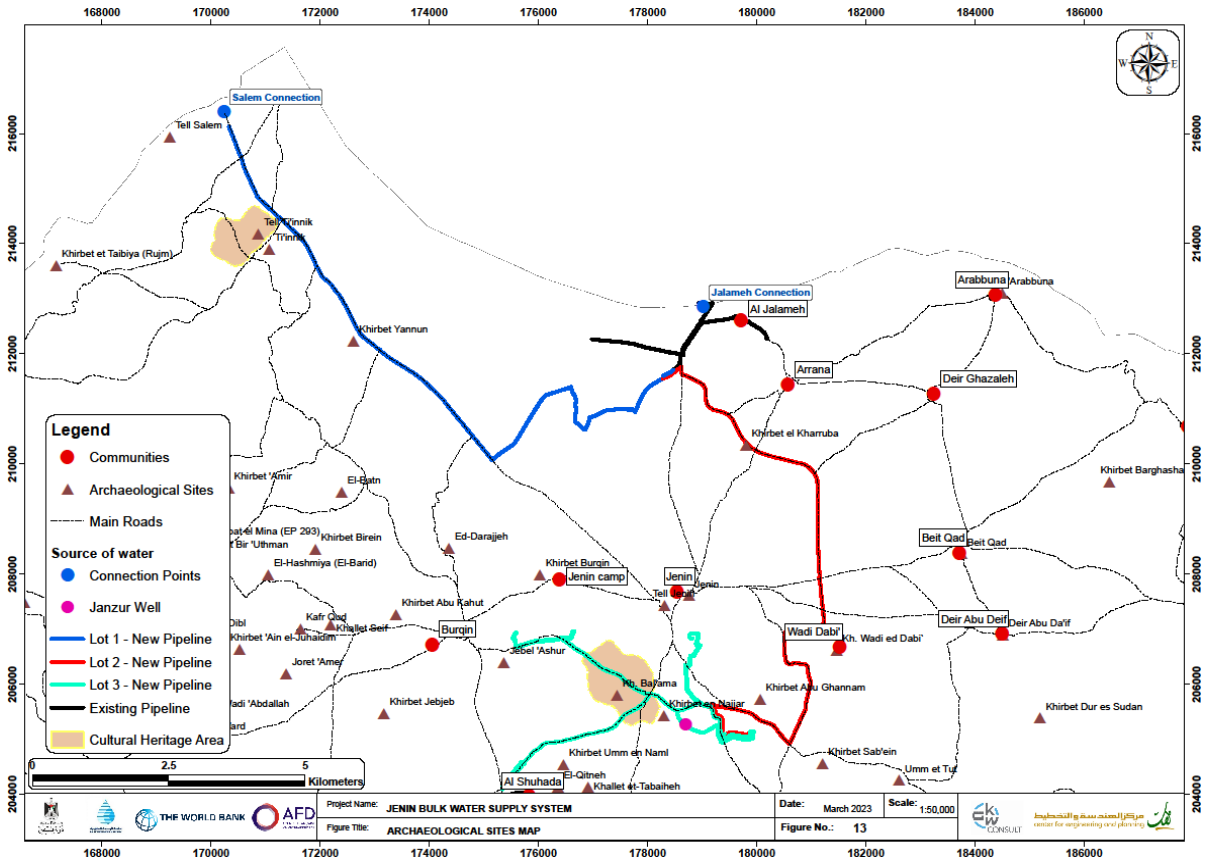

Figure 4-16: Archaeological Sites [Source: Geomolg Website]

4.3.11 Seismology

In terms of seismicity, the West Bank is considered a relatively active area. Several earthquakes were recorded during the twentieth century.

As shown in Figure 4-17, the sub-project area is located in a moderately active seismic zone as classified by the International Building Code, Uniform Building Code, Jordanian Code and Arab uniform code. The sub-project area is located in Zone 2B with a seismic zone factor of 0.2 g, where g is the acceleration of gravity (9.8 meters per square second on the earth's surface at sea level).

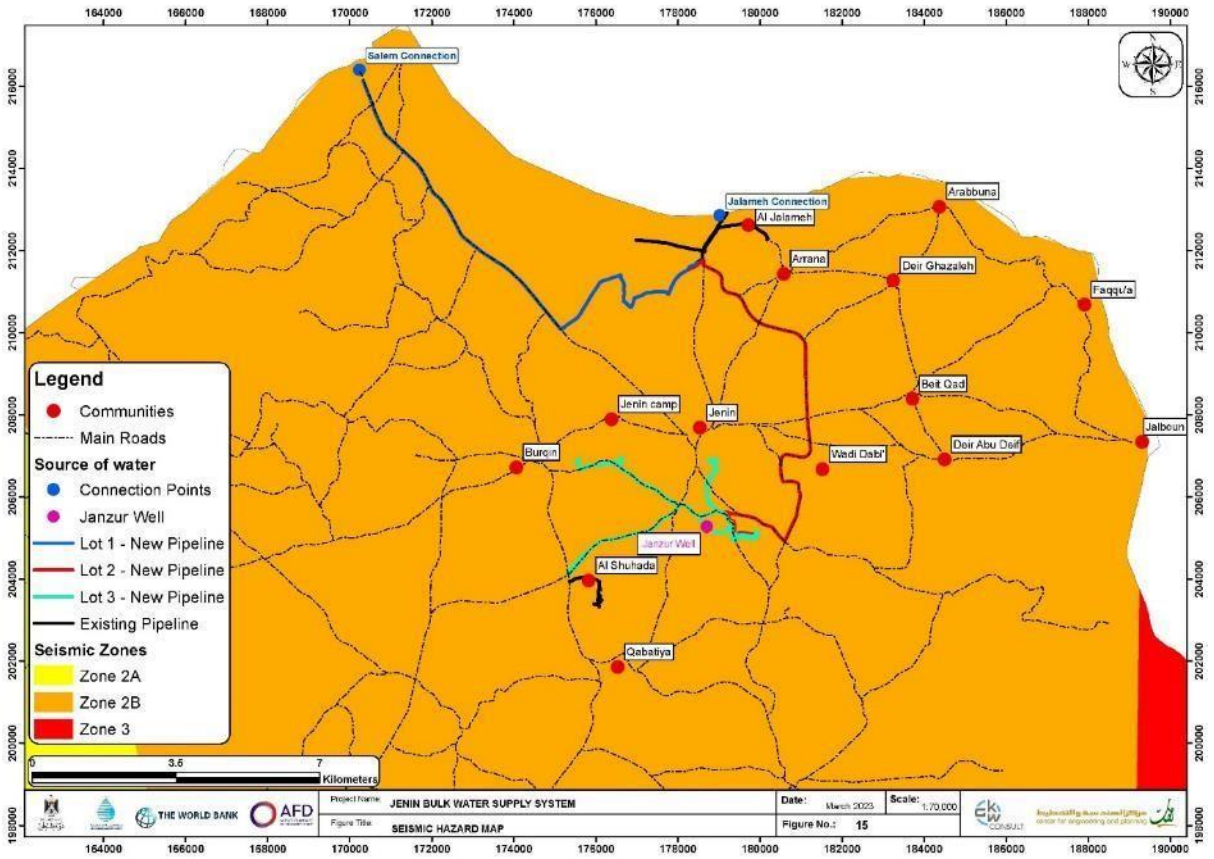

Figure 4-17: Seismic Hazard Map and Seismic Zone Factor for Building Code [Source: Geomolg Website]

4.4 Socio Economic Profile of the Sub-Project Area

Implementing the Jenin Bulk Water Supply System Sub-Project aims to improve supply and bolster the population's resilience to increasing water shortages through investments in water facilities based on identified priorities. The sub-project will provide essential water services and technical support to improve the water sector performance in the vicinity of Jenin Governorate cities and villages.

The implementation of the sub-project will likely have environmental and social risks and impacts on the communities that will be affected by the sub-project implementation and the communities living in the sub-project area. Therefore, an ESIA shall explore and identify the environmental and social risks and impacts likely to occur and develop efficient and feasible mitigation measures accordingly.

4.4.1 Demographic Data

The Palestinian Central Bureau of Statistics (PCBS) published estimates of the population figures for the communities that will be served by this sub-project for in the middle of years 2022 up to 2026 as presented in

Table 4-2. Based on these figures, fair growth rates for the populations of the targeted communities at the design horizon year 2040 were derived by the Consultant team. An average growth rate derived from the PCBS published population forecasts during the four intermediate years appears that the growth rate decreased from 2.02% to 1.91%. Accordingly, the growth rate considered for forecasting the population along the design horizon of 2040 is 1.91% and considering the forecasting population by PCBS for the mid of the year 2026 as a base year for calculation of population in 2040.

Table 4-2:Estimated Annual Population for Communities in the Sub-Project Area [Source: Consultant]

No.	Communities	2022	2023	2024	2025	2026	2040
Jenin Governorate							
1	**Jenin**	54,823	55,933	57,052	58,170	59,288	77,268
2	**Jenin Camp**	11,443	11,674	11,908	12,141	12,375	16,128
3	**Qabatiya**	26,846	27,389	27,937	28,485	29,032	37,837
4	**Al-Shuhada**	2,525	2,577	2,628	2,680	2,731	3,559
5	**Burqin**	7,828	7,986	8,146	8,306	8,465	11,032
Grand Total		**93,372**	**95,313**	**97,827**	**99,863**	**101,925**	**145,824**

4.4.2 Demographic Profiles

In this section, demographic profiles for the served communities are presented considering that the difference in the demographic profiles of the communities is none significant.

4.4.2.1 Jenin City

According to the PCBS, the total population of Jenin City in 2017 was 49,475, of whom 24,919 were males and 24,556 were females. There were 10,525 households and 8,412 housing units. (*PCBS Census, 2017*[22]).

The General Census of Population and Housing carried out by the PCBS in 2017 showed the distribution of age groups in the village was as follows: 34.0% were less than 15 years of age, 62.0% were between 15 - 64 years of age, whereas 4.0% were 65 years of age or older. Data also showed that the sex ratio of males to females in the city was 103.6:100, meaning that males and females constituted 51.0% and 49.0% of the population, respectively. (*PCBS Census, 2017*).

Jenin residents are from several families, including the Abdel Hadi, Hawashin, Jarrar, Al Hindi, Turkman etc. (*Jenin Municipality, 2023*).

4.4.2.2 Jenin Camp

According to the PCBS, the total population of Jenin Camp in the 2017 census was 10,327, of whom 5,134 were males and 5,193 were females. Additionally, the census showed that 2,209 households were living in 2023 housing units. (*PCBS Census, 2017*).

The General Census of Population and Housing carried out by the PCBS in 2017 showed the distribution of age groups in Jenin Camp was as follows: 35.0% were less than 15 years old, 61% were between 15 - 64 years old, while 4.0% fell into the 65 years and older category. Data also showed that the sex ratio of males to females in the camp was 100:100, meaning that males and females constituted 50% and 50% of the population, respectively. (*PCBS Census, 2017*).

Prominent families in the camp relating to the area were displaced from Al Masni, Zire'in,Abu Shusheh, etc. (*The Encyclopedia of Palestinian Camps, 2023*).

4.4.2.3 Burqin Town

According to the PCBS, the total population of Burqin in 2017 was 7,064, of whom 3,478 were male and 3,509 were females. There are 1,518 households living in 1,356 housing units *(PCBS Census, 2017).*

The General Census of Population and Housing carried out by PCBS in 2017 showed the distribution of age groups in Burqin is as follows: 34.5% are less than 15 years, 61.0% are between 15 - 64 years, 4.5% are 65 years and older. Data also showed that the sex ratio of males to females in the village is 101:100, meaning that males and females constitute 50.3% and 49.7% of the population, respectively. *(PCBS Census, 2017).*

Burqin residents are from several families, primarily Ateeq, Ethmainat, Sammour, Ekhlof, Ghanem, etc. (*The Encyclopedia of Palestinian Villages, 2023*).

[22] Population, Housing and Establishments Census 2017, Census Final Results, Jenin Governorate, PCBS, 2019

4.4.2.4 Al-Shuhada Village

According to the PCBS Census in 2017, the total population of the Village was 2,279, of whom 1,164 were males and 1,115 were females. There are 464 households living in 446 housing units. (*PCBS Census, 2017*).

The PCBS 2017 census results for Al-Shuhada Village showed the distribution of the population in terms of age group and sex was as follows: 36.8% of the total population were less than 15 years of age, 59.0% were in the 15-64 age group and 4.2% were 65 years and above. The sex ratio in the village was 104.9:100, that is, males and females constituted 51.2% and 48.8% of the population, respectively. The most well-known families in the Village are Weshahi, Asa'asa, Abu Shehadeh, Abbasi, Nazzal and Diri. (*The Encyclopedia of Palestinian Villages, 2023*).

4.4.2.5 Qabatiya Town

According to the PCBS Census in 2017, the total population of Qabatiya was 24,227, of whom 12,350 were males and 11,877 were females. There were also registered to be 5,040 households and 4,723 housing units. (*PCBS Census, 2017).*

The PCBS2017 census results for Qabatiya showed the distribution of the population in terms of age group and sex was as follows: 35.2% of the total population was less than 15 years of age, 60.4% were in the 15-64 age group, and 4.4% were 65years and above. The sex ratio in the town was 103.1:100, that is, males and females constituted 51.0% and 49.0% of the population, respectively. The mostwell-known families in Qabatiya are Kameel, Tazaza'a, Nazzal, Hanaysha, Zakarneh, Saba'neh, and Abu Al Rub. (*The Encyclopedia of Palestinian Villages, 2023*).

4.4.3 Education and Educational Facilities

According to the PCBS Population results, Housing and Establishment Census of 2007, the illiteracy rate among the Jenin City population was approximately 2.2%, of whom 76.5% were females. The illiteracy rate among the Jenin Camp population is about 3.4%, of whom 77.0% are females. In Burqin village, it was found that 2.5% of the population was illiterate, of whom about 80.3% were females. In Al-Shuhada Village, the illiteracy rate among the population was about 4.3%, of whom 75.7% were females. In Qabatiya, it was found that 3.0% of the population was illiterate, of whom about 79.6% were females.

According to the results of the PCBS Population, Housing and Establishment Census of 2017, the illiteracy rate in Jenin Governorate reached only 3.2% of the total population of the governorate. This indicates a lower percentage of illiterate in comparison with the PCBS censuses of 1997 and 2007, where the illiterate among males decreased from 5.1% in 1997 to 1.2% in 2017; while this percentage decreased more among the females from 18.8% in 1997 to reach 5.3%in the census of 2017. The gap of illiterate between males and females decreased from 13.7% in 1997 to 4.1% in 2017. (*PCBS Census, 2017*).

The educational facilities in Jenin City include 30 governmental schools and ten private schools. All kindergartens in the city are either private or operated by civil societies. (*Strategic Development Plan (SDP) for Jenin City for Years 2018-2021*).

In Jenin Camp, there are five schools administered and operated by the UNRWA, and one kindergarten operated by a Private Society (*The Encyclopedia of Palestinian Camps, 2023*). In Burqin, there are five governmental schools run by the Ministry of Education (MoE) and three kindergartens supervised by civil societies (*Strategic Development Plan (SDP) for Burqin for Years 2023-2027).* In Al-Shuhada, there are three schools run by the MoE and one kindergarten operated by a civil Society. In Qabatiya, there are 12 governmental schools run by the MoE and three private schools. (*Strategic Development Plan (SDP) for Qabatiya for Years 2018-2021*).

Arab American University of Palestine (AAUP), one of the famous universities in Palestine, has two campuses: the main campus is in east Jenin Governorate, close to Al-Zababdeh town, and the other is in Ramallah - Al Rayhan neighborhood. It was founded in 2000, and it includes 14 faculties providing academic programs for undergraduate, Master's degree, PhD degree, and Higher Specialization and High Diploma. (AAUP Profile, 2023).

4.4.4 Health Care and Health Facilities

Jenin City: There is a governmental hospital in Jenin operated by the Ministry of Health (MoH), which includes 250 beds distributed in the internal medicine departments, surgery, special care, gynecology, obstetrics and children, and the emergency department and outpatient clinics. Jenin City witnessed a remarkable development in the health sector situation in the last five years, as two health centers were built and equipped with modern equipment that provides the best service to citizens. These centers provide services through the clinics, including children, communicable diseases, teeth, and supportive technical clinics such as laboratories, x-rays, and early breast cancer screening mammography, diabetes, dermatological and gynecological clinics.

Jenin Camp: There is one healthcare center in the camp run by UNRWA and provides citizens with different medical services.

Burqin: A public clinic operated by the MoH provides vaccinations for children, care and medication. Burqin municipality established a health complex on the second floor above the government clinic, and it contains many specialties, including pediatric, internal medicine, gynecology, dental, laboratory, and nutrition clinics. There are also private clinics. (*SDP for Burqin, 2023-2027*).

Al-Shuhada: No healthcare facilities exist in the village; the residents get healthcare services through health centers in the neighboring areas. (*Al-Shuhada Village Council, 2023*)

Qabatiya: There is a clinic in the town, which is managed and operated by the MoH; it has general practitioners and doctors for motherhood and childhood, gynecology and dental health. There are also private clinics, the Red Crescent Society, and the laboratory of the health center. (*SDP for Qabatiya, 2018-2021*).

4.4.5 Existing Water Infrastructure

Jenin Governorate depends mainly on groundwater as the rest of the West Bank communities, where its water resources are from wells and springs. Around 63 artesian wells in Jenin are used for domestic and irrigation uses, 58 of them are owned by the private sector and used mainly for irrigation. The remaining five wells are owned by either the WBWD/PWA, such as Arabba', Qabatiya and Sanour wells or the municipalities, such as Jenin and Ya'bad municipal wells; these wells are used for domestic supplies. There are 42 springs in Jenin; most of them lose water through the run-off; they are seasonal and drought-prone [23].

Jenin City: Jenin city is supplied with water from three municipal wells (Al-Sa'adeh, Al Mechanic and Bala'ama), three connection points to the Mekorot network at Al Jalameh, Arraba and Arab Al Swaittat) and private agricultural wells.

The length of the water distribution network is about 146 km, which covers about 90% of the city. The supplied amount of water, 65 l/c/d, is insufficient to meet the citizens' needs. The existing network is old, deteriorated, and the unaccounted-for-water (UfW) is about 49%. (*SDP for Jenin, 2018-2021*).

Jenin Camp: The camp is supplied with water through a booster station inside the camp, which source is the network of Jenin City. The water network is old and deteriorated; its length is about 2 km. The water service is managed by Jenin Municipality, and the supplied water quantity is 65 l/c/day.

Burqin: The water source for the town is composed of two wells operated by the municipality, Al-Jabryyat and Al Hawooz. Also, the municipality purchases water from other four private agricultural wells. All water sources are diverted into a 500 m^3 capacity on-ground water tank which feeds the distribution network. The municipality manages and operates the water distribution network, which covers about 90% of the town. Burqin water network was constructed in 1985, and it was rehabilitated in 2012. The UfW of the network is 22%. The town consumes 900 m^3/d with a per capita consumption of 93 l/c/d. (*SDP for Burqin, 2023-2027).*

Al-Shuhada: The village is supplied with water from two wells, Abu Arab well managed by the WBWD (120 m^3/d) and an agricultural well (180 m^3/d). The two wells convey water into a water tank of 300m^3 capacity. The village council provides water service to the residents of the village and neighborhood areas outside the village boundaries. The number of water subscriptions is 700 subscribers, and the per capita water consumption is 60 l/c/d. The UfW in the networks is about 60% due to an old and deteriorated network and inaccurate water

[23] Water Quality Index (WQI) for Water Resources in Jenin District, Al-Quds University, 2019

meters. The citizens suffer from water shortage, especially in the dry season, and they are forced to purchase water from private water vendors/tankers with high prices and low quality. (*Al-Shuhada Village Council, 2023*).

Qabatiya: The sources of potable water in Qabatiya are the Qabatiya well owned by the WBWD, comprising one-third of the supply quantities, and five private agricultural wells, satisfying the remaining two-thirds of the supply quantities. The length of the water distribution network is about 85 km, covering the entire town; part of the network covers areas outside the town master plan. The network in the old town was upgraded in 2020; The per capita water consumption in Qabatiya is 75 l/c/d. (*Qabatiya Municipality*).

4.4.6 Water Service

As presented above, the served communities by the sub-project currently suffer from inadequate water supplies, with an estimated per capita allocation ranging from 60 to 90 l/c/d, which is less than the minimum requirement of 100 l/c/d recommended by the World Health Organization (WHO). The situation is compounded by the increase in population in the region.

The representatives of the served communities mentioned during the public meetings that they suffer from water shortage, especially in the summer, when the population does not get water for a period ranging from seven to ten days, particularly in the high areas. Residents of these areas are forced to purchase water through tankers at high prices (20 NIS/m^3) from unknown sources and questionable quality. Some people mentioned they received polluted water sometimes due to leakage through the deteriorated water distribution networks. The attending women stated that the lack of water negatively affects the levels of hygiene and public health, personal hygiene and cleanness of the place, and leads to the spread of diseases; additionally, some babies get diaper rash due to lack of water.

The practiced water tariff in the served communities is set out per the principles of the unified water tariff issued by the Council of Ministers in 2021. The applied water tariff in the served communities, which ranges from 4 to 6 NIS/m^3, is a block tariff system where users pay different amounts for different consumption levels. The local councils, which are the water service providers, mentioned that the water tariff would not be affected by implementing the sub-project as it aims to bridge the gap in water demand. They also mentioned that the water service recipients do not complain about the applied water tariff.

Concerning the tariff for the supplied additional water quantities, PWA confirmed in the public meetings held with the communities that the water tariff will not be affected by implementing the sub-project, and it is set out by the PWA on an equal basis across the West Bank.

4.4.7 Economic Activities, Labor Force and Unemployment

Jenin: The economy of Jenin City depends mainly on the agricultural sector; the employment sector in the governmental and private sectors is the second most important economic activity.

For industries and trade activities in Jenin, trade is the main driver of the economy of the city of Jenin due to its location close to the Green Line, which made it a destination for the Arab Palestinians living inside Israel for shopping. Also, the university (AAUP) in the region plays a major role in activating the economic sector in the city.

Labor Force

According to the PCBS Population, Housing and Establishment Census, 2017, unemployment in Jenin reached about 12.1% (*PCBS Census, 2017*). 48.2% of the population was economically active, of whom 87% were employed, and 51.8% of the population was non-economically active, of whom 33.3% were students and 50.4% were housekeepers (*PCBS Census, 2017*). The poverty rate in Jenin City is 6.72%[24].

Jenin Camp: Many camp residents work in the agricultural sector in the surrounding areas; about a quarter of the camp's residents suffer from unemployment and indebtedness.

There are many programs for supporting the camp residents, such as:

- Microfinance Program

[24] Poverty Maps for the Palestinian Territories, PECS and Census 2017, Technical Report, 2019.

- Money for Work Program
- Job Creation Program

The number of families receiving emergency food aid is 2,205, and the number of refugees benefiting from the emergency employment program is 130 (*The Encyclopedia of Palestinian Camps, 2023*).

Labor Force

According to the PCBS Population Housing and Establishment Census in 2017, unemployment in Jenin Camp reached about 15.6% (*PCBS Census, 2017*). 45% of the population was considered economically active, of whom 84.4% were employed, and 55% were non-economically active, of whom 26.8% were students and 54.4% were housekeepers. (*PCBS Census, 2017*). The poverty rate in Jenin Camp is 31.82%.

Burqin: Burqin town occupies a prominent position at the level of Jenin Governorate and at the level of Palestine in the agriculture sector, where the distribution of economic activities in Burqin is as follows (*SDP, 2023-2027*):

- Agricultural sector: 15%
- Government jobs: 15%
- Private sector: 5%
- Other fields such as crafts and industry: 37%
- Work inside Israel: 5%
- Retired employees: 10%
- The unemployment rate: 13%.

Labor Force

According to the PCBS Population, Housing and Establishment Census in 2017, Unemployment in Burqin reached about 13% (*PCBS Census, 2017*). 48.3% of the population was economically active, of whom 87.0% were employed, and 51.7% were non-economically active, of whom 32.4% were students and 50.0% were housekeepers (*PCBS Census, 2017*). The poverty rate in Burqin is 13.51%.

Al-Shuhada: The village's economy depends mainly on agriculture; a small part of the citizens works in government agencies and inside Israel.

Labor Force

According to the PCBS Population, Housing and Establishment Census, 2017, the unemployment rate in Al-Shuhada reached about 10.3%. 46.8% of the population was economically active, of whom 89.7% were employed, 53.2% were non-economically active, 30.0% were students, and 56.1% were housekeepers (*PCBS Census, 2017*). The poverty rate in Al-Shuhada is 13.51%.

Qabatiya: Stone-cutting facilities and crushers are important economic resources in Qabatiya. The agricultural sector forms a vital element of the town's economy. Part of the population works with the governmental institutions.

Labor Force

According to the PCBS Population, Housing and Establishment Census, 2017, the unemployment rate in Qabatiya reached about 12.3%. 44.5% of the population was economically active, of whom 87.6% were employed, 55.5% were non-economically active, 30.0% were students, and 54.5% were housekeepers (*PCBS Census, 2017*). The poverty rate in Qabatiya is 8.99%.

4.4.8 Agriculture Sector

Jenin is renowned for its abundant production of fruits and vegetables. It is also famous for Marj Ibn ‘Amer, a valley rich with plains of fertile soil. Jenin has also lost access to important water resources. Most farmers have been resorting to rain-fed agriculture, which has yielded limited profits with Jenin’s harsh summers. As a result, vast areas are left uncultivated, and many would-be breadwinners are tragically unemployed. *(ANERA article for Agriculture in Jenin – ANERA website).*

Based on the Development Plan per Clusters that was prepared by the Palestinian Government for the years 2021 -2023; Jenin Governorate is considered to have the Development via “Agricultural Cluster”.

This Agricultural Cluster Plan for the province of Jenin comes within the framework of the Government's approach to adopting a comprehensive economic development methodology according to the Clusters system, intending to (i) contribute to achieving sustainable competitive advantages for the Palestinian economy in all geographical areas and (ii) develop and encourage investment in all sectors. This is to realize what is stated by the Vision for the region of achieving excellence and quality in the agricultural sector to provide job opportunities, income, and food security for the citizen sustainably and contribute to advancing economic growth in the governorate through the investment of natural resources, available market opportunities, and knowledge. The Plan is based on the following pillars:

i. promote access to agricultural lands, water and natural resources, and markets;

ii. increase investment in the agricultural sector and strengthening the partnership between the public and private sectors;

iii. find alternatives and solutions to adapt to the phenomenon of climate change;

iv. activate the role of agricultural institutions, especially those concerned with small farmers, and improving the role of women and youth in agriculture and rural development; and

v. give high priority to the restoration of the agricultural sector and the provision of budgets and appropriate support, whether from the general budget or donor countries and institutions. *(Agricultural Cluster for Development - Jenin- Ministry of Agriculture, 2021).*

4.4.9 Infrastructure

4.4.9.1 Electricity

Electricity is supplied for all communities within the sub-project area by the Northern Electricity Distribution Company (NEDCO) and Qabatiya Municipality, providing 24-hour access to electricity. The existing electrical service between communities within the sub-project area typically comprises 33-kilovolt medium voltage overhead transmission lines.

4.4.9.2 Roads

The road network in the West Bank and the sub-project area, especially the main routes, comprises a well-developed road system. The regional transportation system, which connects the sub-project area to the principal, regional urban centers of Ramallah, Jerusalem, and Nablus, is in good condition.

The sub-project area is accessed via an existing road network comprising regional and local roads. The road network is mainly paved and in good condition. The water transmission pipelines of the sub-project would be implemented within or along these roads. The water facilities of the main booster station, regional tank, Qabatiya and Burqin booster stations are accessible through existing roads, and there will be no need to implement any access road to reach these facilities.

4.4.9.3 Wastewater

In the sub-project area, only Jenin City has a sewage network and a treatment plant. However, the collection system is old and poorly constructed and requires a full replacement. The WWTP is an aerated lagoons system constructed in the 1980s and was rehabilitated in 2013. The treatment plant is not working properly and needs substantial upgrading to meet the PWA effluent criteria. (*Water and Sewerage Master Plan for the North and North-West Region of the West Bank, 2017*).

Onsite sewage disposal cesspits and septic tanks are generally used for disposing of the generated wastewater in the targeted communities. Porous cesspits are most frequently used compared with impermeable cesspits.

Due to the absence of proper collection and treatment facilities, safe disposal is not accomplished. The vacuum tankers that remove sewage from the septic tanks and cesspits typically discharge into nearby wadis/valleys, ravines, or dry channels except in the rainy season—or open areas. This practice results in foul smells and potentially causes environmental pollution and health hazards, as it contaminates surface water and potentially

groundwater resources and can create breeding and other habitats for insects, rodents and other organisms that transmit infectious diseases.

4.4.9.4 Solid Waste Management

Presently, the Joint Services Council for Solid Waste Management - Jenin (JSCSWM) is managing the collection and disposal of solid waste in localities in the Jenin Governorate. The JSCSWM uses relatively large containers and trucks to transport the solid waste into the regional sanitary Zahret Al Finjan Landfill (ZFL). The JSCSWM charges the local councils in Jenin Governorate 120 New Israeli Shekel (NIS) per ton of waste for collection and disposal. The ZFL is in the Jenin Governorate between Arrabeh and A'jja towns, as presented in Figure 4-18. The ZFL is also used as a regional landfill site by the localities of Nablus, Ramallah & Al-Bireh, Tulkarem and Tubas Governorates.

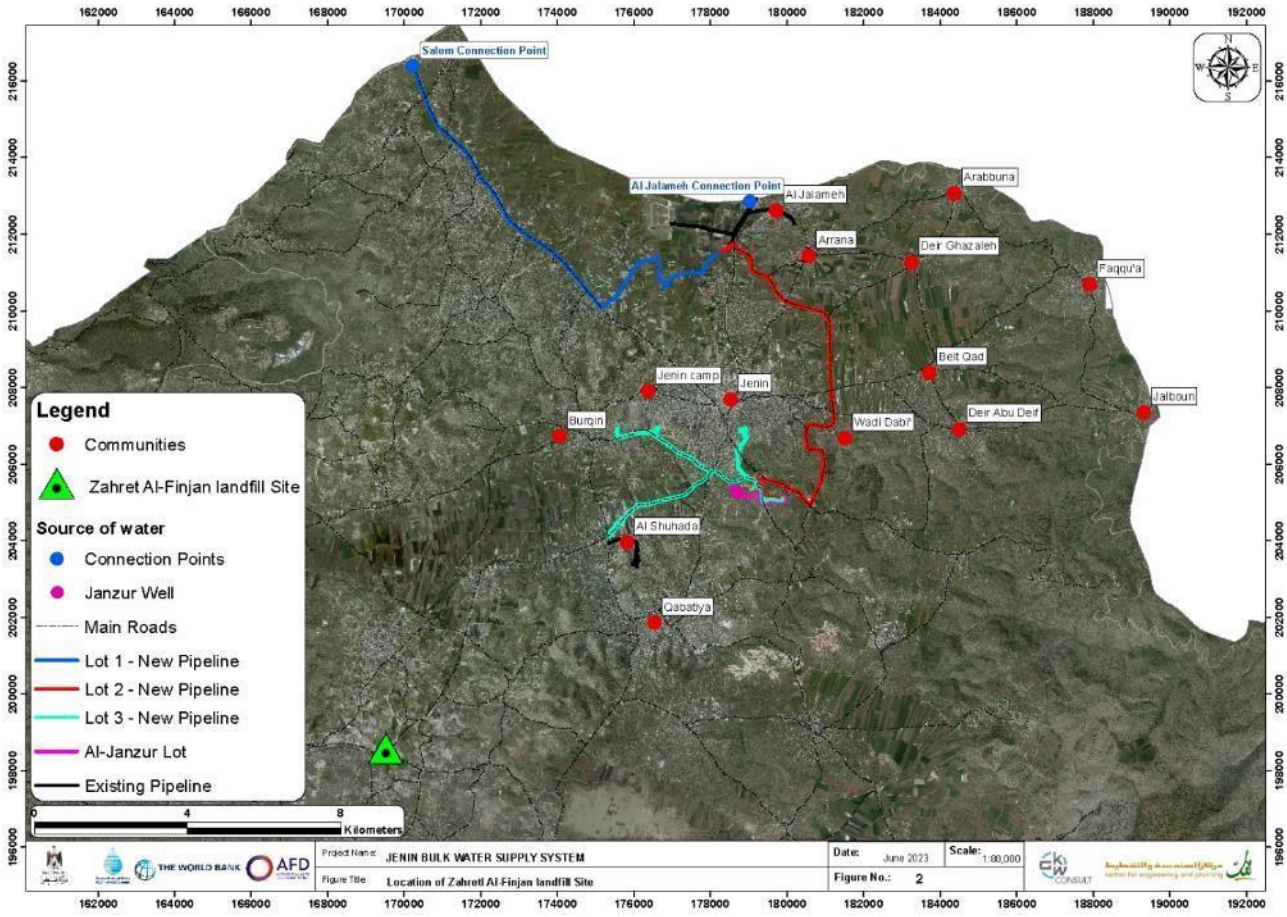

Figure 4-18: Location of Zahret A-Finjan Landfill Site in Jenin Governorate [Source: Consultant]

4.4.9.5 Telecommunication

The telecommunication service provider in Jenin Governorate is the Palestinian Telecommunication Company (PALTEL), the national telecommunication service provider in Palestine. Also, there are two service providers/operators for cellular communication, Jawwal and Ooredoo. The telecommunication service covers the sub-project area.

5 STAKEHOLDER CONSULTATION AND ENGAGEMENT

This stakeholder consultation and engagement chapter aims to highlight the key consultation and community engagement activities and their outcomes. In addition, this chapter of the report outlines the key issues that were discussed during the consultation activities.

Throughout various consultation and engagement activities, the Consultant team managed to properly document and record different reactions of the communities and the governmental stakeholders towards the proposed sub-project.

5.1 Legal Framework for Consultation

The Palestinian Environmental Policy has referred to the stakeholder[25] consultation in two stages:

1. The Initial Environmental Evaluation (IEE) Report, where the policy stated that the stakeholder consultation is optional when undertaking an IEE. In consultation with the proponent and the EA Committee as required, the EQA determines whether stakeholder consultation is required and, if so, what the minimum requirements should be. It may be required during scoping and terms-of-reference preparation, and during the conduct of the IEE.
2. The Environmental and Social Impact Assessment (ESIA) Report, where the policy stated that stakeholder consultation is mandatory when undertaking an ESIA study. In consultation with the proponent and the EA Committee, the EQA determines what the minimum requirements for stakeholder consultation should be. It may be required during scoping and terms-of-reference preparation, and during the conduct of the ESIA. At the minimum, the proponent must meet with the principal stakeholders to inform them about the proposed sub-project and to solicit their views about it. More problematic projects should involve more extensive consultations. The methods and results of these consultations must be documented in the ESIA Report.

The ESS10 of the World Bank ESF, “Stakeholder Engagement and Information Disclosure” highlights the importance of the stakeholder engagement throughout the project cycle. Where properly designed and implemented, it supports the development of strong, constructive and responsive relationships that are important for successful management of a project’s environmental and social risks. Stakeholder engagement is most effective when initiated at an early stage of the project development process, and is an integral part of early project decisions and the assessment, management and monitoring of the project’s environmental and social risks and impacts.

The “Meaningful Consultation” according to the ESF is a two-way process that:

a) Begins early in the project planning process to gather initial views on the project proposal and inform project design;

b) Encourages stakeholder feedback, particularly as a way of informing project design and engagement by stakeholders in the identification and mitigation of environmental and social risks and impacts;

c) Continues on an ongoing basis, as risks and impacts arise;

d) Is based on the prior disclosure and dissemination of relevant, transparent, objective, meaningful and easily accessible information in a timeframe that enables meaningful consultations with stakeholders in a culturally appropriate format, in relevant local language(s) and is understandable to stakeholders;

e) Considers and responds to feedback;

f) Supports active and inclusive engagement with project-affected parties;

g) Is free of external manipulation, interference, coercion, discrimination, and intimidation; and

h) Is documented and disclosed by the Borrower.

A. Consultation Objectives

[25] Stakeholder is any person in his natural or legal capacity with an interest in or affected by a development activity

Objectives of various consultation activities are summarized in the following points:

- Define potential sub-project stakeholders and suggest their possible roles;
- Disseminate comprehensive information about the sub-project to enable stakeholders to identify their concerns, needs, and recommendations;
- Listen to their comments, ideas and concerns and record them to be followed up;
- Document stakeholder feedback and enhance the ESIA accordingly;
- Identify the most effective outreach channels that support continuous dialogue with the community; and
- Avoid any misconceptions about the sub-project and properly manage expectations.

B. Stakeholder Identification and Analyses

The first step in the stakeholder engagement process is to identify the key stakeholders to be consulted and involved. Stakeholders are individuals or groups who are affected or likely to be affected by the project, who may have an interest in the project, and who can influence the project outcome (ESF, World Bank, 2018). The term "Project-affected parties (PAPs)" includes "those likely to be affected by the project because of actual impacts or potential risks to their physical environment, health, security, cultural practices, well-being, or live-lihoods. These stakeholders may include individuals or groups, including local communities" (ESF, World Bank, 2018). The term "Other interested parties" (OIPs) refers to "individuals, groups, or organizations with an interest in the project, which may be because of the project location, its characteristics, its impacts, or matters related to public interest. For example, these parties may include regulators, government officials, the private sector, the scientific community, academics, unions, women's organizations, other civil society organizations, and cultural groups" (ESF, World Bank, 2018). The PAPs, according to the ESS10, might be disadvantaged or vulnerable individuals or groups (such as disability, literacy, gender, mobility).

The Stakeholder Engagement Plan (SEP) has been developed by PWA for the Bulk Water Supply System in Jenin under the WSRP-1 Program. The SEP includes the following PAPs: landowners and land users who might be impacted by the sub-project implementation (lands for sub-project components, such as the water tanks, pumping stations, and water transmission pipelines, if they will be crossing private lands); local communities residing in the sub-project area; water sector institutions; Water Service Providers (WSPs), such as municipalities, village councils, joint services councils, ministries, and governmental agencies; and vulnerable groups (women-headed households, people living in refugee camps, persons with disabilities, unemployed youth, etc.).

A Stakeholder Engagement Plan (SEP) has been developed for the WSRP-1 Project to identify a technically and culturally appropriate approach to consultation and disclosure[26]. The implementation of the SEP has improved the understanding of the Consultant team in developing the environmental and social impact analysis, which would support decision-making by PWA aiming to establish an environment that engages the PAPs in the planning, operational, and construction phases of the sub-project. In addition to that, the PAPs are provided with sufficient and required information and opportunities related to the sub-project. To this end, the Consultant held consultative sessions and meetings with key stakeholders presented in Table 5-1.

The following Table 5-1 represents the stakeholders contacted and engaged during the consultation activities and events.

[26] http://www.pwa.ps/userfiles/server/reports/WSRP_SEP.pdf

Table 5-1: Main Identified Stakeholders Relevant to the Bulk Water Supply Sytem Sub-Project

Categories	Stakeholder Groups	Role/ Concern	Analyses
Potential Affected Communities	Communities living in the sub-project area might be affected based on the sub-project construction sites and water service provided or improved. These communities are the residents of: • Jenin City • Jenin Refugee Camp • Burqin • Al Shuhada • Qabatiya	• They might be affected by positive or negative impacts	• They are essential to be engaged throughout the life of the sub-project. • The Communities have a high level of interest in the sub-project as they will receive additional water quantities to cover their water needs. • Some of these communities will have domestic water with sufficient quality instead of tanker water from unknown sources. • These communities will have interests in the sub-project as they might get job opportunities, affected by labor influx and health and safety risks. • These communities will have a positive health impact by having additional quantities of domestic disinfected water instead of tanker water to cover their needs. • The Communities will have a positive economic impact by having piped water instead of purchasing tanker water at high prices.
	Landowners	• They might be affected by land acquiring	• They will lose parts of their lands; they should be compensated for such loss. • The landowners tend to have a high level of interest in the sub-project and a high influence.
	Vulnerable groups (VGs) including women-headed households, unemployed youth, persons with disabilities, the poor.	• They might be affected by positive or negative impacts	• The VGs have a high level of interest in the sub-project as they will receive additional water quantities to cover their water needs. However, the VGs have a low influence to influence the sub-project. • The VGs will have a positive health impact by having additional

Categories	Stakeholder Groups	Role/ Concern	Analyses
			quantities of domestic safe water.
Water Sector Institutions	PWA	• PWA is considered the Regulator of the water sector in Palestine. • PWA is managing the financing of the sub-project. • PWA is Following up and monitoring the implementation of all E&S aspects related to the sub-project. • Managing the sub-project implementation.	• PWA is the main player in the sub-project. Therefore, they have a high influence on the sub-project and very high interest.
	WBWD (Future National Water Company)	• WBWD (National Water Company) will be responsible to manage and operate the sub-project after complete implementation.	• WBWD has a high interest in the sub-project and a high influence.
	The Water Service Providers (WSPs) These are the following: • The Municipalities, • The Village Councils, • The Joint Services Councils.	• The WSPs are considered the sub-project end-users and beneficiaries. • The main role of the WSPs is to provide the available quantities of domestic water to the consumers in addition to being responsible for the O&M of the water systems in their service areas.	• The WSPs are the target beneficiaries of the sub-project. Therefore, they have a high influence on the sub-project and very high interest.
Ministries and Government Agencies	Ministry of Local Government (MoLG)	• The MoLG organizes the performance of the WSPs in the sub-project area. • It is the ministerial body for approving any modification of the land use outside the approved municipal master plans.	• MoLG has a medium interest of the sub-project and a high influence.
	Ministry of Labor (MoL)	• It is responsible for securing the occupational health and safety of workers. • It is interested in ensuring that work conditions and circumstances of the workers are as per the national laws and regulations.	• MoL has high interest in the sub-project and high influence.
	Ministry of Transport (MoT)	• It is interested for securing the traffic safety during the implementation phase of the sub-project.	• MoT has a medium interest and influence on the sub-project.

Categories	Stakeholder Groups	Role/ Concern	Analyses
	Ministry of Tourism and Antiquities (MoTA)	• It has a major role in providing the maps that illustrate the archaeological sites near the sub-project area and providing the procedures to be followed up to avoid affecting the archaeological sites during construction works.	• MoTA has a medium interest and a high influence
	Ministry of Health (MoH)	• It is interested in providing safe domestic water complying with the Palestinian standards.	• The MoH has a high interest and influence on the sub-project.
	EQA	• It is responsible for reviewing and approving ESIA. • It is responsible to issue the Environmental Approval/Permit of the Sub-Project.	• EQA is one of the main stakeholders that work closely with the sub-project in order to warranty their level of environmental commitment. • EQA has a high interest in the sub-project and a high influence.
	Ministry of Agriculture (MoA)	• The MoA is interested in not to affect adversely the nearby farms during the implementation phase of the water transmission pipelines and other facilities. • Uprooting and replanting any tree during the implementation phase shall be coordinated with the MoA.	• The MoA has a high interest and influence on the sub-project.
	Ministry of Public Works and Housing (MoPWH)	• It is interested in not damaging the regional roads during the implementation phase of the sub-project.	• The MoPWH has a medium interest and influence on the sub-project
Local Government Units	Municipalities of Jenin, Qabatiya, and Burqin and village council of Al-Shuhada	• They are the service providers in the area (solid waste, water, wastewater). • They might be involved in emergency response requirements.	• They have a high interest and a high influence on the sub-project.
Community Based Organizations (CBOs), NGOs, Academic Institutions, Media	Palestinian Hydrology Group (PHG), Arab American University, Media-man	• They might have concerns regarding E&S risks sand impacts. • Potential educational/outreach opportunities to increase awareness and acceptance of the sub-project.	• They have a medium interest and influence on the sub-project.

5.2 Scoping Session

The Consultant team conducted the scoping session for the sub-project in December 2022. The scoping session hosted representatives of all the communities who will be affected and/or served by the sub-project and representatives of the ministries and government agencies in Jenin Governorate. The scoping session was also attended by representatives of the academic institutions in the sub-project area, such as the Arab American University in Jenin, represented by the environmental lecturers and researchers in addition to Environmental Science students. The scoping session was also attended by PWA senior staff as well as representatives of the water service providers in the area. The representatives of the following ministries, government agencies, educational institutions, and citizens attended the session:

- PWA: 9 persons
- Directorate of Local Government (DoLG) – Jenin: 3 persons
- Directorate of Agriculture (DoA) – Jenin: 5 persons
- Directorate of Transport (DoT) – Jenin: 1 person
- Directorate of Tourism and Antiquities (DoTA) – Jenin: 1 person
- Environmental Health Department (EHD) belonging to Directorate of Health (DoH) – Jenin: 1 person
- Directorate of National Economy (DoNE) – Jenin: 1 person
- Directorate of Labor (DoL) – Jenin: 2 persons
- Directorate of Social Development (DoSD) – Jenin: 1 person
- Directorate of Public Works and Housing (DoPWH) – Jenin: 1 person
- Environment Quality Authority (EQA): 1 person
- Jenin Governor Office: 1 person
- Jenin Municipality: 2 persons
- Burqin Municipality: 3 persons
- Qabatiya municipality: 1 person
- Al-Yamoun Municipality: 1 person
- Marj Ibn ‘Amer Municipality: 3 persons
- Kufr Dan Municipality: 1 person
- Al-Shuhada Village Council: 1 person
- Zbuba Village Council: 4 persons
- Al-Jalameh Village Council: 2 persons
- Rummana Village Council: 1 person
- Al Araqa Village Council: 1 person
- ‘Aba (Wadi Ad-Dabi’) Village Council: 1 person
- Arab American University: 8 persons
- Northern Electricity Distribution Company (NEDCO): 1 person
- Citizens: 2 persons who act as a biodiversity expert and a social activist
- Consultant Team: 3 persons

The total number of attendees was 62, of which 18 were females. The participants raised their issues and concerns related to the sub-project. Many of these issues supported the sub-project, considering that it would increase the per capita consumption of the communities; however, there were some concerns and requests for explanations from the participants related to the sub-project. The PWA and Consultant representatives

pointed out all the points and concerns raised in the scoping session to be considered in the design and implementation of the sub-project. The raised main comments and concerns relevant to the sub-project were as follows:

- **Disengagement from the Israeli Side:** Since the PA policy is to disengage from the Israeli side in all aspects, this sub-project is not part of the disengagement policy, considering that the connection points at Al-Jalameh and Salem will be controlled by the Israeli side.

"Is the sub-project implemented by the PWA part of the sub-projects that aim to disengage from the Israelis or not? If yes, the water control should not be at Al-Jalameh or Salem points, that any time the Israelis shut off the water supply to the Palestinians?"

Lecturer of Environment at Arab American University- Jenin).

- **Location of Water Transmission Pipelines: A** representative of Kufr Dan municipality inquired about the location of the transmission pipeline from the Salem connection point to the main booster station site.

  Response: The Consultant stated that the transmission pipeline would be located within the right of way, and no pipeline would cross any private land.

- **Lands Allocated for the Sub-Project Components:** A representative of Al-Jalameh village council asked about the status and ownership of the lands allocated for the regional tank and pumping stations.

  Response: PWA representative responded that all these lands had been customized for the sub-project, and most of them are owned by the government except for the land of Al Jalameh's main pumping station. He added that a ministerial committee evaluated the value of this land, and the compensation will be paid to the landowner/s as per the applicable Palestinian laws and regulations and as per the Project RF/World Bank ESS5.

"Most the lands allocated for the sub-project components had been customized for the sub-project in accordance with the Project RF and ESS5, and most of them are owned by the government except for the land of Al Jalameh's main pumping station. A ministerial committee evaluated the value of this land, and the compensation will be paid to the landowner/s according to the applicable Palestinian laws and regulations and as per the Project RF/World Bank ESS5"

Deputy Director of PMU- PWA.

- **Water Quantities Allocated to Qabatiya Town are Insufficient:** A representative of Qabatiya Municipality mentioned that the water delivered to Qabatiya town, which is 60 m3/h, is insufficient, and the town needs 140 m3/h to meet the town water needs; the existing pipeline of 6" diameter that supplies the water tank shall be enlarged.

  Response: The PWA confirmed that the provided water quantities would be increased after implementing the new sub-project, the existing pipeline can serve Qabatiya for the next few years, and a new pipeline of larger diameter will then replace it; later on, the pipeline can be used as a distribution pipeline.

"The water delivered to Qabatiya town, which is 60 m3/h, is insufficient, and the town needs 140 m3/h to meet all the water needs; the existing pipeline of 6" diameter that supplies the water tank shall be enlarged"

Qabatiya Municipality.

- **Dams for Rainwater Storage:** A representative of Burqin Municipality mentioned that it is important to consider the construction of dams in many areas of the Jenin governorate to store rainwater in winter.

  Response: The PWA stated that a new sub-project to study the feasibility of building a new dam in the Al-Malaqi bridge between Nablus and Tubas was launched recently. Another project to study all valleys in the West Bank to determine suitable sites for water harvesting will be launched soon.

"It is important to consider the construction of dams in many areas of the Jenin governorate to store rainwater in winter.

Burqin Municipality.

- **60% of Northeast Jenin Villages are not Served by Piped Networks:** A representative of Marj Ibn 'Amer Municipality stated that about 60% of the Northeast Jenin Villages are not served by piped water networks, as 70% of the lands of these communities are classified within Area "C".

  Response: PWA confirmed that these communities would be served by the new sub-project. Approvals and permits from the Israeli side for the proposed pipelines do exist. The water networks in these villages have not been implemented yet due to the unavailability of funds.

"About 60% of the Northeast Jenin Villages are not served by piped water networks, with 70% of the lands of these communities are classified as Area "C".

Marj Iben 'Amer Municipality

The proceedings of the Scoping Session are presented in Annex F.

5.3 Meetings with Ministries and Government Agencies

Also, the Consultant team held meetings with representatives of the DoLG, DoA, DoT, DoTA, EHD/DoH, DoL, DoPWH, and DoEQA. These meetings focused on recording their concerns and requirements related to the sub-project planning and implementation and getting relevant data and information. Table 5-2 shows the schedule for the meetings with representatives of the ministries and government agencies, names and positions of the interviewed staff, as well as the raised concerns and requirements.

The participants were briefed about the sub-project objectives, its components, potential adverse/beneficial risks and impacts and the mitigation measures. The layout of the sub-project showing all its components was presented in all these meetings. The participants were informed that the ESIA study will be prepared considering the Palestinian rules and regulations, and the World Bank's framework and standards.

The participants were informed that there would be a disclosure of information and communication tools for the consultation about the sub-project. The stakeholders can easily access the information through the PWA's website as follows: http://www.pwa.ps/page.aspx?id=d3fEhna1248699936ad3fEhn.

The participants were informed about that the existing grievance redress mechanism (GRM) applied at the PWA that any entity or person can send a complaint and/or a suggestion. The PWA has a system to follow up the complaints/suggestions and revert to the sender accordingly.

Generally, all participants supported the sub-project, and they informed that they will do their best to successfully implement it. However, they have some comments and concerns about the sub-project. It was also clarified to the participants that all points of view will be respected and will be registered and considered. The minutes for these meetings are documented and presented in Annex G.

Table 5-2: Schedule of Meetings with Ministries and Government Agencies

Date	Institution	Name of met Staff	Position	Raised Concerns/Discussed Subjects
11 January 2023	Directorate of Transport (DoT) - Jenin	Eng. Ahmad Jalamneh	Director in the Licensing Authority	• The Contractors should coordinate with the DoT for excavating in the main roads with preparing detours and suitable alternative roads for the traffic flow. • The Contractors should give more attention and safety requirements for the main intersections. • The Contractors should prepare and install the required safety tools and equipment for the traffic and pedestrians during excavation works. • The Contractors should comply with and follow up the "Traffic Safety Manual" published by the MoT. • The Engineer should monitor and make sure that the contractors apply and follow up the required obligations.
15 January 2023	Directorate of Environment Quality Authority – Jenin	Eng. Lama Jarrad	Director of EQA Directorate Office - Jenin	• The DoEQA requested the owner of the sub-project (PWA) to submit the application form for the environmental approval of the sub-project and surveying plans to the DoEQA - Jenin • The DoEQA ensured that the sub-project should comply with the EQA requirements concerning environmental and social standards. • The DoEQA mentioned that the ESIA Study would be reviewed by the National EIA committee. • The DoEQA mentioned that the ESIA study shall address environmental and social issues. • The DoEQA mentioned that the ESIA study shall include the environmental and social management plan (ESMP) with the mitigation measures.
16 January 2023	Environmental Health Department (EHD)/Directorate of Health (DoH) - Jenin	Bashar Daraghmeh	Director of EHD	• The water source shall be safe and comply with the Palestinian Standards for domestic water. • All facilities, pipes and equipment shall be specified to comply with the Palestinian Standards for domestic water. • EHD requested to install a chlorination unit at Al-Jalameh Booster Station to be used as supplement and standby if the water supplied needs to be disinfected. • The EHD asked that the design of the regional water tank shall consider public safety and natural disaster risks, such as floods and earthquakes. • The EHD requested that PWA to notify them before commissioning and operating the sub-project. • The EHD confirmed their commitment to carry out continuous on-site tests for water quality.
17 January 2023	Directorate of Agriculture (DoA) - Jenin	Mustafa Amarneh	Director of Technical Department	• The DoA Requested that PWA to give attention and provide all precautions for the main pipelines passing within areas of high-agricultural value. • The DoA mentioned that uprooting of any olive tree or forest tree from any sub-project site shall be carried out after getting a permit from the DoA. • The DoA requested to inform the contractors to notify the farmers whose

Date	Institution	Name of met Staff	Position	Raised Concerns/Discussed Subjects
				farms are close to the pipeline construction sites before starting the construction works. • The DoA requested that the contractors should apply measures to mitigate the adverse risks and impacts resulting from the construction works on the nearby farms.
18 January 2023	Directorate of Labor (DoL) - Jenin	-Hana'a Anwar -Rana Abu Hasan	- Labor Inspector - Labor Inspector	• The DoL mentioned that some components of the sub-project are considered hazardous due to the use of excavation machinery and the hazard of falling from height (water tank). • The DoL raised the following concerns to be considered: • The work conditions and circumstances shall be according to the Palestinian Labor Law. • The Occupational Health and Safety Requirements shall be considered. • The PWA and contractors should notify DoL before starting the construction activities.
24 January 2023	Directorate of Tourism and Antiquities (DoTA) - Jenin	Nidal Al-Khatib	Archeological Officer	• The DoTA mentioned that they checked the locations of the proposed facilities (well-site, booster stations, regional tank, pipelines), and there are no archaeological sites within or close to these locations. • The PWA and Contractors should inform and coordinate with the DoTA 10 days before starting the excavation works in the sub-project facilities. DoTA will carry out regular inspection rounds to the sub-project sites. • The Contractors should inform the DoTA if archaeological pieces or parts discovered during excavation. Needed workers shall be available to work under the supervision of the DoTA at these sites.
31 January 2023	Directorate of Local Government (DoLG) - Jenin	Rahaf Al-Sha'er	Planning Engineer	• The DoLG supports the sub-project and have the below requirements. • Land acquisition shall be applied as per the Palestinian Law with approval and satisfaction of the landowners. • The DoLG requested the PWA and Contractors to inform the DoLG and the concerned local councils before starting the construction works to agree upon the locations (corridors) of the pipelines.
14 May2023	Directorate of Public Works and Housing (DoPWH) - Jenin	-Bassam Marei' -Maysoon Abu Baker	- Director - Buildings Department Manager & Deputy Director	• The DoPWH asked for laying the pipelines outside the asphalt area of the roads, wherever possible. If the pipes' trenches pass over the pavement layers, then the roads shall be restored and reinstated as per the original status. • The DoPWH asked the PWA to coordinate with them as they are currently working with a local consultant to design and prepare tender documents for rehabilitating the main roads leading to the east Jenin villages in the sub-project area. • The contractors should prepare shop drawings for the routes of the pipelines and should get the approval of the Engineer in addition to the concerned parties before starting the excavation works.

5.4 Meetings with Local Government Units

The Consultant team met with representatives of the municipalities of Jenin, Qabatiya and Burqin to record their concerns and requirements related to the sub-project implementation and to get relevant data and information. The meeting was held at the PWA headquarter in Ramallah on 16 November, 2022. The representatives of the Al-Shuhada village council did not attend the meeting. However, the representatives of these local councils attended the public meetings held in their communities. The PWA staff participated in these meetings. Table 5-3 presents the raised comments and concerns in the meeting and the responses to them.

The participants were briefed about the sub-project objectives, components, potential adverse/beneficial risks and impacts and mitigation measures. The layout of the sub-project was presented starting from the connection points at Al-Jalameh and Salem and the other facilities, such as the main pumping station near Al-Jalameh, regional water tank, and online pumping stations for Burqin and Qabatiya. The participants were informed that the ESIA study would be prepared considering the Palestinian rules and regulations and the World Bank's framework and standards.

The participants supported the sub-project, and they will do their best to successfully implement it. It was also clarified to the participants that all points of view would be respected, registered and considered. The minutes of this meeting are documented and presented in Annex G.

Table 5-3: Comments and Concerns Raised by Local Government Units and Responses

Question/Concern	Response
Inquiry about the effect of cancelling the proposed water tank in Jenin funded by JICA on the sub-project	The PWA stated that the tank was cancelled due to not securing land for it and the modified design considers this impact.
Concern about the land allocated for the regional tank is private.	The PWA responded that the land parcel is a State Land.
Request for drilling a new well as part of the sub-project.	The PWA responded that the individuals drilled many unlicensed and uncontrolled wells in the area, which adversely impact the effectiveness of the groundwater basin..
Concern about a proposed road passing through the land allocated for Qabatiya booster station.	The PWA mentioned that they are following up with the MoLG to modify the urban master by shifting the road not to affect the proposed location of the pumping station.
Request for increasing water quantities supplied to Qabatiya town, which is 70 m3/h, to 140 m3/h to meet the water needs; the existing pipeline of 6" diameter that conveys water to the water tank shall be enlarged.	The PWA stated that the provided water quantities would be increased after implementing the new sub-project, the existing pipeline can serve Qabatiya for the next few years, and a new pipeline of larger diameter will then replace it; later on, the pipeline can be used as a distribution pipeline.

5.5 Public Meetings with Communities

The GKW/CEP team, and after coordination with the PWA, held public meetings with the communities to be served by the sub-project and which might be affected by the sub-project implementation. These communities include the residents of Jenin City, Burqin Town and Al-Shuhada Village. The Consultant team, after coordination with the PWA Project Manager, sent to the mayors of Jenin and Burqin and the head of the Al-Shuhada village council asking them to invite representatives of the local community to attend the public meeting. The GKW/CEP team clarified to the mayors and head of the village council the necessity that the attendees should represent ALL the communities' sectors, such as representatives of women's associations, youth groups, charities, and Heads of communities and community-based organizations (CBOs). The GKW/CEP team has stressed during communicating with the mayors and head of the village council that the invitees shall represent all stakeholders within the community to fulfil the purpose of the meetings.

Table 5-4 shows the schedule for the public meetings with representatives of the concerned communities, venues, number of participants and the socioeconomic profiles/positions of the attendees.

Table 5-4: Schedule of Public Meeting with Concerned Communities

Date of Meeting	Venue	Number of Participants	Positions of Participants
19 March 2023	Burqin Municipality	28 20 Male 8 Female	• Municipality staff:6 • Local community/residents:5 • Women's association:3 • Farmers:4 • Technician:2 • Teacher:2 • University students:2 • Social activist:1 • Housewives:3
19 March 2023	Al-Shuhada Village Council	12 9 Male 3 Female	• Village council staff:2 • Palestine Red Crescent Society:2 • Local community/residents:7 • Housewife:1
14 May 2023	Child Happiness Center belonging to Jenin Municipality	18 6 Male 12 Female	• Municipality staff:8 • Women's association:4 • NGO/INJAZ:2 • Political and National Guidance Com-mission:1 • Preventive Security:1 • Feminist:1 • Water Consultant:1

The meetings were coordinated and accompanied by a PWA engineer who shared in facilitating the meetings, explained the sub-project to the stakeholders and responded to the questions and concerns raised by the attendees.

The public meetings were started by welcoming the attendees by PWA and the Head of the hosting Local Council. The PWA representative briefed the attendees about the sub-project's background and its objectives, the expected benefits to the communities in terms of increasing the per capita consumption and providing the communities with safe and high-quality potable water with acceptable quantities that will overcome the water shortage in these communities. After that, the GKW/CEP team made a presentation for the objectives of the meeting, components of the sub-project and their locations and the anticipated risks and impacts during the construction and operation phases of the sub-project and the findings during the survey work. After that, the floor was opened for the attendees to present their comments, concerns, and inquiries about the sub-project. it was also clear to the attendees that all points of view would be respected, registered and considered.

The attendees raised concerns, requested more clarifications, and inquired about additional information on specific issues. The achieved outcomes of the public meetings are satisfactory as the participants represent the concerned communities; the raised issues focused on the real concerns for each community that might be resulted from sub-project implementation.

All points were noted and documented as presented in Annex G.

Table 5-5 presents the raised questions and concerns in each public meeting and responses to them.

Table 5-5: Questions/Concerns Raised in Public Meetings and Responses to Them

Place of Public Meeting	Question/Concern	Response
Burqin	Possibility of drilling new wells as a source of water.	PWA responded that a new well, Al-Janzur, is drilled, and the drilling of additional wells is not possible due to political reasons and constraints imposed by the Israeli authorities
	Inquiry about the status of the agricultural water source, particularly during the current dry season.	PWA stated that the irrigation water is under the authority of the MoA, and the current sub-project aims to provide the local communities with adequate domestic quantities of water, not for agricultural use.
	Inquiry about the sub-project implementation period.	The PWA stated that the sub-project would be divided into three packages; the implementation period is scheduled to start in the fourth quarter of this year and would be completed after two years from the commencement date.
	Request for improving the water service in the town, by serving areas higher than the existing elevated water tank.	PWA advised the municipality to write directly to the PWA for this request. An online pump could be installed at the existing water tank to supply water to the high areas.
	Inquiry if the water tariff will be increased due to the new sub-project.	PWA confirmed that the water tariff is not related to the new sub-project, and the tariff is set out by the PWA on an equal basis across the West Bank.
	Inquiry about the water losses in the new sub-project.	The PWA stated that the losses are minimal during the initial years of operation and might increase with time.
Al-Shuhada	Inquiry about the water distribution mechanism.	PWA responded that the supplied water quantities would be according to the population number of each served community.
	Inquiry about the water price (tariff) and whether it will increase or be the same.	PWA confirmed that the water tariff is not related to the new sub-project, and the tariff is set out by the PWA on an equal basis across the West Bank
	Inquiry about the operation and maintenance costs for operating the pumping stations.	PWA responded that all O&M costs would be covered by the WBWD, the bulk water supplier working under the umbrella of the PWA, and the cost of supplied water is unified across the West Bank.

Place of Public Meeting	Question/Concern	Response
	Concern about the increase in water supply would increase the generating wastewater into the cesspits, which would affect the water quality of surface wells in the area.	The PWA advised the village council to write directly to the PWA Office in Ramallah to finance the establishment of a sewage network and treatment plant.
	Request to rehabilitate the old water network of about 60% losses and to re-place the inaccurate water meters.	PWA advised them to rehabilitate the water network by re-scheduling the debts on the village council for the water supplied to the village with the PWA through the supply of pipelines. He also advised the village council to hire a specialized firm to check the meters' accuracy.
	An inquiry about the share of communities in case the water supplied quantities decreased by the Israeli side.	The PWA stated that the decrease would be shared equally among the served communities based on the population figures of each community.
	An inquiry about the location of the connection point of Al-Shuhada	The Consultant stated that a new pipeline from the Qabatiya pumping station would be implemented along Jenin-Nablus road, and it would be connected to the existing pipeline supplying the existing tank of Al- Shuhada; the WBWD provided the Consultant with the as-built drawings at the connection point area.
Jenin	An inquiry about the routes of the water transmission pipelines.	The Consultant explained that the water transmission pipelines would be installed within open public roads away from crowded areas and avoid any damage to the paved roads, as much as possible. The PWA added that another new transmission pipeline is currently under implementation and funded through the KfW to serve Jenin industrial zone.
	Inquiry about any rehabilitation plans for the distribution network in Jenin, as it is old and deteriorated. The sub-project focuses on the bulk water supply system, not the distribution networks.	Jenin Municipality responded that there is a proposed sub-project for rehabilitating the network, which might be financed by JICA.

Place of Public Meeting	Question/Concern	Response
	A question about the sub-project implementation period and donor commitment to financing the sub-project, as donors previously left the projects before completing them.	The Consultant mentioned that the sub-project would be divided into three packages; the implementation period is scheduled to start in the fourth quarter of this year and would be completed after two years from the commencement date. The PWA emphasized there is a commitment from the World Bank to implement and follow up on this sub-project
	Inquiry about the quality of the supplied water and the monitoring of its quality.	The PWA stated that the water quality is per the Palestinian standards for domestic water. The PWA mentioned that the water quality is monitored at the source by the Water Quality Department/PWA and at the source and distribution network by the Environmental Health Department (EHD) belonging to the Ministry of Health (MoH). Jenin Municipality mentioned that they have a unit equipped with a laboratory for testing and monitoring the water quality periodically, and the testing tools are calibrated annually.
	An inquiry if the existing high-pressure transmission pipeline conveying water from the Israeli side will be kept after implementing the new sub-project.	The Consultant indicated that the existing high-pressure pipeline would be kept in use according to the information provided by the PWA.
	A question for not drilling new wells instead of purchasing water from the Israeli side.	The PWA responded that the individuals drilled many unlicensed and uncontrolled wells in the area, which adversely impact the effectiveness of the groundwater basin.
	An inquiry about water quantities to be provided by the sub-project.	The Consultant responded that the sub-project will provide 790m3/hr per the agreement with the Israeli side. The supplied quantities will cover the water needs in the sub-project area.
	A question if the sub-project facilities are sized to cover the water needs of the year 2040.	The Consultant confirmed this.

Place of Public Meeting	Question/Concern	Response
	A woman mentioned that they suffer from water shortage, especially in the summer, when the population does not get water for a period ranging from seven to ten days, particularly in the highlands. Residents of these areas are forced to purchase water through tankers at high prices (20NIS/m3) from unknown sources and questionable quality. The lack of water negatively affects the levels of hygiene and public health, personal hygiene and cleanness of the place, and leads to the spread of diseases. Some babies get diaper rash due to lack of water.	The PWA responded that all these problems and shortcomings would be solved after operating the new sub-project.

5.6 Meetings with Vulnerable Groups and other Interested Parties

The GKW/CEP team held separate small group discussions with the vulnerable groups (VGs) and other interested parties (OIPs), which might be affected by the sub-project implementation. The VGs include people living in the Jenin refugee camp, women headed households, unemployed youth, persons with disabilities and the poor. The OIPs include local community-based organizations (CBOs); such as women's associations, charity associations, students' parents' councils, etc.; NGOs working on water and sanitation (Palestinian Hydrology Group (PHG) and Union of Palestinian Water Services Providers (UPWSP), academic institutions (Arabic American University) and media.

The consulted VGs and OIPs were briefed about the sub-project objectives, components, potential adverse/beneficial risks and impacts and mitigation measures. The participants were informed that the ESIA study would be prepared considering the Palestinian rules and regulations and the World Bank's framework and standards.

The participants were informed that there would be a disclosure of information and communication tools for the consultation about the sub-project. The stakeholders can easily access the information through the PWA's website as follows: http://www.pwa.ps/page.aspx?id=d3fEhna1248699936ad3fEhn.

The participants were informed about that the existing GRM applied at the PWA that any entity or person can send a complaint and/or a suggestion. The PWA has a system to follow up the complaints/suggestions and revert to the sender accordingly.

The participants supported the sub-project, and they will do their best to successfully implement it. It was also clarified to the participants that all points of view would be respected, registered and considered. The minutes of these consultations are documented and presented in Annex G. Table 5-6 presents the raised comments and concerns by the VGs and OIPs.

Table 5-6: Concerns and Issues Raised by Vulnerable Groups and Other Interested Parties

Categories	Stakeholder Group	Concern/Issue
Vulnerable Group	Jenin Refugee Camp	• The supplied water quantities do not satisfy the public demands. • Protecting the water sources against vandalism by the Israelis. • Jenin Refugee Camp suffers from the damaged infrastructure as a result of the Israeli forces' last intrusion of the camp.

Categories	Stakeholder Group	Concern/Issue
		• Replacing the rusted pipes that affect negatively the public health • Distribution of water fairly among the targeted communities according to the number of the population. • Raising public awareness concerning water use and rationing.
	Woman Headed Household	• The people suffer from water shortage due to low pressure in the water distribution network. • The people are forced to purchase water tankers to cover their needs in the summertime.
	Poor People	• Looking forward that the project implementation will create new job opportunities with a good income for unemployed youth in the region. • Reducing the problem of water shortage in the Jenin area. • Residents are forced to buy water tankers at high prices to cover their water needs, despite their low-income level.
	People with Special Needs	• Inability of people to purchase water tankers due to low-income level. • The supplied water through pipelines is turbid with high chlorine level. • Looking forward that the project implementation will create new job opportunities with a good income for unemployed youth in the region.
Other Interested Parties	Women's Association	• The people suffer from the lack of water and its cut for long periods. • The people received polluted water sometimes due to leakage through the deteriorated water distribution network. • Streets in which the new pipelines will be installed shall be restored to the original conditions
	Jenin Childhood Center	• The quantity of supplied water is very small, which has clear effects on the levels of hygiene and public health, personal hygiene and cleanness of the place, especially for children category. • The supplied water might be exposed to pollution as a result of the deteriorated distribution network in Jenin city and the Jenin refugee camp.
	Charity Association	• To install the new transmission line away from the recently paved Haifa-Jenin Road. • Shallow wells are polluted by sewage, and there is a need to drill new deep wells in the area. • To consider public health and safety precautions during the sub-project implementation. • Intensify the surveillance related to illegal connections on the water transmission pipelines.
	Academic Institutions	• Jenin Area suffers from insufficient supplied water quantities. • The increase in population numbers and urban expansion exacerbated the problem, which forced the residents to purchase water from vendors with high costs.

Categories	Stakeholder Group	Concern/Issue
	Media	• The low areas in Qabatiya suffer from stagnant water that contains sediments, making it unsuitable for domestic use. • There is a need to raise public awareness concerning following up on the maintenance work for household plumping.
	NGOs working on water and sanitation	• Taking into the account the environmental and economic risks and impacts on the surrounding agricultural lands during the implementation phase. • Looking forward that the implementation of the project will eliminate drilling the arbitrary shallow wells, which deplete the groundwater, particularly the Jenin area is one of the Palestinian areas suffering from water shortage. • Distribution of water fairly among the targeted communities according to the number of the population and their needs. • Implement an appropriate billing and collection system for consumed water and encourage prepaid water meter usage to ensure a sustainable distribution system.

5.7 Grievance Redress Mechanism

A grievance redress or complaints handling mechanism is created to ensure that the sub-project-affected persons (PAPs) have access to a viable system to air grievances and to seek resolution with no intimidation or coerciveness. The grievance system is also important for PWA, as the sub-project owner, to ensure they are accountable for complaints and that these complaints are handled transparently and efficiently.

The Grievance Redress Mechanism (GRM) addresses grievances in an efficient, timely and cost-effective manner arising in the sub-project from affected communities and external stakeholders, either due to actions by the Contractors or the sub-contractors employed by them and PWA during the construction and operation phases. The GRM shall be in accordance with the SEP of the WSRP-1 Program.

The PWA, supervision Engineer, and Contractors are responsible for managing the GRM during the construction phase, including the actions resulting from the sub-contractors. PWA and the supervision Engineer will administer the GRM process deciding and determining the best course of action to resolve the grievance. PWA and the supervision Engineer will monitor the grievance resolution undertaken by the Contractors and their sub-contractors.

The sub-project GRM deals with the issues of land acquisition and livelihood impacts (e.g., amount of compensation, suitability of residual land plots, etc.) as well as the losses and damages caused by construction works and any direct or indirect environmental and social risks and impacts. The grievance redress mechanism shall be activated at PWA for the sub-projects to be implemented under the WSRP-1 program and in accordance with its SEP, including the Jenin Bulk Water Supply Sub-Project. The PAPs and other potential complainants were informed about the GRM during the stakeholder consultation process carried out by the Consultant. Also, the PAPs and other potential complainants should be fully informed about the GRM, its functions, procedures, timelines, and contact persons verbally and through booklets and information brochures during consultation meetings and other stakeholder engagement activities. Consultations and meetings with the PAPs shall be continued during the implementation phase. The PWA and supervision Engineer shall keep a log of the complaints at hand.

Typical grievances related to the sub-project activities are:

1. Land acquisition for the main booster station.
2. Loss of land value due to sub-project's activities.
3. Loss of access to private properties or assets due to sub-project's activities.

4. Physical damages to health and wellbeing during sub-project construction and operation phases.
5. Damages to residents' source of income, like crops or any income-generation facility.
6. Environmental or social annoyance resulting from the sub-project.

The PWA and supervision Engineer will implement an effective GRM to help third party(ies) to avoid resorting to the judicial system as far as possible. The complainants can seek redress from the judicial system at any time. The step-by-step process does not deter them from approaching the courts. All grievance-related correspondence will be documented, and the grievance resolution process will be systematically tracked.

5.7.1 Grievance Process

The Social Specialist (SS) who will be assigned by the PWA, the ESIA/ESMP Engineer who will be assigned by the supervision Engineer, and the Construction Contractors will follow up on the complaints related to the sub-project during the construction phase in accordance with the Project SEP. The complaint to be filed should be related to the sub-project components and/or to its implementation and management. The grievance resolution process involves the following main steps:

First: Receiving the Complaint

Anyone from the affected communities or anyone believing they are affected by the sub-project can submit a grievance:

- By completing a written grievance registration form that will be available at:
  i. At the local municipalities and village councils (i.e., those within proximity of construction activities);
  ii. At the entrance of each construction site;
  iii. On the Sub-Project's website; and
  iv. At the PWA headquarters in Ramallah.

  Grievance registration forms will be provided. The Sub-Project's SS will review the received grievances and record them in a Grievance Register.
- Electronically: the complainant files a complaint electronically using the electronic GM forms on the ministry website: http://www.pwa.ps/
- By telephone: the complainant can call the following numbers: PWA Ramallah: +970 2 2987665
- Social Specialist mobile
- By email to: waadodeh@gmail.com

Where possible, it is desirable that complaints are submitted in writing by the complainant. Should the complainant not wish to comply with this request and submit the complaint verbally, then the complainant information and the details of the complaint should be entered in the GM Log.

Second: Filing Complaints

The complainant fills in the designated form in writing and signs it, or fills it electronically including all personal information and details of the complaint.

The complainant encloses all copies of documents which may support the complaint.

The GM staff at the Complaints Unit will ensure that the form is filled in accurately. The complainant receives a receipt or a confirmation email of acknowledgment with a reference number to track the complaint.

If the complainant chooses to file his/her complaint verbally, the GM employee must register the complainant information and details of the complaint into the system. The complainant will receive a reference number to track his/her complaint.

Third: Registering Complaints

The GM staff will enter the complaint into the GM log. The complaints register records the following information:

- Complaint Reference Number
- Date of receipt of complaint
- Name of complainant
- Confirmation that a complaint is acknowledged
- Brief description of Complaint
- Details of internal and external communication
- Action taken: (Including remedies / determinations / result)
- Date of finalization of complaint

Original documentation must be kept on file.

Fourth: Referral and Examination of Complaints

A GM system will be established in accordance with the Project SEP. The SS will inform the complainant that an investigation is underway within three business days from the day of receipt of the complaint. The complainant shall be informed of the estimated duration for resolving the complaint which is no later than ten business days from the date of receipt of the complaint. Where the complaint is unlikely to be resolved within the estimated duration, the SS must promptly contact the complainant to request additional time and explain the delay. In any event, the complaint must be resolved no later than two weeks from the date of receipt of the complaint. If the complaint is not resolved, the SS will refer the complaint to the Director of the PMU take the appropriate measures.

The SS will then follow the steps below:

- Verify the validity of the information and documents enclosed.
- Ask the complainant to provide further information if necessary.
- Refer the complaint to the relevant department.
- Conduct field visits for verification, if necessary, and prepare recommendation to the PMU of actions to be taken and of any corrective measures to avoid possible reoccurrence.
- Register the decision and actions taken in the GM log.

Fifth: Notifying the Complainant and Closing the Complaint

➢ **Notifying the Complainant:**

The SS shall notify the complainant of the decision/solution/action immediately either in writing, or by calling or sending the complainant a text message. When providing a response to the complainant, the SS must include:

- A summary of issues raised in the initial complaint; and
- Reason for the decision.

All grievances are reported and responded to by approval or rejection within three working days. The grievances are then investigated and resolved or closed within two weeks from the date of submitting the grievance.

➢ **Closing the Complainant:**

A complaint is closed in the following cases:

- Where the decision/solution of complaint is accepted by the complainant, the SS shall close the complaint and sign outcome and date in the Complaint Register.
- A Complaint that is not related to the sub-project or any of its components. ·
- A Complaint that is being heard by the judiciary.
- A malicious complaint.

Additional Dispute Resolution Scheme

Internal Dispute Resolution Scheme: Where the complainant is not satisfied with the outcome of his/her complaint, PWA will ask if she/he would like to escalate to the next level and if so, escalate the complaint to the Director of the PMU. Where complainants are not satisfied with the resolution provided by the Director of the PMU, PWA will ask if she/he would like to escalate to the next level and if so, escalate the complaint to the Head of the PWA.

External Dispute Resolution Scheme: In case the complainants are not satisfied with the internal procedures for handling complaints, the outcomes of the complaints or for any unhandled complaints, the SS shall provide information on a complainant's right to refer their complaint to the Cabinet of Ministers' Unit for grievances or to the judicial system.

Anonymous Complaints: The GM system includes an anonymous complaint reporting process as some complainants may choose to file a complaint anonymously. Channels to accept and respond to anonymous grievances will be communicated to sub-project affected parties during the consultation meetings and throughout sub-project implementation. Anonymous complaints should provide factual details and specific allegations of misconduct or serious wrongdoing related to any of the sub-project activities. The GM staff shall ask the complainant about the preferable way to inform him/her of the solution.

GBV/SEA/SH Related Complaints: The GM system shall include special referral pathways for the GBV complaints and grievances, including grievances on sexual harassment and sexual exploitation and abuse. The SS will receive and handle the GBV/SEA/SH complaints. The mechanism of accepting and responding to GBV grievances will be communicated to sub-project affected parties during the consultation meetings. Channels to accept and respond to GBV grievances, while ensuring high confidentiality, will be communicated to the sub-project's affected parties during the consultation meetings and throughout sub-project implementation. Training will also be provided by a GBV expert for the PWA on detection of cases of gender-based violence and handling of inquiries, complaints and grievances related to GBV.

In some cases, there might be a need for referring and/or consulting the GBV/SEA/SH cases to other organizations and service providers working in this sector. Priority GBV/SEA/SH service providers can include medical, psychosocial and legal support, safety and security-related services. These organizations and service providers are as follows:

1. Traditional international actors (e.g. GBV working group, UNFPA, UNICEF, UN Women, donors and NGO partners).
2. Government counterparts: Ministry of Women's Affairs, Ministry of Social Development and other ministries and civil society organizations.

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Reporting

The SS shall review the Complaints Register regularly for the purpose of providing analysis and reports on complaints to the PWA. The report shall include number of complaints received, handled and closed. It shall also include analysis on systemic and recurring problems. This will assist the sub-project management in determining the cause of complaints and whether remedial action is warranted.

Periodic Reporting shall be submitted as follows:

- A monthly report to the PMU/PWA.
- A quarterly report to the World Bank's competent authority.

5.7.2 World Bank Grievance Redress System

Communities and individuals who believe that they are adversely affected by a sub-project supported by the World Bank may also complaint directly to the Bank through the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address sub-project-related concerns. Sub-Project affected communities and individuals may submit their complaint to the World Bank's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of the World

Bank's non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and the World Bank's Management has been given an opportunity to respond.

A complaint can be submitted to the Bank GRS through the following channels:

- By email: grievances@worldbank.org
- By fax: +1.202.614.7313
- By mail: The World Bank, Grievance Redress Service, MSN MC10-1018, 1818 H Street
- Northwest, Washington, DC 20433, USA
- Through the World Bank West Bank and Gaza Country Office. For information on how to submit complaints to the World Bank's GRS, please visit https://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service

5.7.3 Workers' Grievance Mechanism

PWA will require Contractors to develop and implement a grievance mechanism for their workforce before the start of construction works. A GM shall be provided to the workers to raise workplace concerns. Such workers shall be informed of the GM at the recruitment time and the measures put in place to protect them against reprisal for its use. The measures shall be operationalized to make the GM easily accessible to all such project workers. The construction Contractors will prepare their labor management procedure based on the WSRP-1 LMP before the start of construction works, which will also include a detailed description of the workers' grievance mechanism.

The PWA will require contractors to conduct an orientation session for their workforce on the GM before the start of construction works, and the contact information of the contractor's GM focal person and the SS of the PWA will be shared with the contracted workers. The GM will also address child labor, GBV and sexual harassment-related grievances. Information about the existence of the GM shall be available to all project workers.

The mechanism shall address the concerns promptly, using an understandable and transparent process that provides timely feedback to those concerned in a language they understand, without any retribution, and shall operate independently and objectively.

The GM shall not impede access to other judicial or administrative remedies that might be available or substitute for grievance mechanisms provided through collective agreements.

The workers' grievance mechanism will include:

- A procedure to receive grievances such as comment/complaint form, suggestion boxes, email, a telephone hotline;
- Stipulated timeframes to respond to grievances;
- A register to record and track the timely resolution of grievances;
- An assigned staff to receive, record and track resolution of grievances; and
- Provisions for handling of GBV/SEA/SH in the GM

The workers' GM system will include special pathways for the GBV complaints and grievances, including grievances on sexual harassment and sexual exploitation and abuse. Channels to accept and respond to GBV grievances, while ensuring high confidentiality, will be communicated to the workers during the orientation session.

PWA has its GM, which allows its employees/workers to submit their complaints through. The GM allows the employees/workers to raise their complaints through the following specific channel: https://cs.pmo.gov.ps/Users/Login.aspx?Redirect=~%2fdefault.aspx.

Information about the existence of the grievance mechanism will be readily available to all sub-project workers (direct and contracted) through notice boards, the presence of "suggestion/complaint boxes", and other means as needed.

The protocols and timelines for receiving and addressing workers' complaints shall be in line with those presented in Section 5.7.1. The contractor's assigned staff is responsible for preparing the periodic reports to the SS of the PWA and the ESIA/ESMP Engineer, who will be appointed by the supervision Engineer, about the resolution of each grievance processed by the contractor. The report will include the resolution and closure process.

The SS of the PWA and the ESIA/ESMP Engineer, who will be appointed by the supervision Engineer, will monitor the Contractors' records and resolution of grievances, and report these to the PWA in their monthly and progress reports.

6 ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS AND MITIGATION MEASURES

6.1 Introduction

The chapter describes the assessment of the environmental and social risks and impacts of the components of the sub-project during the pre-construction, construction, and operation phases.

The Jenin Bulk Water Supply System is summarized as follows:

1) Construction of about 41 km of main transmission supply pipelines of 150 to 500mm diameters.
2) Construction of an on-ground 6,000m^3 regional water tank in the Al Jenan neighborhood east of Jenin City.
3) Construction of three booster pump stations as follows:
    - Main booster pump station near Al-Jalameh to deliver water to the regional water tank and the connection point feeding Jenin northeast villages.
    - Burqin inline booster station inside the existing Al Jabriyat water tank site to deliver water to Burqin elevated tank.
    - Qabatiya inline booster at Jenin-Nablus Road to deliver water to Al-Shuhada and Qabatiya tanks.

6.2 Methodology of Environmental and Social Impact Assessment

6.2.1 Introduction

The environmental and social impact assessment was carried out to identify the potential risks and impacts of the sub-project on the environment and affected population. The assessment was carried out in three main steps, as follows:

1. Identifying potential risks and impacts.
2. Assessing the risks and impacts in terms of their significance.
3. Identifying/proposing mitigation measures for eliminating or minimizing the effects of the significant risks and impacts.

After the exclusion of the irrelevant risks and impacts, the remaining risks and impacts were assessed based on the following criteria:

- Magnitude of the impact.
- Duration of the impact, which is the period that impact lasts.
- Mitigation measures which will be either integrated into the sub-project design or implemented as management measures.
- Residual impacts after considering the mitigation measures.

Negative environmental and social risks and impacts are expected during the construction and operation phases. Offsetting the potential negative risks and impacts and mitigation measures are suggested; the residual risks and impacts are evaluated.

6.2.2 Identification of Potential Environmental and Socioeconomic Risks and Impacts

The potential risks and impacts result from certain activities carried out during the construction phase (e.g., excavation, transportation of materials, pipes laying, backfilling, installing pumps, etc.) and operation phase (e.g., operating booster pumps, chlorination at well-site, etc.).

The construction and operation of some/all of the components of the sub-project will also create additional activities/processes, such as:

1. Solid waste generation during both construction and operation phases.
2. Liquid waste generation during construction by workers and discharged liquid wastes by operators during the sub-project's operation.

The key receptors which the Consultant has considered include:

1) Air.
2) Soil.
3) Groundwater.
4) Surface water.
5) Biological environment.
6) Human environment.

There is no surface water in the sub-project area; therefore, this receptor will not be affected by the sub-project and not be included in further assessment and analysis.

6.2.3 Evaluation and Assessment of Impacts

The interaction between the different activities and the environmental receptors results in negative or positive impacts. The potential effects of a new sub-project are identified by measuring the ecological risks and impacts against the existing baseline conditions. Therefore, the Consultant team has identified the expected impacts of the sub-project activities during the construction and operation phases. Table 6-1 to Table 6-3 present the preliminary results indicating the potential impacts, positive and negative, of the sub-project activities on the significant environmental attributes.

Table 6-1: Potential Risks and Impacts of Sub-Project Activities for Construction of Main Water Transmission Pipelines on Environmental Attributes[27]

Environmental Attributes	Construction Phase								Operation Phase
	Excavation Works	Bedding and Pipe Laying	Back-filling	Testing	Site Reinstatement	Valves Installation	Disinfection	Flushing	
Physical Environment									
Air Quality	--	--	--		--	--			
Soil	--	--	--		--				
Groundwater									--
Noise level	--	--	--	--	--	--	--	--	
Biodiversity Environment									
Flora	--				--				
Fauna	--				--				
Socioeconomic									
Occupational Health and safety	--	--	--	--	--	--	--	--	--
Community health and safety	--	--	--		--	--	--	--	
Visual and landscape impacts	--								
Traffic impacts	--	--	--	--	--	--	--	--	
Cultural heritage	--								
Labor Conditions	--	--	--	--	--	--	--	--	--
GBV/SEA/SH impacts	--	--	--	--	--	--	--	--	--
Socioeconomic impacts/Employment.	+	+	+	+	+	+	+	+	+

[27] Impact is either negative (-) or positive (+)

Table 6-2: Potential Risks and Impacts of Sub-Project Activities for Construction of Water Tanks on Environmental Attributes

Environmental Attributes	Construction Phase						Operation Phase
	Excavation Works	Concrete Works	Mechanical Works	Insulation and Finishing Works	Testing	Site Cleaning and Landscaping	
Physical Environment							
Air Quality	--	--	--	--		--	--
Soil	--		--			--	
Groundwater							--
Noise level	--	--	--	--	--	--	
Biodiversity Environment							
Flora	--					--	
Fauna	--					--	
Socioeconomic							
Occupational Health and safety	--	--	--	--	--	--	--
Community health and safety	--	--	--			--	
Visual and landscape impacts	--					--	
Traffic impacts	--	--	--			--	
Cultural heritage	--						
Labor Conditions	--	--	--	--	--	--	--
GBV/SEA/SH impacts	--	--	--	--	--	--	--
Socioeconomic impacts/Employment.	+	+	+	+	+	+	+

Table 6-3:Potential Risks and Impacts of Sub-Project Activities for Construction of Booster Pumping Stations on Environmental Attributes

Environmental Attributes	Construction Phase							Operation Phase
	Excavation Works	Concrete Works	Mechanical Works	Electrical Works	Testing	Finishing Works for Service Rooms	Site Cleaning and Landscaping	
Physical Environment								
Air Quality	--	--	--	--			--	--
Soil	--		--	--			--	
Groundwater								--
Noise level	--	--	--	--	--	--	--	--
Biodiversity Environment								
Flora	--		--	--			--	
Fauna	--						--	
Socioeconomic								
Occupational Health and safety	--	--	--	--	--	--	--	--
Community health and safety	--	--					--	
Visual and landscape impacts	--						--	
Traffic impacts	--	--					--	
Cultural heritage	--							
Labor Conditions	--	--	--	--	--	--	--	--
GBV/SEA/SH impacts	--	--	--	--	--	--	--	--
Socioeconomic impacts/Employment.	+	+	+	+	+	+	+	+

The potential relevant impacts were subject to a process of impact evaluation, based on the analysis of the proposed sub-project components and activities to determine the significance of the different impacts.

Each potential impact is evaluated based on preset criteria designed to identify the significance of a certain impact by determining the potential impact magnitude and the receptor sensitivity, as described below.

Impact Magnitude: The impact magnitude is a measure of change from baseline conditions due to a certain impact, by describing the duration, spatial extent, reversibility, and likelihood of the impact:

- **Spatial Extent:** spatial extent (area impacted) or population extent (proportion of the population / community affected) of an impact;
- **Duration:** how long the impact will interact with the receiving environment (long term, medium term, limited to construction, temporary).
- **Likelihood of Occurrence:** the certainty of the impact occurrence (certain, likely, occasional, unlikely)
- **Reversibility:** how long before impacts on receptors return to baseline conditions (irreversible, reversible, baseline returns naturally shortly, baseline remains constant).

The magnitude of the impact is ranked as Major, Moderate, Minor and Minimal as illustrated in Table 6-4.

Table 6-4: Parameters for Ranking Magnitude of Impacts

Parameter	Major	Moderate	Minor	Minimal
Spatial Extent	Widespread faraway beyond project boundary	Spread beyond project area but not faraway	Spread within project boundary	Spread within specific location of the project area
Duration	Extending long term beyond the project lifespan	Extending medium term within the project lifespan	Limited to construction duration	Temporary
Likelihood	Occurs under normal conditions (certain)	Likely to occur under worst-case conditions	Occasional occur under certain abnormal conditions	Unlikely to occur
Reversibility	The impact becomes permanent	Baseline needs time (a year or so) to return naturally	Baseline returns naturally shortly within a few months	Baseline remains constant

Receptor Sensitivity: Receptor sensitivity is the degree of receptor susceptibility to a given impact. Receptor sensitivity takes into consideration receptor resilience and value. The receptor sensitivity is ranked as Very Severe, Severe, Mild and Low as illustrated below.

Very severe: A receptor with little or no ability to absorb proposed changes or minimal opportunities for mitigation.

Severe: A receptor with little or no ability to absorb proposed changes or limited opportunities for mitigation.

Mild: A receptor with some ability to absorb proposed changes or moderate opportunities for mitigation.

Low: A receptor with good ability to absorb proposed changes or excellent opportunities for mitigation.

Significance of Impact: The significance of each potential impact was determined by identifying the magnitude of the impact and the sensitivity of the receiving receptor using the below impact significance matrix presented in Table 6-5.

Table 6-5: Impact Significant Matrix

		Receptor Sensitivity			
		Very Severe	Severe	Mild	Low
Impact Magni-	Major	Critical	High	Medium	Negligible
	Moderate	High	High	Medium	Negligible
	Minor	Medium	Medium	Minor	Negligible
	Minimal	Negligible	Negligible	Negligible	Negligible

6.3 Mitigation Measures

The sub-project aims to result in a net positive environmental and social impact. Mitigation measures to achieve the intentions are either incorporated as an integral part of the sub-project design or through environmental and social management and monitoring measures. By implementing both types of mitigation measures, the residual risks and impacts, which are those potentially, remaining after implementing the mitigation measures, will be minimal/insignificant/ acceptable. As much as possible, the avoidance and prevention of impacts is favored over minimization, mitigation or compensation. Based on the impact identification and evaluation process, only relevant impacts are assessed, and mitigation measures are proposed for minor and significant impacts.

6.4 Relevant World Bank's ESSs on Sub-Project

The following ESSs mentioned in Section 3.3 are relevant to the sub-project.

ESS1 Assessment and Management of Environmental and Social Risks and Impacts

An analysis and assessment of the environmental and social risks and risk classification for the sub-project, are carried out. The qualitative analysis is carried out to identify all sub-project risks and impacts, including direct and indirect, short-term and long-term, cumulative, reversible and irreversible, for the construction and operation phases of the sub-project. A set of mitigation, monitoring, and institutional measures to be taken during the implementation and operation of the sub-project to eliminate adverse environmental and social risks and impacts, offset them, or reduce them to acceptable levels is prepared. Hence, a generic ESMP is prepared, including the measures and actions needed to implement these measures.

ESS2 Labor and Working Conditions

The sub-project will employ different labor workers during the construction and operation phases. The sub-project will be implemented by Contractors who will be selected via bidding. The Contractors will employ contracted workers. The Contractors should prepare Labor Management Procedure (LMP) before starting the construction phase. The LMP should consider the national requirements, as well as the objectives of the Bank's ESF concerning labor and working conditions. The Contractors should apply the contents of the LMP during the construction phase. Also, the PWA should use the national requirements and the objectives of the Bank's ESF concerning labor and working conditions for its direct workers during the operation phase.

Human Resources Policies and Procedures: The human resources policies and procedures that will be applied in the sub-project shall be in line with the Palestinian Labor Law.

A training plan will also be put in place for the Consulting Team and the Contractors. Induction training on the HR policy and procedures and basic safety awareness training should be provided to all newly hired workers.

Working Conditions **and Terms of Employment:** The sub-project's HR policies and procedures will specify the terms of employment (wages and benefits, hours of work, overtime arrangements and overtime compensation, annual and sick leave, vacation and holiday, health insurance and end of service benefits) and will also include provisions on restrictions to child labor and prevention of forced labor as well as a commitment to non-discrimination and equal opportunities for employees and contractor, and will be shared with all new hires. Nondiscrimination and equal opportunity should be adopted for all workers.

Grievance Mechanism: A workers' grievance mechanism should be developed by contractors and the Consultant team and made available to all workers. The grievance mechanism will clearly define the response timeframes to grievances and incorporate a grievance log as part of the grievance mechanism process.

Occupational **Health and Safety:** The key Occupational Health and Safety (OHS) risks for the sub-project subcomponents include viral infections, slips and falls, potential hazards from on-site moving machinery, heavy load lifting, and exposure to electric shocks and burns. In addition to the relatively hot sub-project location, construction workers might be at risk of dehydration, heat exhaustion and heat stroke if not properly hydrated.

PWA, the Consultant team, and the Contractors will ensure that OHS procedures exist before starting the construction activities. The OHS procedures will cover the following issues: the spread of pandemic viruses, hazard identification and assessment, construction site safety (barricades, access control, clear demarcation of areas and provision of safety information to visitors), specific procedures for hazardous works, workers' safety and training plan, personal protective equipment needs, site supervision and audit procedures; and incident intervention measures and reporting.

ESS3 Resource Efficiency and pollution Prevention and Management

Resource Efficiency and Water Consumption: Resource consumption on all sub-project components is expected to be moderate, with the main resource utilized during construction being water for dust suppression, concrete production and curing, leakage testing of the water tanks and piping system, backfilling for the piping system, and domestic usage. During the operation stage, water is needed only for the domestic use of the operating staff.

Greenhouse Gases: Greenhouse gas emissions from the sub-project during construction are expected to be predominantly associated with the use of fuels such as generators, transport, on-site equipment, and machinery.

Wastes: Solid waste generated during construction mainly consists of municipal and construction wastes. Municipal wastes will be disposed of in the approved sanitary landfill in the sub-project area, which is Zahret Al-Finjan, via the local council within which the sub-project sites are located or licensed contractor by sound environmental means. Construction waste shall be reused (e.g., excavated soil) or disposed of at a licensed approved dumping site per coordination and approval of the local authorities. Hazardous waste will be likely to comprise tires, fuel, oils, and lubricants used by vehicles and machinery. The overall volumes of both solid and hazardous waste generated by the sub-project during construction are expected to be small. A waste management plan (WMP) should be prepared by the Contractors and approved by the Consultant. The WMP will be implemented for the safe management of these wastes. During operations, waste generated will be largely limited to domestic waste, and waste generated from maintenance. These waste streams will be segregated as per the Waste Management Plan to be developed for construction. The waste management plan will be revised to be aligned with the Palestinian National Solid Waste Management Strategy.

Wastewater Treatment: During the construction phase, the generated wastewater resulting from the temporary sanitary facilities of the Contractors and Consultant will be disposed of based on the location of these facilities. If these facilities are located in Jenin City, then the facilities are connected to the existing public wastewater system. If the sanitary facilities are outside Jenin City, the generated wastewater will be stored in suitable septic tanks and transported off-site to the Jenin wastewater treatment plant (WWTP). The Contractors will be responsible for managing the wastewater collection and disposal of the facilities during the construction phase.

During the operation phase, the water facilities shall include septic tanks for collecting the generated wastewater from the operation team. The PWA shall sign a contract with a licensed contractor to evacuate and transfer the septage into the Jenin WWTP.

The implementation of the sub-project would increase per capita water use and the population served by the bulk water system. This would substantially increase the quantity of wastewater generated, and the magnitude of the discharge of larger volumes of untreated wastewater to nearby Wadis and open vegetated areas would exacerbate the existing problem of degraded groundwater quality.

Pollution Prevention: During sub-project construction, power needs will be met via connecting to the electricity grid, if available, or diesel generators if the electricity grid is not available. The diesel generators will locally impact air quality and require fuel management and containment. These impacts, however, will be short. Plans and procedures that manage pollution-related aspects of the sub-project's component will be in line with the requirements of relevant national regulations. Aspects should cover air quality/dust, spills, and occupational noise.

ESS4 Community Health and Safety

Risks and impacts on community safety are related in particular to (i) road accidents due to increased traffic and accidents on-site during excavation and pipework activities and (ii) health impacts associated with hazardous materials/wastes and handling these materials appropriately to avoid non-routine events (such as spillages) and communicable diseases during the implementation phase.
The traffic management plan (TMP) will be developed to manage potential hazards to nearby communities and road users associated with the traffic environment during the implementation of the sub-project. Communities must not be exposed to hazardous materials/wastes and communicable diseases during the implementation phase. There is a need to ensure that the safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the sub-project-affected communities.

ESS5 Land Acquisition, Restrictions on Land Use and Involuntary Resettlement

This sub-project requires land acquisition, which is limited to land for the main booster station at Al-Jalameh. This privately owned land was acquired in line with the national legislation, ESS5 and the Resettlement Framework of the Project. Compensation must be paid to the landowners before handing over the land to the contractor for starting works. The sub-project activities will not entail causing the loss of income or sources of livelihood as the facilities of the sub-project are located within the road right-of-way for the transmission mains, and the other facilities are located within lands in open areas which do not include cultivated land, structures, facilities, and development projects. The sub-project implementation will also not cause physical displacement (relocation, loss of residential land, or loss of shelter) to the residents of communities living within the sub-project sites.

ESS6 Biodiversity Conversation and sustainable Management of Living Natural Resources

Along the sub-project area which was investigated by the Consultant Biodiversity Specialist, it was noticed that there are only common weeds and thistles species. The land for the regional tank includes olive trees, which will be uprooted and replanted in other locations per the directions of the MoA. At the proposed locations of the sub-project components (transmission mains and water facilities), it was noted that there are no threatened animal or rare plant species recorded in and around the proposed locations. The sub-project area is not located within the zone of migratory birds. All the recorded flora and fauna in the sub-project area are common species.

The mitigation hierarchy approach will be applied following the relevant provision under ESS6.

ESS8 Cultural Heritage

There are no cultural components within or close to the sub-project sites. The MoTA stated that there are archeological sites in close proximity to the sub-project sites and they asked to consulate them before starting the implementation. phase. Chance find procedures will apply to the sub-project regarding the cultural and historical sites to guarantee their protection in the event of chance discovery of heritage resources.

ESS10 Stakeholder Engagement and Information disclosure

The sub-project involves a range of stakeholders. Sub-Project-affected Parties include people who may be subject to direct impacts from sub-project activities (e.g., landowners), ministries and government agencies, water sector institutions (e.g., PWA, Water Service Providers), local government authorities, and residents close to construction works.

The Consultant team met and consulted the relevant stakeholders to ensure they were engaged throughout the sub-project.

Information Disclosure: The PWA will disclose on its website (http://www.pwa.ps) information and all key documentation to allow stakeholders to understand the risks and impacts of the sub-project and potential opportunities. The information will be disclosed in relevant local languages and in a manner that is accessible and culturally appropriate, taking into account any specific needs of groups that may be differentially or disproportionately affected by the sub-project.

The disclosure should include information on (i) the stakeholder engagement process, highlighting the ways in which stakeholders can participate; (ii) the time and venue of any proposed public consultation meetings, and the process by which meetings will be notified, summarized, and reported and; (iii) the process and means by which grievances can be raised and addressed.

The approach, contents and details of the information disclosure are elaborated in Section 6.10.

Based on the above analysis, the sub-project incorporates the following risks and impacts:

I. Construction's Negative Risks and Impacts:

- Air quality
- Noise
- Non-hazardous solid waste
- Hazardous waste generation and handling
- Liquid wastes
- Soil and groundwater
- Biodiversity
- Occupational health and safety
- Visual and landscape impacts
- Cultural heritage and monuments
- Land use
- Community health and safety
- Traffic
- Labor conditions
- GBV/SEA/SH of labor influx
- Infrastructure
- Risks and impacts related to access to sub-project benefits and lack of engagement

II. Operation's Negative Risks and Impacts:

- Soil and groundwater
- Air quality
- Noise
- Hazardous and non-hazardous waste
- Occupational health and safety
- Labor conditions
- Community Health and Safety
- GBV/SEA/SH risk
- Infrastructure
- Emergency risks and impacts

6.5 Impacts and Mitigation Measures for Pre-Construction Phase

There are certain risks and impacts, that need to be settled and mitigated before starting the construction works. These are related mainly to land acquisition for the private land where the main BPS will be built.

6.5.1 Impacts on Land Ownership (ESS5)

As mentioned earlier, the water transmission pipelines will be installed within the right-of-way (RoW) of the existing public roads, and there will be no taking of any private land. The lands of the other water facilities are either state lands (regional tank and Qabatiya booster station) or owned by the local council (Burqin booster station), which provided customization and no objection to the PWA to build the water facilities on these land.

Only one piece of land on which the main BPS will be built is private land, which area is 2,000m2. A Presidential Decree was issued to acquire the land for public use, but the owners are not compensated yet. Per the Palestinian legislation, once the presidential decree was issued, the land became state land for the public benefit. The landowners must be compensated per the local prevailing price before handing over the land to the contractor for starting work.

Mitigation Measures

- Compensating the landowners of the MBS per the local prevailing price before handing over the land to the contractor.
- All sub-project-related vehicle traffic, parking, construction activities, and equipment storage will be restricted to existing roads, sub-project access roads, and construction areas. No private land will be used for such purposes unless agreed to in advance by the owner/s.

6.6 Environmental Risks and Impacts and Mitigation Measures During Construction Phase

6.6.1 Impact on Air Quality (ESS4)

6.6.1.1 Overview

Air quality may be adversely affected at both the construction sites and the nearest receptors (adjacent communities, workers, and road users) to the sites for the following reasons:

- **Dust Emissions** as a result of topsoil excavation work for the foundations of the water tanks, service rooms, and the pipes trenches that will vary according to the type of soil in the specific areas and the excavation techniques in the different sites.
- **Exhaust** from mobile generators and vehicles/trucks that transport construction materials and dispose of surplus excavation material and construction waste.
- **Construction equipment exhaust.**

The Palestinian Ambient Air Quality Standards (PS 801-2010) has specific air quality standards; however, there are no specific standards for dust emissions from diffuse sources. The following air pollutants are expected in most of the construction activities and have adverse impact on the human health and environmental system:

- Fugitive dust emissions
- NOx and SOx
- CO in case of old motors
- HC – unburned hydrocarbons generated through combustion processes and fugitive fuel
- PM10 – fine particulate matter including soot/black;

The air pollutants shall be measured by the contractors before starting the implementation phase at different locations of the sub-project sites, and the values of these pollutants shall be used as baseline references for measuring the air pollutants resulting from the construction activities.

In controlling dust emissions resulting from earthworks activities, certain measures need to be implemented during excavation, backfilling, soil stockpiling, soil haulage, site restoration and control of exhaust of fuel combustion machinery.

6.6.1.2 Assess impacts on air quality

The earthworks activities (excavation, backfilling and site restoration) will cover the different locations of the water facilities and water transmission pipelines. During the construction phase, trucks bringing the construction materials to the sub-project sites and disposing of the construction waste away from the sub-project sites might cause dust emissions and air pollutants, thus affecting the receptors. Also, toxic gas might be generated

when operating the mobile generators to supply electricity for the construction sites not served by the service providers. However, this impact will be of temporary, intermittent nature, and of **medium significance.**

Impacts on air quality are mainly the dust emissions during construction activities. Such emissions are considered as medium to minor significance. In order to prevent such impact, the following procedures shall be applied:

1. Maintenance of the machinery and vehicles.
2. Speed limit restrictions will be implemented on site.
3. Dust suppression methods will be adopted where applicable.
4. Excavated materials will be covered as feasible to reduce the potential for windblown matter.

Fugitive emission impacts on air quality should be fully controlled. Such control will end with negligible residual impact.

6.6.1.3 Mitigation, monitoring and following-up procedures

Mitigation measures

The following mitigation measures shall be carried out by the Contractors to reduce the impact on air quality resulting from the construction works:

1. Air emissions of construction machinery should be within the Palestinian acceptable standards. This should be achieved by including this requirement in the tender documents for construction works, and reviewing of the contractor's documentation about construction machinery exhaust emissions.
2. Using emissions filter for the mobile generators used by the Contractors.
3. Implement a construction site management plan including the following measures:
   a. Store construction materials in pre-identified and approved storage areas.
   b. Cover fine aggregate during storage.
   c. Wet the network of unpaved roads and the excavated trenches on the different sites. The use of water should be restricted to extremely active areas.
   d. Regulation of speed to a suitable speed (20 km/hr) for all vehicles entering the residential areas' boundaries and unpaved roads.
   e. Implement preventive maintenance program for vehicles and equipment working on site, and promptly repair vehicles with visible exhaust fume.

The implementation of these mitigation measures shall be the responsibility of the Contractors, while the supervision Engineer will supervise and document the contractors' compliance with the above measures.

Monitoring and following-up procedures

- The monitoring of air emissions and pollutants at the construction sites and the corresponding areas of influence shall be measured and recorded by the contractors before starting the construction activities. These records shall be used as baseline data for the comparison of the air emissions monitoring during the construction phase.
- The monitoring of air emissions shall be limited to point sources including exhaust of mobile generator and construction machinery, as monitoring ambient air quality as result from non-point sources dust emissions may be misleading due to the possible interference of external sources of pollution. However, the supervision Engineer should observe unacceptable dust emissions and document them in weekly and/or monthly progress reports.
- Investigate dust complaints from workers and residents of affected areas. Complaints recording would be undertaken by the supervision Engineer. When complaints are received, they should be recorded and documented in weekly and monthly progress reports.
- Measuring air quality, in particular (Hydrocarbons, carbon monoxide and opacity for mobile generator and construction machinery) through active collection of samples at the nearest sensitive receptors and analyzing them using gas analyzer.
- Visual inspection of vehicles and equipment entering the proposed sub-project sites.

- Record the number of vehicles and the type of materials transported within the site.
- Record the number and capacity of vehicles disposing waste and aggregates.

Physical monitoring of air pollutants shall be the responsibility of the Contractors. These monitoring activities will be included in the tender documents of the contract, and shall be filled and presented by the Contractors as part of the tender requirements.

6.6.2 Noise impacts (ESS4)

6.6.2.1 Overview

The source of potential noise/vibration during the construction phase, which is a negative impact, is the operation of the construction heavy machinery used, such as excavators, rollers, concrete transit mixers, heavy trucks, mobile generators, etc., as well as the traffic jam caused by the heavy vehicles transporting construction materials, transporting ready mix concrete, and disposing of surplus excavation material and construction waste. Noise resulting from machinery varies from continuous sources, such as cranes and trucks, to intermittent impacts from the earthworks machinery (excavators, compactors, etc.).

The vulnerable groups of audio-pollution resulting from construction are the following categories:

- On-site workers: who are most exposed to the highest levels of noise generated by various construction activities due to their proximity to noise sources.
- The neighboring communities to the construction sites in particular, the nearby neighborhood to the water facilities of regional tank, Burqin BPS and parts of the water transmission pipelines.

6.6.2.2 Noise impact assessment methodology

Tools and equipment that will be utilized during the construction phase are not known currently yet; however, these were identified based on the Consultant's experience and data collected by the Consultant from other similar projects. In general, the noise levels are within the standards at a distance of 400 m from the construction activities.

Table 6-6: Estimated Noise Levels during Construction

Key Activity	Predicted Noise , dB(A)		
	Work Site	400m Away	800m Away
Excavation (trench & foundation)	**90**	**51**	**51**
Transport and handling of soil materials/backfilling materials	**70**	**30**	**30**
Compaction	**109**	**70**	**50**
Concrete batching	**95**	**56**	**42**

Standards specified for noise intensity and exposure duration for the working environment listed in Table 6-6, should be respected during the construction phase.

6.6.2.3 Assess importance of noise impacts

The noise level diffused from the sub-project sites will depend on the noise source. The noise emitted during the construction of the water facilities' foundations, the trench excavation and compaction is high at the source (construction site) and decreases by moving away from the source. The potential generated noise will therefore mainly affect the workers on site (as detailed in workers' health impacts below). In view of the above, the impacts of noise from the construction and installation of components of the proposed sub-project components should be considered of **medium importance.**

The impact should be fully controlled by applying proper health and safety procedures as detailed in the **ESMMP**.

6.6.2.4 Mitigation, monitoring and following-up procedures

Mitigation measures

Noise resulting from construction activities on site should be mitigated to reduce the impact and to ensure a safe working environment by implementing on-site Occupational Health and Safety Plan, which takes into account the national and international requirements. The plan should include the following actions:

- Minimization of exposure of construction workers to different noise levels and noise impacts according to the national standards of PS 840-2005, as presented in Section 3.1.2. This could be achieved through adjusting working hours, breaks, and exposure duration to be within permissible limits.
- Provide the workers with earplugs/ear muffs, which should be available to all workers especially for those working near machinery of high level of noise.
- Provide training on how and when Personal Protective Equipment (PPE) should be used as part of employee orientation courses.
- Set clear visible instructions in areas where noise levels are critical.

Other mitigation measures to reduce the impact of off-site noise at the nearest sensitive receptors (close communities) include:

- Improve using the construction equipment that causes a high noise level and shut down any equipment when not in use.
- Regular maintenance of all equipment and vehicles.
- Install mobile generators inside noise-control containments/isolation.
- Avoid/minimize construction during the nighttime, whenever possible, to reduce disturbance to the nearest community.
- Inform the construction schedule to the neighboring communities.
- Implement a complaints system and Grievance Redress Mechanism (Section 5.7)

Monitoring and following-up procedures

- The monitoring of noise levels at the construction sites and the corresponding areas of influence shall be measured and recorded by the contractors before starting the construction activities. These records of noise levels shall be used as baseline data for comparing the noise levels monitoring during the construction phase.
- Measure the noise level in critical areas beside noisy machinery in locations of workers' exposure and the nearby close communities using a portable noise measurement device.
- Measure noise level in the same place during work breaks.
- The Palestinian Labor Law No.7, 2000 also provides guidelines for noise in working environments. Such guidelines shall be also followed up to monitor and control the noise level.
- Record and investigate noise complaints from workers and neighboring communities in affected locations.

Physical monitoring of noise pollutants shall be the responsibility of the Contractors. These monitoring activities will be included in the tender documents and shall be filled and presented by the Contractors as part of the tender requirements.

6.6.3 Risks and Impacts of Waste Generation and Hazardous Wastes, Handling and Disposal (ESS3)

6.6.3.1 Overview

This section presents an environmental and social impact assessment of hazardous and non-hazardous waste generation and handling hazardous waste during the construction phase, which has a negative impact. The following are the types of generated waste during the construction phase:

- **Excavation waste:** surplus excavated material, which will be not used in backfilling and restoration works, needs to be handled with care to mitigate environmental risks of improper disposal.
- **Solid waste:** generated by the construction labor, including food waste, paper, plastic, and glass.
- **Surplus construction waste:** resulting from the construction works, such as concrete, iron, steel, and wood.
- **Hazardous waste:** including (i) insulation materials used for exterior and interior surfaces of water tanks, (ii) and oil, grease, etc. that resulted from the maintenance of machines, equipment and construction vehicles
- **Liquid waste:** generated by the construction labor, including sewage and the water required for the construction works, dust suppression and washing of construction equipment. Disposal of sewage generated from the construction labor will have a relatively high impact on the deterioration of groundwater quality if not properly handled.

Therefore, a waste management plan (WMP) must be formulated and implemented by the Contractors as part of the Construction Management Plans that the Contractors shall prepare.

6.6.3.2 Assess the Importance of the Impacts of Non-hazardous Waste Generation and Handling

Non-hazardous waste on-site during the construction phase, if not handled, stored and disposed of in accordance with best practices, it will have a significant impact as follows:

- Random dumping and accumulation of waste in the sub-project will have a negative visual impact on the workers and nearby communities.
- Burning accumulated waste can cause toxic emissions, especially if plastic materials are among the waste disposal.
- Accumulation and/or random disposal of organic waste (residues of food) will also have potential negative health and hygiene risks and impacts on site workers and close communities by attracting pests to the site, such as birds, rodents or insects that can serve as vector pathogens. This will lead to disease outbreaks and disruption of the natural ecosystem.
- Odor can also be generated after long periods of accumulation due to the degradation of organic waste, which will be a nuisance for the site workers and close communities.
- Soil leaks may occur in areas where the waste accumulates and is in direct contact with the soil. This would have a direct risk and impact on groundwater quality, particularly in the areas of shallow water table.

It is noteworthy that the solid waste will be disposed of in the licensed Zahret Al-Finjan sanitary landfill via the local councils within which the sub-project sites are located, or a licensed contractor by sound environmental means. The assessment of the impact due to the generation of solid waste during the construction phase is of **minor importance**. The impact of non-hazardous waste generation shall be under complete control after implementation of the mitigation, monitoring, and follow-up actions listed in the ESMMP.

6.6.3.3 Assess the Importance of the Impacts of Hazardous Waste Generation and Handling of Hazardous Materials

Hazardous waste might also be generated during the construction phase as the empty containers of the insulation materials used for the exterior and interior surfaces of the water tanks and oil spilling or fuel leakage from the machinery and equipment used for the construction activities. The hazardous waste should be stored and disposed of carefully according to the legal framework described in this report. In addition, such hazardous waste, if not handled, stored and disposed of in accordance with best practices, will have significant and irreversible risks and impacts as follows:

- Poor handling and random disposal of hazardous liquid and solid wastes will have significant negative health risks and impacts on on-site personnel, the population in the sub-project area and individuals

in contact with waste during transport and disposal, as well as plants, animals and birds exposed to such wastes.
- Uncontrolled disposal of hazardous waste, especially liquid, will cause soil contamination through direct contact or leakage.
- Random disposal of hazardous waste may affect groundwater quality through leaching.
- Air quality can also be affected as uncontrolled dumping of hazardous (and non-hazardous) substances might lead to open burning and unpleasant and toxic emissions.

The impacts are considered as **minor** and will be largely controlled through the implementation of the mitigation and follow-up actions listed in the **ESMMP**.

Transport companies will be responsible for maintaining their trucks. As for the maintenance of machinery, it will be replacing old parts by new ones and lubrication using special tools, so the impact will be minor. The disposal of all waste will be through a licensed firm dealing with hazardous wastes.

6.6.3.4 Mitigation, Monitoring and Following-up Procedures

Waste Management Plan (WMP) should be developed to comply with international best practices and relevant Palestinian regulations covering all types of hazardous and non-hazardous construction wastes and implemented by the Contractors. This plan sets out the precise procedures and locations for waste management and disposal to avoid any potential risk and impact on the surrounding environment. Waste management plan should also refer to occupational safety and health measures and emergency procedures to contain and manage spills.

Mitigation Measures of Non-Hazardous Waste

- Design and implement a waste separation system during each phase of the sub-project implementation.
- Design and establishment of a central storage area for non-hazardous waste.
- Record the amount of waste disposed and maintain disposal/burial and transport receipts.

During the construction phase, the above mitigation actions must be included in the contractors' contracts and shall be mentioned clearly as the responsibility of the construction contractors. The contractors shall submit a Waste Management Plan containing at minimum the above procedures.

Monitoring and Following-Up Procedures

- Regular inspection of the waste storage area.
- Regular inspection of the site to determine the random disposal of waste, if any.
- Inspection and review of disposal/burial and transport receipts and comparing them with the quantity of registered waste.

Mitigation Measures for Liquid Waste

The following mitigation measures shall be implemented for controlling the risks and impacts associated with liquid waste generated during the construction activities:

- Domestic wastewater should be transported by tankers and disposed of to the Jenin WWTP via a licensed firm. The Contractors should allocate certain areas within the construction sites for the mobile latrine units to be used by the workers.

Monitoring and Following-Up Procedures

- Observation of the mobile latrine units and ensure regular evacuation of these units by the contractors.
- Inspection and review of disposal and transport receipts and comparing them with the quantity of generated waste.

Mitigation Procedures for Hazardous Waste

During the construction phase, the mitigation measures listed below should be included in the contractors' contracts as part of the tender documents. The Contractors shall submit a hazardous waste management plan containing at minimum these procedures.

A) General Procedures for Storage, Transport and Disposal of Hazardous Wastes

- Do not allow any mixing of different types of hazardous waste.
- Determine how hazardous waste management can be managed, whether by recycling or safe disposal outside the site through licensed contractor/s at the beginning of the construction phase. Hazardous waste disposal and management contract is initiated by the hazardous waste coordinator of the contractor. Awareness campaign and training on sound environmental practices for hazardous solid and liquid waste management should be carried out as part of safety and occupational health procedures.
- Collecting and storing used oils in designated containers to be disposed of/recycled by a specialized company to be identified at the beginning of the construction phase.
- The Contractors shall prepare and register a list of hazardous materials and wastes, which shall include all data related to the management of hazardous wastes and materials (as shall be mentioned in the Waste Management Plan).

B) Adopting Identification System for Hazardous Wastes Generated on Site

The Contractors should identify the hazardous waste types in accordance with the Palestinian Hazardous Waste Classification System or use a specialized consultant and provide data pages and safe use for the "Material Safety Data Sheet (MSDS)". The MSDS is a document containing information on the potential hazard of the hazardous material/waste and how to work safely with it.

C) Management of Hazardous Waste Storage Area

The hazardous waste storage area may be integrated with the non-hazardous waste storage area, but this area must be fenced, secured, protected from rain and heat/sunlight. The storage area shall be constructed, equipped, and maintained in such a way as to reduce the possibility of fire, explosion or any emission of a hazardous substance into the environment. The following shall be considered:

- Provide a water source in the storage area.
- Hazardous waste must be stored in drums, in order to facilitate handling and prevent interaction with non-compliant waste.

Monitoring and Following-Up Procedures

- Regular inspection of hazardous waste storage area.
- Checking up the containers for the used oils weekly to ensure that there is no leakage or other form of damage and are kept in good condition.
- Regular site inspection to identify hazardous waste dumped randomly.

6.6.4 Impacts on Soil and Groundwater (ESS1/ESS3)

6.6.4.1 Overview

Typical construction activities may result negatively in soil and groundwater contamination due to the following actions:

- Uncontrolled disposal of hazardous liquids such as spent oils and spilt fuel.
- Leaching of solid wastes which are disposed of randomly.
- Potential impacts on soil other than contamination include soil erosion resulting from excavation work.

6.6.4.2 Assess the Impacts on Soil and Groundwater

Based on the Consultant's experience and knowledge of the sub-project area and data relevant to the groundwater, there is no evidence on groundwater availability within the sub-project facilities (foundations, trenches). The excavated parts (foundations, trenches) are usually backfilled with the excavated material, thus reducing the level of disturbance or loss of some soil amounts as waste. The activities are limited to the locations of the proposed sub-project sites. Therefore, the impacts on the soil quality will result during the excavation work

required for the foundations of the water facilities and trenches for the pipelines. The impact on the soil quality is minor, considering that the depths of the trenches and foundations will not exceed 3m.

Concerning the above assessment, the impact on the soil during the construction and implementation of the sub-project components is considered of **Minor Significance** and will be controlled by applying the mitigation measures related to waste management and by maximizing the reuse of the excavated soil as backfill material, wherever meeting the required specifications.

6.6.4.3 Mitigation, Monitoring and Following-Up Procedures

Mitigation Measures

Implement the construction site management plan to avoid any potential impact on soil, which includes:

- Segregation and reuse of excavated material.
- Collect and dispose of solid waste hygienically.
- The excavation shall be carried out in a way preventing soil erosion.
- The Contractors should take appropriate measures to avoid and contain any spillage and pollution of the soil, including the response to spill scenarios within the emergency response plan.
- The Contractors should confine the contaminants immediately after such accidental spillage.

Monitoring and Following-Up Procedures

- Review waste records regularly.
- Document the amounts of extracted soil from excavation works, and other backfilling material (embedding sand and base course for trenches) brought to the site.

6.6.5 Impact on Water Quality (ESS3)

Although there is no permanent streams/surface water flow within the sub-project area, seasonal flow within the wadis during winter might occur. Special attention shall be considered during the implementation stage to prevent oil spilling, fuel leakage, and disposal of spill kits in the nearby wadis and any other location that might be resulting from the construction machinery, equipment and vehicles to eliminate any adverse impact on the quality of groundwater, and surface water during the construction phase of the sub-project.

6.6.6 Impacts on Biodiversity (ESS6)

6.6.6.1 Overview

The Consultant conducted a baseline survey to assess the presence and distribution of environmentally sensitive species and habitats within the route of the water transmission pipelines and water facilities, as presented in Section 4.3.9. Along the investigated area, it was noticed that there are no trees of any kind, and there are only weeds and thistles species except the regional water tank site, which includes ten olive trees. At the proposed locations of the components of the sub-project (water facilities and water transmission pipelines), it was noted that no threatened animal or rare plant species were recorded in and around the proposed locations.

6.6.6.2 Assess the Importance of Impacts on Plants and Animals

Impacts Related to Fauna

The construction of the sub-project will have a minor result in changing the habitat of the present faunas. Although some animal species of mammals, reptiles and birds are present in the sub-project area, the impacts on the animal are very limited to similar habitats in the region. The sub-project area is not located within the zone of migratory birds, and thus there will be no impact on them. The sub-project area does not include any threatened birds. All the recorded birds in the sub-project area are common species.

However, animal species might be impacted due to hunting by the workers and/or accidental harming during construction works. The impact assessment on animals is of **minor importance.**

Impacts Related to Flora

All the existing plant species in the sub-project sites and surrounding areas (weeds and thistles species) are common, and none is endangered, rare or threatened. Ten olive trees exist within the regional tank site, which will be uprooted and replanted on nearby land owned by the ex-owner of the regional tank land, per the instructions of the concerned parties of Jenin Municipality and MoA. So, the impacts on flora are **minor.**

6.6.6.3 Mitigation, Monitoring and Following-Up Actions

Mitigation Measures

Potential negative impacts on flora and fauna species located within the sub-project area could be mitigated via applying the following mitigation measures:

- Olive trees within the regional tank site should be uprooted and transplanted on nearby land owned by the ex-owner after coordination with Jenin Municipality and MoA.
- Preventing workers from hunting any animal species.
- Exercising caution when excavating trenches to protect mammals and reptiles.
- Producing cautionary-loud sounds before starting the construction works to alarm the animals and allow them to move to a safer place.
- Minimizing impacts of surplus excavated materials and construction materials waste on biodiversity and habitats outside the sub-project sites.
- Limiting storage of materials to the sub-project sites.

Monitoring and Following-Up Procedures

- Monitoring of the Contractors' compliance with the above mitigation measures.
- Recording and documenting complaints from neighboring communities and others concerning harmful impacts on plants and animals.

6.6.7 Risks and Impacts on Occupational Health and Safety (ESS2)

6.6.7.1 Overview

The construction sites are considered the most potentially hazardous and accident-prone parts of any working environment. Excessive exposure to these construction site hazards exposes workers to injury and possible death. To avoid such situations, the Contractors should be aware of all dangers encountered during normal business operations. According to the safety and health standards, every employee shall have sound knowledge of susceptibility to harm or injury in the workplace.

6.6.7.2 Occupational Health and Safety Risks and Impact Significance

Occupational health and safety hazards might occur during the construction phase of the sub-project due to exposure to physical hazards from sub-project activities such as site preparation and development, accidents in excavations of facilities' foundations and during trenching; working with heavy equipment and cranes; trip and hazards, working at height; working under noisy conditions, working in confined spaces; lifting of objects; and exposure to electrical hazards resulting from the live power lines and the use of tools and machinery. It is worth mentioning that the sub-project activities do not include any work related to access road construction or upgrading, as all the sub-project sites are accessible through the existing nearby asphalt and dirt roads.

Occupational health and safety hazards specific to the Jenin Bulk Water Supply Sub-Project include:

- **Use of Heavy Construction Equipment:** The causes of such accidents include: ground workers struck when a vehicle is backing up or changing direction; equipment rollovers that injure the operator; mechanics; and ground workers crushed by falling equipment from cranes, backhoes, buckets, and other moving construction vehicles.
- **Excavation and Trenching:** Although the trenches' depths do not exceed 2.5m in limited locations, the risk of trench slide is still valid, particularly in areas of clayey subsoil.

- **Live Power Lines:** Workers may be exposed to occupational hazards from contact with live power lines during construction, maintenance, and operation activities.
- **Working at Height:** Workers may be exposed to occupational hazards when working at elevation (e.g., over water tanks) during construction, maintenance, and operation activities.
- **Scaffolding:** The most potential risk of scaffolding is due to moving scaffold components; scaffold failure related to damage to its components; being struck by suspended materials; and improper set-up. Construction workers who assemble and dismantle scaffolding and work platforms at construction sites face the risk of serious injuries due to falls.

Due to the high probability of occurrence and the high-risk involved, the occupational safety and health risks and impacts during the construction of the sub-project are **Critical Significance**. The risks and impacts shall be controlled and reduced to a large extent and reduced down to a low by applying the mitigation measures listed below.

6.6.7.3 Mitigation, Monitoring and Following-Up Procedures

Mitigation Measures

The Contractors shall prepare and comply with an Occupational Health and Safety (OHS) Plan during the construction phase. The mitigation measures for each OHS hazard specified above are listed below.

According to the Occupational Safety and Health Administration (OSHA) standards, the main mitigations measures to prevent common construction hazards are:

- Workers must follow safety standards and use protective equipment to minimize hazards while trenching and excavating.
- Workers should be trained to identify and evaluate fall hazards and be fully aware of how to control exposure to such risks as well as know how to use fall protection equipment properly.
- To prevent heavy construction equipment risk, workers should follow all construction safety guidelines necessary to eliminate the exposure to such injuries and accidents.
- The best way to prevent electrical hazards during the construction phase for the workers is to be at a safe working distance away from the power lines. Other precautionary measures include guarding and insulating the vehicle used for the work. This action would help in preventing electrical hazards from injuring them while working.

Mitigation measures for the risk related to working at height are as follows:

- Implementation of a fall protection program that includes training in use of protection measures, inspection, maintenance, and replacement of fall protection equipment, and rescue of fall-arrested workers;
- Establishment of criteria for use of 100 percent fall protection, which should be appropriate for the electrical pole and necessary movement, including ascent, descent, and moving from point to point;
- Installation of fixtures on pole components to facilitate the use of fall protection systems;
- Provision of an adequate work-positioning device system for workers. Connectors on positioning systems should be compatible with the pole components to which they are attached;
- Hoisted equipment should be properly rated and maintained and hoist operators properly trained;
- Safety belts should be of not less than 16mm two-in-one nylon or material of equivalent strength. Rope safety belts should be replaced before signs of aging or fraying of fibers become evident;
- When operating power tools at height, workers should use a second (backup) safety strap;
- Signs and other obstructions should be removed from poles or structures prior to undertaking work; and
- An approved tool bag should be used for raising or lowering tools or materials to workers on structures.

Mitigation measures for the risk related to live power lines are as follows:

- Only allowing trained and certified workers to install, maintain, or repair electrical equipment;
- Deactivating and properly grounding live power transmission line before work is performed;
- Ensuring that live-wire work is conducted by trained workers with strict adherence to specific safety and insulation standards. Qualified or trained employees working on transmission line should be able to achieve the following:
    - Distinguish live parts from other parts of the electrical system
    - Determine the voltage of live parts
    - Understand the minimum approach distances outlined for specific live line voltages
    - Ensure proper use of special safety equipment and procedures when working near or on exposed energized parts of an electrical system.
- Workers should not approach an exposed energized or conductive part even if properly trained unless:
    - The worker is properly insulated from the energized part with gloves or other approved insulation; or,
    - The energized part is properly insulated from the worker and any other conductive object; or,
    - The worker is properly isolated and insulated from any other conductive object (live-line work).

The Occupational Health and Safety Plan shall also include the international construction standards requirements, including, but not limited to, the following measures:

- Identification of hazard sources to workers.
- Eliminating the sources of hazards.
- Workers must be trained to recognize potential hazards, use proper work practices and procedures, recognize adverse health effects, understand the physical signs and reactions related to exposures, and are familiar with appropriate emergency evacuation procedures. They must also be trained on how to use the Personal Protective Equipment (PPE).
- Inspection and testing of all equipment and machines.
- Follow all safety guidelines at the construction sites to prevent injuries and accidents.
- Appointing an Accident Prevention and Safety Officer at the site, to take protective measures to prevent accidents.
- Designation of restricted areas, such as construction sites.
- Preparation of an emergency response plan.
- There are safety and health standards that require the initial check-ups for workers before starting the sub-project. Then the check-ups should be conducted regularly (e.g., monthly) to ensure the safety of the workers.
- Provision of necessary rescue equipment.
- Elaboration and management of a safety guarantee plan.
- Provision of appropriate and sufficient first aid equipment.
- Operationalise Grievance Mechanism for workers in line with Project LMP

Monitoring and Following-Up Procedures

- Continuous inspection for the Contractors' compliance with the "Occupational Health and Safety" requirements.
- Regular reporting of accidents, records and reports on health, safety and workers' welfare.
- Continuous monitoring of all hazardous events.

- Regular inspection of workers against pathogenic agents and provision.

6.7 Social Impacts and Mitigation Measures During Construction Phase

The socioeconomic impact assessment will shed light on the following impacts during the construction phase:

- Community health and safety risks and impacts
- Labor conditions impacts
- Visual and landscape impacts
- Traffic impacts
- Cultural heritage impacts
- Land use impacts
- GBV/SEA/SH impacts of labor influx
- Infrastructure impacts
- Socioeconomic impacts
- Risks and impacts related to access to sub-project benefits and lack of engagement

6.7.1 Risks and Impacts on Community Health and Safety (ESS4)

Potential Risks and Impacts

In general, the sub-project can affect adversely the health and safety of the community in terms of:

- Risks and impacts on community health and safety are expected to result from accidental falls in temporary excavated trenches, accidental contact with equipment, accidental dropping of equipment and material (pipe, valve), uncontrolled dumping of construction waste, surplus excavated material, etc.
- Communicable diseases associated with the influx of temporary construction labor.
- Emissions of gaseous pollutants and dust from equipment and machinery used.
- Increased background noise levels resulting from the operation of excavators, which surpasses permissible limits for residential areas in the vicinity of residential areas during the day.
- Waste accumulation in illegal dumping and potential burning of construction waste, which will consist mainly of excavated soil and other construction materials.
- Construction works will involve the use of equipment such as excavators and other machinery, which can cause injuries to the local community as a consequence of the contact.
- The risks associated with the traffic impacts as presented in Section 6.7.4.

However, due to having limited numbers of residential areas in the proximity of sub-project sites, this impact tends to be:

- **Medium to low probability of accidents** due to construction works and use of machinery and equipment.
- **Medium to low probability of transmission of some infectious diseases** to neighboring residents.

Based on the above assessment, the impacts on community health and safety are of **medium importance**.

Mitigation Measures:

The risks and impacts will be controlled and reduced to a large extent and be brought down to low by applying the mitigation measures listed below:

- Occupational health and safety guidelines should be followed on the sub-project sites, especially the mandatory use of appropriate personal protective equipment (PPE). Moreover, the Contractors shall have dedicated and qualified staff to ensure OHS Plan compliance.

- Site staff should be tested for communicable diseases, including sexually transmitted infections.
- For the construction activities of the water transmission pipelines, barriers shall be used to protect the sites from any entrance of pedestrians.
- Use signs, barriers, and public outreach to prevent public contact with potentially dangerous equipment while working close to populated areas.
- Sites of regional tank and booster stations should be fenced with controlled gates that should be manned by security managers and guards.
- Communication through Contractors' Accident Prevention and Safety Officers, when pipes are laying adjacent to residential areas, will take place to ensure children are not playing in the work area.
- Prepare and operationalize Grievance Mechanism in line with Project LMP.
- Ensure that workers understand, sign and adhere to workers' Code of Conduct.

6.7.2 Impacts on Labor Conditions (ESS2)

Due to the nature of the work that will be carried under this sub-project, different types of workers will work during the construction phase, which are: direct, contracted, and construction materials supply workers. The types of laborers on the sub-project, description of activities, estimated numbers, and their characteristics are addressed in Section 2.10.1. The obligations of the Employer for each type (PWA, Supervision Engineer and Contractors), obligations of the employees, terms and conditions of employment are addressed in Section 2.10.2. The individual work contract, minimum wages, payment regulatory, insurance and compensation, worker dispute, and other labor conditions are addressed in the Section " Overview of Labor Legislation" (Section 3.1.9).

Adverse risks/issues related to the employment of workers in association with the sub-project might potentially arise. These risks may relate to the followings:

- Unequal wages and benefits for the same job;
- Indiscriminate human resources policies and procedures;
- Discrimination and unequal employment opportunities;
- Indiscriminate working hours and leave;
- Child labor;
- Gender-based violence (GBV) or sexual exploitation and abuse (SEA) or sexual harassment (SA);
- Grievances application;
- Occupational health and safety;
- Others

The risks mentioned earlier and the associated impacts are considered **medium** in significance and likely to occur but in short terms in nature (construction phase). However, the risks are avoidable and manageable by ensuring adherence to the national legislation and the labor management procedure (LMP).

Mitigation Measures:

- Develop and implement Labor Management Plan (LMP), which the contractors shall prepare specifically to the sub-project components and nature as per the Project Labor Management Procedure. The LMP shall be approved by the supervision Engineer.
- No child under the age of 15 will be employed.
- Persons under the age of 18 will not be employed by the sub-project unless to perform light duties.
- Develop and implement a workers' grievance redress mechanism with provisions for handling GBV/SEA/SH. The GM shall be approved by the supervision Engineer.
- Implement GBV/SEA/SH, and child protection training/awareness campaign for the contractors' staff.

6.7.3 Impact on Visual and Landscape

A small part of the sub-project area around the regional tank is classified as a Biodiversity Area per the "National Spatial Plan", a natural area that contains exceptional wild flora or fauna (Figure 4-13).

For the construction and excavation works during the construction of the sub-project, the visual impacts are temporary, resulting mainly from over-ground storage of excavated materials and construction materials (bedding material, base course, construction waste, etc.). The vegetation cover of the regional tank, which includes olive trees, will be impacted, while the sites of the other water facilities will not be affected.

The visual negative impacts due to the construction of the sub-project are considered of **Minor Significance** and can be avoided by applying the following mitigation measures.

Mitigation Measures:

- Dispose of all construction wastes and surplus excavated materials from the sub-project sites and keep them clean.
- Compensate the loss of vegetation cover within the regional tank site by planting native plants around the site perimeter.

6.7.4 Impact on Traffic (ESS4)

The construction work will be limited to the sub-project sites and existing access roads. Traffic negative impacts during the construction works of the sub-project are caused by:

- Traffic impacts due to the implementation activities of the water transmission pipelines. Such impacts will have an effect on the traffic flow on the roads during the trenches' excavation, pipe laying, backfilling, and reinstatement works. The traffic congestion can be limited if the earthworks and other implementation works are planned in a way with limited stretches of open trenches, preparation of detours for the vehicle movement due to closed roads, considering that no excavation works will be left opened after the finish of the working hours.
- Traffic impacts can arise from increased traffic flows due to the movement of workers' transport, trucks, the transportation of raw materials and equipment for construction, and disposal of construction waste. For this sub-project, the number of workers is limited, which will not impact the traffic flow in the area. There might be some disturbance to the traffic flow due to transporting the construction materials and equipment.

The impact on traffic is temporary with the dates for movement of vehicles and trucks can be controlled, and the trench opening in the streets can be controlled and monitored by opening the detours and reinstating the roads after completing the implementation.

The traffic impact is considered of **Medium Significance** and can be reduced if the required mitigation measures are considered.

Mitigation Measures

The following describes possible measures to reduce the negative impacts on traffic:

- Contractors shall prepare traffic management plan (TMP) as part of the Quality Management Plan and it shall be approved by the supervision Engineer.
- Coordination with related authorities such as the nearby local councils and traffic police.
- The Contractor shall provide, erect and maintain traffic signs, road markings, barriers and traffic control signals and other measures that may be necessary for ensuring traffic safety around construction sites.
- Avoid vehicle movement during rush hours.
- Provide safe and accessible detours for vehicles in case of closing the roads for implementing the pipelines.

- Flagman shall be used to direct vehicle traffic around construction sites and hazards during working hours.
- Determine the maximum speed within the sub-project sites.
- Determine the movement of vehicles to be during the daytime only.
- Secure parking areas for workers and staff at the Contractor's offices and site premises.
- Ensure vehicle safety and regular maintenance.

Monitoring and Following-Up Procedures

- Monitoring Contractors' compliance with the "Traffic Management Plan" requirements.
- Follow-up road traffic, including recording and documenting the efficiency of traffic facilities provided by the Contractors and public complaints and traffic accidents.

6.7.5 Impact on Cultural Heritage and Monuments (ESS8)

Based on the field visits that the Consultant team has carried out, there is no indication of any archeological sites, cultural or heritage features, and tourist or recreational areas in the sub-project area. The Ministry of Tourism and Antiquities (MoTA) indicated that the sub-project sites do not have any archaeological sites, and they provided a map showing the locations for archaeological sites and monuments in the proximity of the sub-project sites. The MoTA confirmed that there is no cultural heritage close to or located within the sub-project area.

However, during of sub-project implementation, a chance find may occur whereby historical and cultural property is inadvertently found. Chance Find Procedures clauses for avoiding potential adverse impacts will be inserted into the construction works contracts to ensure that the necessary measures are put in place during the construction phase of the sub-project. Also, the contractors shall prepare site-specific Chance Find Procedures (CFP), which shall be reviewed and approved by the supervision Engineer.

According to PTCHL No. 11, 2018, the Contractors shall inform and coordinate with the MoTA before starting the implementation stage, particularly before starting earthworks on the site. In case the Contractor would find any archeological remains, then s/he shall inform the MoTA immediately and shall make available laborers with the required tools to work under the supervision of the MoTA staff in these archeological sites.

The impacts on cultural heritage and monuments are of **Minor Significance**. The impacts on cultural heritage shall be mitigated by applying mitigation measures to protect and avoid any damage to the archaeological sites mentioned below.

Mitigation Measures

- Contractors shall develop and document a site-specific "Chance Finds Procedure" that will detail what they shall do if finding valuable artefacts or culturally valuable materials. The contract relating to the sub-project construction shall include the CFP.
- Ensure relevant workers are trained in the requirements of the procedure before ground disturbance.
- Before starting construction work, the Directorate of Tourism and Antiquities (DoTA) in Jenin shall be informed formally.
- In case of finding a monument during the excavation, the excavation work shall immediately be stopped, leaving the monument as is at the site where it was found and taking photos to document the time and status of the monument. Guards should be assigned to monitor the monument and contact the DoTA-Jenin to handle the site.

The supervision Engineer shall monitor the Contractor's compliance with the above-mentioned mitigation measures during the construction.

6.7.6 Impact on Land Use (ESS5)

Implementing of the water transmission pipelines would not affect the nature of the existing land use in the area, as these pipelines will be installed within the RoW of existing and opened roads. The lands needed for

the water facilities regional tank and booster stations) are small, and their construction would not involve substantial land surface transformation or disruption to surrounding areas. However, the Contractors might need private lands to be used as temporary construction materials' storage areas and/or for other construction purposes. In this case, the Contractors shall conduct agreements with the landowners, in line with the ESS5, including the compensations the Contractors would pay for the landowners.

Generally, the proposed sub-project would not result in significant adverse impacts on land use.

6.7.7 GBV/SEA/SH Impact of Labor Influx (ESS4)

This risk is applicable where laborers come from outside the local community. That is related to workers' accommodation if the Contractors will arrange for camping the workers close to the sub-project sites and the workers' movement near the residential areas. There is no large-scale labor influx or construction of labor camps under the sub-project. The sub-project will be implemented by local laborers from the Jenin area that come to the sub-project sites daily without need for residing in labor camps. the sub-project will not require establishing labor camps or experience any labor influx or issues related to the presence of migrant workers. Where contractors and labor come from outside the local area, contractors will need to maintain labor relations with local communities through labor codes of conduct.

The existence of local workers might lead adversely to gender-based violence (GBV) or sexual exploitation and abuse (SEA), particularly in sub-project sites close to residential areas.

The sub-project might increase gender-based violence when workers interact with community women or children. Abusive behaviors might also occur with local workers. Violence against children might also occur if children are forced to perform a certain job.

Based on the experience of the PWA of the previously implemented projects, WSRP-1 is assessed as **low significance** on GBV/SEA/SH risk and not likely to occur during the construction phase. In addition, the risks are avoidable and manageable by ensuring adherence to PWA's and World Bank's Guidelines.

Mitigation Measures

The following describes the measures to eliminate/reduce the negative risks and impacts relevant to GBV/SEA/SH resulting from the increased presence of workers/labor working close to the residential areas:

- Maintain labor relations with the local communities through labor codes of conduct and do not act with any behavior that may lead to problems or disputes with the local population.
- The Contractors' employees should receive orientation sessions in working in the surrounding communities. A code of conduct (CoC) would need to be signed by all workers during the construction phase to stay away from the communities.
- Develop and implement a site-specific grievance redress mechanism including provisions for the handling of GBV/SEA/SH.
- Implement an awareness campaign on GBV and sexual harassment.

6.7.8 Impacts on Infrastructure (ESS3)

As mentioned previously, the electricity and water services during the construction stage are available in the proximity of the sub-project sites. It is expected that there will be no burden on the current services to provide water and power to the construction sites during construction. As for the provision of electricity, the NEDCO and Qabatiya Municipality will be able to provide the construction sites with electricity through their grids upon the Contractors' requests for the construction activities. Contractors will arrange with close local councils to supply domestic water for the site offices and workers' caravans. For the water needs for the construction activities, contractors might arrange with private water vendors/tankers to supply water, which source is the agricultural wells in the area. The water quantities for construction activities will not burden the current water service provision in the sub-project area as these quantities are not so large.

However, during the excavation and trenching activities that will take place for the water transmission pipelines, there will be a chance for damaging any underground service (sewage pipe, water pipe, underground cable). The adverse impact on infrastructure is **of Minor significance** and can be reduced by carrying out the following mitigation measures.

Mitigation Measures

- Contractors shall get as-built drawings for the existing underground infrastructure from the service providers and coordinate the excavation works with them before starting any excavation work.
- Reinstate the damaged infrastructures due to the installation of the pipelines in the main roads and reinstate any accidental damage to existing structures and private property caused by construction activities.

6.7.9 Socioeconomic Impacts (ESS1/ESS10)

The sub-project will have significant positive economic impacts in general. These impacts can be divided into local and national impacts, as follows.

- **Local impacts**
  - The sub-project will provide employment opportunities in the construction phase for the residents of the sub-project area.
  - Provision employment opportunities for workers in the field of public transportation sector who will contribute to the transport of labor.
  - There will be support services for the sub-project, assistance activities, and supply activities for equipment, construction materials, services, food and health care, all of which can benefit the community. This is called the supply chain.
- **National impacts**

  The sub-project will have significant positive impacts on Palestinian society, which can be summarized as follows:
  - Provision employment opportunities for skilled labor in Palestine to contribute to the sub-project.
  - Provision of procurement/supply opportunities and services for the sub-project from various Palestinian companies and suppliers.

During the construction phase, socioeconomic impacts generated by the sub-project will be temporary and terminated upon completion of work. To alleviate potential negative consequences related to the termination of contracts by the end of the construction phase, it is essential to include in the workers' contracts the duration of their assignment and to be compensated according to Palestinian Labor Law.

6.7.10 Risks and Impacts Related to Access to Sub-Project Benefits and Lack of Engagement (ESS1/ESS5/ESS10)

Potential Risks and Impacts

Although the sub-project will have significant positive socioeconomic impacts and benefits as mentioned above, there might be social risks and impacts which hinder satisfying the sub-project benefits and requirements as follows:

- **Employment opportunities:** There might be discrimination in hiring the workforce for the sub-project caused by various reasons.
- **Exclusion of concerned stakeholders in sub-project activities and consultations:** The various categories of stakeholders shall be shared and consulted during the sub-project implementation phase. Also, information sharing and disclosure shall be applied before starting any sub-project activities. Consultation and sharing of information shall include the marginalized groups.
- **Temporary loss of accessibility to individual land/asset:** The construction activities might hinder some individuals from reaching their lands, workshops, farms, etc.

The above risks and impacts have a medium to low probability of occurrence for various reasons (non-compliance by contractors, weak supervision, improper stakeholder engagement, etc.). Therefore, the impacts related to access to sub-project benefits and lack of engagement are considered of **Medium Significance** and can be reduced if the required mitigation measures are considered.

Mitigation Measures:

The risks and impacts will be controlled and reduced to a large extent and be brought down to a low by applying the mitigation measures listed below:

Employment opportunities:

- Ensure sub-project GM, including mechanisms to manage GBV/SH-related grievances, is accessible and applied.
- Apply workers' GM.

Exclusion of concerned stakeholders in sub-project activities and consultations:

- Use innovative communication and engagement means to reach the communities with information on the sub-project and receive their feedback.
- Disseminate information about the GM in the communities.
- Use Arabic language in communication.

Temporary loss of accessibility to individual land/asset:

- Avoid impacts through the identification of alternatives.
- Ensure access to GM.
- Implement SEP throughout the sub-project implementation phase.

As presented in the previous sections, most of the environmental and social risks and impact ratings of this sub-project vary from minor to moderate, except for the risk related to occupational health and safety, which is critical. The overall risk category for the sub-project is moderate before applying the mitigation measures and minor after implementing the mitigation measures.

6.8 Environmental Risks and Impacts and Mitigation Measures During Operation Phase

6.8.1 Risks and Impacts on Soil and Groundwater (ESS1/ESS3)

The implementation of the Jenin Bulk Water Supply System Sub-Project would increase per capita water use and the population served. This would substantially increase the quantity of wastewater generated, and the magnitude of wastewater disposal would therefore increase. This would burden the existing wastewater system at Jenin City (collection and treatment) and increase the volumes of untreated wastewater dumped into the nearby Wadis and open areas. This would exacerbate the problem of degraded groundwater quality. This adverse impact is not unique to the proposed action and is common to water supply development projects in the West Bank.

The increase in wastewater generation would require local and regional efforts to improve and expand the existing wastewater infrastructure, and construct new wastewater system (collection, treatment and disposal).

In this regard, the vision of the PWA is to create and functionalize three regional water and wastewater utilities in the West Bank and all the current water and wastewater service providers will be merged within these regional utilities based on geographical jurisdiction, which are Northern, Central and Southern Utilities. In this context, PWA prepared "Water and Sewerage Master Plan for the North and North-West Region of the West Bank, 2017". The Master Plan covered six Governorates and elaborated on the development of water and sewerage services for them. Jenin Governorate is one of them. The Sewerage Master Plan (SMP) clustered the localities in all six Governorates to a clustered sewerage system in the context of serving several localities or one large locality and identified as centralized system. According to the SMP, the sub-project area is planned

to be served by a piped sanitation system with regional wastewater treatment plant (WWTP) as follows (Figure 6-1):

- Jenin Sewerage Cluster
- Qabatiya Sewerage Cluster
- Faqqua'a Sewerage Cluster
- Jalbun Sewerage Cluster

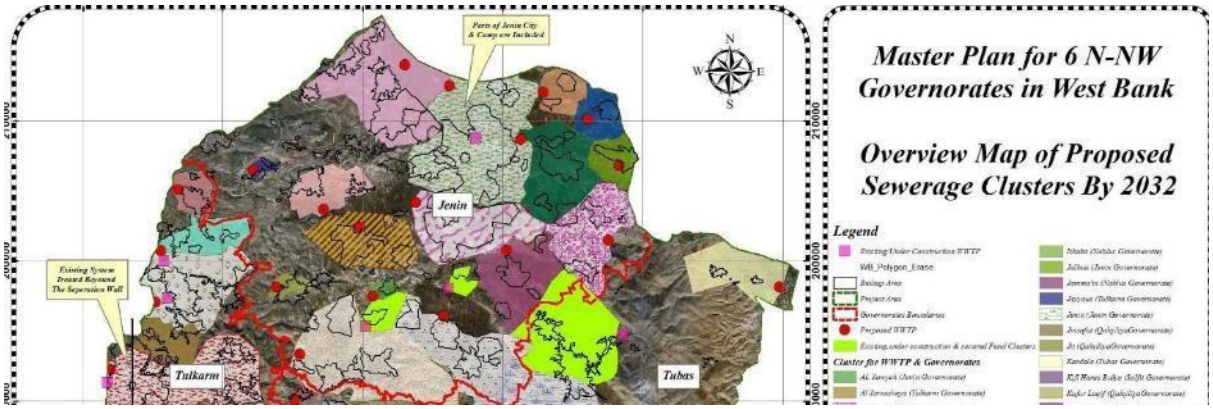

Figure 6-1:Proposed Sewerage Clusters in Sub-Project Area (Source: Water and Sewerage Master Plan for the North and North-West Region of the West Bank)

Potential risks and impacts on groundwater during the operation of the sub-project will arise from the follow-ings:

i. Contaminating soils, groundwater aquifer, and springs resulting from increased quantities of generated wastewater due to increase in the water supply quantities of the new sub-project.

ii. Potential leaks of wastewater from septic tanks at facilities sites of booster stations and leaks from the fuel tanks of the standby generators.

The impact of soil and groundwater contamination is of **High Significance**, particularly those resulting from the increased wastewater quantities and can be reduced by carrying out the following mitigation measures.

Mitigation Measures

The mitigation measures relevant to the above risks are presented in the below table. These measures shall be addressed in the short- or mid-term by PWA and are not part of the sub-project.

Table 6-7: Mitigation Measures Relevant to Soil and Groundwater Risk

Risk	Mitigation Measure
Contaminating soils, groundwater aquifer, and springs resulting from increased quantities of generated wastewater	Conduct public awareness campaign through flyers, mass media, public meetings or workshops, or the local council to: -Encourage diverting greywater directly to open channels, storing greywater on site prior to diversion or reuse, and reusing greywater -Encourage more frequent hiring of vacuum tankers to remove sewage from cesspits -Encourage replacing cesspits with reinforced concrete septic tanks that provide for primary anaerobic treatment of wastewater and discharge into subsurface leach fields, or are evacuated and the effluent discharged to designated safe wastewater disposal locations (Jenin wastewater treatment plant) -Encourage construction of septic tanks for new buildings -Encourage implementation of small-scale, on-site wastewater systems for black and/or greywater, based on technology currently established at some locations within the West Bank. -Increase awareness of environmental and health risks associated with sewage disposal to cesspits -Encourage water conservation and protection
Potential leaks of wastewater from septic tanks and leaks from fuel tanks at facilities sites	- Implementation of waste management plan by regular emptying for any existing septic tank within the facilities. - Fuel tanks to be installed inside fully-sealed concrete structures and dispose of the leaked fuel according to the national regulations of hazardous wastes

6.8.2 Impacts on Air Quality (ESS4)

The only sources of air emissions during the operation works of the facilities are related to operating the standby generators within the booster stations. The adverse impact of such air emissions is considered of **Minor Importance** because diesel generators are only expected to operate temporarily during power cutoffs. The compliance of generators' emissions with the national permissible standards will be sufficient to safeguard against and avoid unacceptable air emissions impacts to the neighboring areas.

Mitigation Measures

- Equipment selection will take into account the air emission standards.
- Using emissions filter for all generators in the sub-project.

Monitoring and Follow-Up Procedures

- PWA should monitor exhaust emissions from standby generators against the Stipulations of Law for CO, NOx, and PM. The monitoring is to be performed annually or semiannually during the operation of the standby generators.

6.8.3 Noise Impacts (ESS4)

Noise-generating sources in the facilities of the sub-project are mainly the booster pumps and the standby generators.

However, the adverse impacts are expected to be of **Minor Importance,** or even negligible, to the neighboring sites because the booster pumps and the standby generators will be specified and selected in accordance with the permissible national standards. Additionally, the standby generators will be installed inside noise-control containments.

The noise impacts of operating the facilities of the sub-project are of **Minor importance**.

Mitigation Measures

The following mitigation measures shall be followed to avoid the noise impacts:

- Noise associated with the operation of booster pumps and standby generators will be mitigated by its containment/isolation.
- Equipment selection will consider the noise level standards.
- Noise levels for facilities installed in a separate room/enclosure: < 80 (dB(A)) outside the room/enclosure, < 55 (dB(A)) inside the control room and < 40 (dB(A)) outside the site boundary.
- Hazardous warning notices indicating ear defenders are to be worn shall be installed at entrances to rooms/enclosures where the sound level exceeds 80 (dB(A)).
- Replace and maintain noise muffling equipped or other used acoustic reduction technologies when needed.

Monitoring and Follow-Up Procedures

- Measure the noise level in critical noisy areas using a mobile noise meter. Additional measures include measurement at the nearest sensitive receptors.
- Investigate noise complaints from workers and neighboring communities in affected locations.

6.8.4 Risks and Impacts of Handling and/or Disposal of Hazardous and Non-Hazardous Waste (ESS3)

Hazardous waste

The hazardous substances that would be handled in the Jenin Bulk Water Supply System facilities include diesel for standby generators and lubricating oils for the motors of the pumps and transformers.

The main environmental risk associated with diesel storage and management is leakage. This is more critical if possible leaks cannot be observed and the diesel disperses in the soil.

Lubricating oils may have some hazardous, especially toxic properties; however, normally the risks are minimal with handling such oils as the laborers normally have high handling awareness. Higher risks will be associated with the disposal of empty containers, which should be collected and disposed of according to the national regulations for hazardous wastes.

The **ESMMP** includes details about the suitable mitigation measures to minimize such risks.

Non-hazardous waste

The operation of the Jenin Bulk Water Supply System is expected to result in non-hazardous solid waste from the employees and workers in their daily activities.

Waste will be collected in special containers and disposed of in a safe and proper manner in the nearby landfill via the local council within which the facility site is located. Therefore, there are no risks in this regard. Other impacts include negative visual and landscape impacts if waste accumulates in front of or around the facilities' sites.

The accumulation and/or random disposal of organic wastes (food waste) will also have potential risks and impacts on the health and cleanliness of site workers and the community by attracting pests to the site, such as birds, rodents or insects that can act as pathogen carriers. This will lead to disease outbreaks and disruption of the natural ecosystem. Odor can also be generated after long periods of accumulation due to the decomposition of some organic waste, which will be a nuisance for both site workers and the community.

The impact assessment due to the generation of waste during the operational phase is considered **of Minor Importance.** The negative impact of waste generation is expected to be fully controlled through the implementation of the mitigation, monitoring and follow-up actions listed in the **ESMMP** which will lead to avoiding any adverse impact resulting from handling hazardous and non-hazardous waste.

Mitigation Measures for Hazardous Waste

The hazardous waste generated should be stored and disposed of through a licensed contractor per the Palestinian HWMS for the hazardous waste. Empty containers might be returned to the vendors for refilling.

Monitoring Activities for Hazardous Waste

Tracking records of empty containers either disposed of through licensed contractors or returned to vendors.

Mitigation Measures for Non-Hazardous Waste

A Waste Management Plan must be developed to comply with relevant Palestinian regulations and international best practices covering all types of waste to be implemented by sub-project operators. Solid waste from Jenin Bulk Water System facilities should be collected in covered bins until they are delivered via the relevant local council/licensed contractor for disposal in domestic solid waste disposal sites.

Monitoring and Follow-Up Procedures for Non-Hazardous Waste

- Regular inspection of the waste storage area.
- Regular inspection of the sites in general to determine the random disposal of waste.
- Monitoring of solid waste transferred to appropriate disposal sites will be through auditing waste delivery manifests available with licensed contractor/local council.

6.9 Social Risks and Impacts and Mitigation Measures During Operational Phase

6.9.1 Risks and Impacts on Occupational Health and Safety (ESS2)

Health risks resulting from work in the bulk water system facilities are due to routine operational and maintenance works. Occupational safety and health-related risks and impacts are of **Minor Importance** because of the limited number of workers and strict compliance with OSHA procedures. Mitigation measures that mitigate potential risks and impacts on occupational safety and health include:

- Maintain site security and safety.
- Organization of work shifts.
- Develop and implement an occupational safety and health plan.
- Develop an emergency response plan.

Mitigation Measures

The Occupational Safety and Health Plan shall, in accordance with the requirements of the Palestinian Labor Law and the requirements of international operating standards, include the following procedures as a minimum to avoid/reduce the potential susceptibility to work accidents:

- Identify and remove hazards-causes to workers.
- Follow safety standards and use protective and preventive equipment to reduce risk while performing work, such as safety shoes, clothing, sweaters, safety jackets, hearing protection equipment, helmets, and safety goggles. Workers should also be trained on how to use personal protective equipment (PPE).
- Conduct periodic medical examinations for workers to ensure their safety.
- Follow all safety guidelines at sites required to prevent injury and accidents.
- Inspection and testing of all equipment and machinery.
- Develop an emergency response plan.
- Provide the necessary rescue equipment and adequate first-aid.

The applied procedures should cover the following risks at a minimum:

- Risk of injury during operation.
- Personal injury risks for workers and employees resulted from truck traffic on the facility site.
- Hazards of electrocution or damage to public services.
- Hazards associated with closed spaces or anywhere where breathing is difficult.

Monitoring and Follow-Up Procedures

- Regular reporting of any incident, as well as records and reports on workers' safety and health.
- Continuous monitoring of all hazardous events.
- Regular inspection of workers against pathogens and provision of immunization when needed.

6.9.2 Risks and Impacts on Labor Conditions (ESS2)

This risk is related to PWA/WBWD staff, who will manage and operate the new sub-project components. The PWA/WBWD employees, who are civil servants and would be working full-time or part-time on this sub-project, will be subject to the existing terms and conditions stated in their contracts. Different risks/issues related to the employment of these employees might potentially arise. These risks may relate to the following:

- Indiscriminate human resources policies and procedures;
- Discrimination and unequal employment opportunities;
- Indiscriminate working hours and leave;
- Child labor;
- Gender-based violence (GBV) or sexual exploitation and abuse (SEA) or sexual harassment (SA);
- Grievances application; and
- Occupational health and safety

The risks mentioned earlier and the associated impacts are considered **minor** in significance and unlikely to occur. However, the risks are avoidable and manageable by ensuring adherence to the national legislation and the LMP.

Mitigation Measures:

- Abide with the Palestinian Civil Service Law No. 4 of 1998 for the permanent staff and the Palestinian Labor Law for the casual staff;
- Implement the clauses of the LMP;
- Develop and implement a grievance redress mechanism with provisions for handling GBV/SEA/SH; and
- Implement GBV/SEA/SH training/awareness campaign for the PWA/WBWD staff.

6.9.3 Risks and Impacts on Community Health and Safety (ESS4)

During the operational phase, the potential risks and impacts on the health and safety of the community will be minimal as the water facilities' sites will be fenced and not accessed by the public. However, the community might be susceptible to risk due to mainte nance works for the water transmission pipelines and/or any other facility resulting from interrupting traffic and using machinery. The impact on community health and safety is of **Minor Significance**.

PWA/WBWD shall be committed to the following mitigation measures.

Mitigation Measures

- Provide a complaint mechanism for the community.
- Conduct semiannual community meetings to record any concerns/complaints they may have.

Monitoring and Following-up Procedures

- Regular reporting of complaints' records.
- Continuous monitoring of all emissions reduction activities.
- Record minutes for various meetings and sessions.

6.9.4 GBV/SEA/SH Risk (ESS4)

This risk is related to PWA/WBWD staff movement near the residential areas while accessing the water facilities sites and carrying out the O&M works for the water transmission pipelines, which might lead to gender-based violence (GBV), sexual exploitation and abuse (SEA), or sexual harassment (SH). Also, the PWA/WBWD workers might be susceptible to the GBV/SEA/SH during the carrying out of the O&M works.

The GBV/SEA/SH risk and associated impacts are **low significance** and not likely to occur during the operation phase as the frequency of carrying out the O&M works is limited. However, the risk is avoidable and manageable by ensuring adherence to PWA and World Bank Guidelines.

Mitigation Measures

The following describes the measures that the PWA/WBWD staff shall carry out to eliminate/reduce the negative risks and impacts relevant to GBV/SEA/SH during the operation phase:

- Maintain labor relations with the local communities through labor codes of conduct and do not act with any behavior that may lead to problems or disputes with the local population.
- Develop and implement a grievance redress mechanism, including provisions for handling GBV/SEA/SH.
- Develop a worker's GM for the PWA/WBWD staff. The workers shall be made aware of the workers' GM and also be able to lodge complaints to the special referral pathways for grievances on GBV, SEA, and SH.

6.9.5 Impacts on Infrastructure (ESS3)

Impact on Electricity: As mentioned earlier, electricity is available at the sub-project sites, and there will be no burden on the provided electricity service for the communities of the sub-project area due to the operation of the sub-project. As for the supply of electricity, NEDCO and Qabatiya Municipality can provide the sites with the required electricity for operating the facilities through their grids. However, in case any maintenance activities are in place, there will be a probability of affecting the service in the nearby community for a short period. The electrical power-related impacts tend to be of **Negligible Significance**.

Impact on Wastewater: As mentioned earlier, the implementation of the sub-project will increase the per capita water consumption in the served communities. This would substantially increase the quantity of wastewater generated, and the magnitude of wastewater disposal would therefore increase.

The increase in wastewater generation would require local and regional efforts to improve and expand the existing wastewater infrastructure thereby addressing the risk of exceeding the capacity of the infrastructure and minimizing or precluding risks to human health or unacceptable adverse effects on the surrounding nature and environment. The increase in wastewater generation impact will be of **Major Significance** to implementing reliable and hygienic sanitation systems.

Mitigation Measures

- **Electricity:**
  - Use of energy-efficient equipment
  - Comply with the operational manual and design recommendations for control mechanisms to allow the safe shutdown of facilities in the case of interruptions to the power supply.
  - Follow lessons learnt and procedures that have been experienced previously by PWA with other water supply facilities regarding diesel availability
- **Wastewater:** Refer to mitigation measures in Section 6.8.1.

6.9.6 Socioeconomic Impacts (ESS1)

The communities proposed to be served by the Jenin Bulk Water Supply System Sub-Project currently suffer from inadequate water supplies, with an estimated per capita allocation ranging from 60 to 70 l/c/d. The situation is compounded by the increase in population in the region. The sub-project aims to provide adequate, reliable, and safe water supply with better storage capabilities to help overcome the deficit in the water supply that the area suffers due to undersized, old, and deteriorated pipes.

Currently, the water service providers are forced to cut off water in the targeted areas, particularly in summer, which causes the following negative impacts:

- Adversely impact on personal health and hygiene and cleanliness in the area.
- Economic losses for factories that need considerable quantities of water.

Socioeconomic impacts in the operational phase are generally positive as follows:

- Contribute to the provision of reliable water sources and proper increase in the domestic water per capita consumption in the Sub-Project Area.
- ·Minimize the impacts on the residents of the served communities who suffer from water shortage, especially during the summertime and are forced to spend more money to get water from private water vendors/tankers.
- Improve the health situation of the citizens of the served communities by providing them with safe and disinfected drinking water and eliminating their dependence on private water vendors/tankers of un-known quality.
- Encourage investors to implement new industrial and commercial facilities in the served area, thus increasing employment opportunities.
- Provide employment opportunities by employing O&M staff to operate the new facilities of the sub-project.

6.9.7 Emergency Risks and Impacts (ESS2/ESS4)

The Jenin Bulk Water Supply System Sub-Project is a vital sub-project for the communities in the Jenin District as it would be the major bulk water supply system in the sub-project area upon its commissioning. The new system shall consider precautions against emergency risks and impacts due to climate, fire, electrocution, Israeli aggression, or any other malfunction during its operation phase. The PWA shall account for specified requirements relevant to emergency preparedness and response to be considered within the sub-project. The PWA shall communicate with other governmental departments dealing with emergency risks, such as the Public Safety Committee within Jenin Governorate, Civil Defense, National Center for Disaster Risk Management (NCDRM), etc.

The emergency risks mentioned earlier and the associated impacts are considered high in significance but unlikely to occur. However, the risks are avoidable and manageable by applying the below mitigation measures.

Mitigation Measures

The following describes the measures that the PWA/WBWD staff shall carry out to reduce the emergency risks and impacts during the operation phase:

- Develop and implement an emergency response plan (ERP) per the Palestinian regulations regarding emergency preparedness requirements and the World Bank procedures on disaster prevention and preparedness following an eligible crisis or emergency.
- Communicate the roles and responsibilities of laborers in case of an emergency.
- Train all operation workers in general health and safety matters and on the specific hazards of their work. Training should include basic hazard awareness, site-specific hazards, safe work practices, and emergency procedures for fire, evacuation, and natural disasters as appropriate.
- Furnishing sub-project sites with tools and equipment for coping with fire, electrocution, etc.

- Display emergency contact numbers clearly and prominently at strategic places in sub-project facilities.

6.10 Information Disclosure

The PWA will disclose on its website (http://www.pwa.ps) the information and all key documentation about the sub-project to allow stakeholders to understand its risks and impacts. The information should be disclosed before starting the construction work. The information will be announced in Arabic and in a manner that is accessible and culturally appropriate, taking into account any specific needs of groups that may be differentially or disproportionately affected by the sub-project or groups of the population with specific information needs (such as disability, literacy, gender, mobility, differences in language or accessibility). All relevant information needs to be made available to stakeholders on time, including information about the purpose of the sub-project, planned components, expected timeline, types of activities involved, management measures and monitoring activities. The methods of communication with population groups will include meetings with the targeted audience, workshops, announcements in the local schools, mosques, municipalities and village councils Facebook pages and websites, local newspapers and local radio stations. Additional methods will be through social media communication and disclosure of written information - brochures, posters and flyers.

The disclosure should include information on (i) the stakeholder engagement process, highlighting how stakeholders can participate; and (ii) the process and means by which grievances can be raised and addressed.

Per the World Bank Policies, the following documents shall be disclosed on the World Bank website and PWA website:

- Environmental and Social Management Framework (ESMF).
- Stakeholder Engagement Plan (SEP).
- Resettlement Framework (RF).
- Labor Management Plan (LMP).
- Environment and Social Commitment Plan (ESCP).

According to the WSRP-1 SEP, the current PWA website (http://www.pwa.ps) will be used to disclose project documents, including the SEP, in Arabic and English. PWA will create a webpage on the Project on its existing website. This ESIA report will be disclosed on this webpage. This will allow stakeholders with access to the Internet to view information about the planned development and to initiate their involvement in the public consultation process. The SEP will remain in the public domain for the entire period of sub-project implementation and will be updated regularly as the sub-project progresses through its various phases to ensure timely identification of any new stakeholders and interested parties and their involvement in the process of collaboration with the sub-project.

6.11 Institutional Capacity of PWA

PWA will create a dedicated PCU hosted within PWA, which will be supported by field Engineers in Jenin. The PCU will be staffed with experts and specialists on a competitive basis to support the management of ESHS risks and impacts of the WSRP-1 Project, including one Environmental Specialist (ES), one Social Specialist (SS), and one Field Engineer.

The PCU and the supervision Engineer are the responsible entities for following up and monitoring the implementation of the environmental and social requirements and considerations relevant to the sub-project. The persons who will be in charge of following up on the Contractors' compliance with the social and environmental requirements are the ES and SS of the PCU in addition to the ESIA/ESMP Engineer of the supervision Engineer.

There is no information about the capabilities of the ES and SS to be assigned by the PCU/PWA to follow up on the compliance of the Contractors with the social and environmental requirements. Accordingly, and to ensure that both of them have the capabilities to carry out the aforementioned tasks and responsibilities, they have to undergo the following orientation/training sessions:

1. Fundamental training: Overview of the WB's ESSs, including case studies, clearance, and disclosure requirements.
2. Operation-Related Training: the content of the different GM tools, Resettlement and Livelihood (Framework and Plans), recording and resolving grievances.
3. WB requirements for eliminating GBV, SEA, violence against minors, and the applied code of conduct for implemented sub-projects.
4. ESHS provisions included in the bidding documents
5. Training and awareness sessions related to environmental management, policies and regulations.
6. Monitoring and reporting on environmental and social performance during sub-project implementation.

The main tasks of the ES and SS relevant to the sub-project are the following:

- Provide overall environmental and social monitoring during the implementation of the sub-project components;
- Supervise and monitor the Contractors' compliance with social and environmental requirements;
- Manage the information disclosure during the implementation phase;
- Follow up on the Grievance Redress Mechanism; and
- Prepare regular environmental and social compliance reports.

7 ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN

7.1 Objectives of the Environmental and Social Management and Monitoring Plan (ESMMP)

The environmental and social management and monitoring plan consists of a set of mitigation, management, monitoring, and follow-up measures to be taken during different stages of sub-project implementation to avoid, reduce, mitigate or counteract the sub-project's negative environmental and social risks and impacts. Sound management of environmental and social risks and impacts during the various stages of the sub-project as per national legislation and best practice procedures available shall be implemented. The environmental and social management, and the monitoring and follow-up, are compiled within matrices, which are composed of the implementation procedures, mitigation mechanisms and monitoring activities for the expected risks and impacts already discussed previously in this report.

The successful implementation of the Environmental and Social Management and Monitoring Plan (ESMMP) will depend on many factors, which will ensure the integration of the management and environmental and social monitoring plan with the various requirements to be implemented. The following factors should be considered:

- **Experienced Staff** to ensure the effective implementation and monitoring of the management and environmental and social monitoring plan. The Contractors shall nominate an experienced Health, Safety and Environmental (HSE) Officer with professional competencies to effectively carry out the tasks required. Also, the supervision team shall include an ESIA/ESMP Engineer with experience in HSE aspects who will supervise and monitor the Contractors' compliance with the ESMMP requirements.
- **Development and Management of an Environmental Registry** to document and follow up on the various environmental and social issues and deal with environmental and social problems and complaints.

7.2 ESMMP Implementation and Responsibilities

The dedicated staff who will monitor and supervise the E&S aspects during the sub-project cycle are the ES and SS from the PCU and the ESIA/ESMP Engineer from the supervision Engineer.

The overall responsibility for the environmental and social performance of the sub-project and effective ESMMP implementation will rest with the PWA. However, there are other actors involved in implementing the ESMMP, as elaborated below:

PWA: The PWA, through the PCU, will oversee the compliance of the parties that will implement the sub-project, which includes the supervision Engineer, Contractors, Sub-contractors, and suppliers of construction materials, with the setup of environmental and social measures and safeguards. The ES and SS of the PCU/PWA will carry out frequent visits to the sub-project sites during the implementation phase to ensure compliance with the E&S requirements, implementation of the ESMP clauses and the site-specific contractors' management plans, which are: LMP, WMP, OHS plan, TMP, ERP and the CFP.

The PCU's responsibilities concerning the ESMP implementation are as follows:

- Oversee the Contractors and their sub-contractors' compliance with social and environmental requirements;
- Manage the information disclosure;
- Follow up on the Grievance Redress Mechanism; and
- Prepare regular environmental and social compliance reports.

Supervision Engineer: As mentioned earlier, the PWA will hire the services of an international engineering firm for construction supervision of the sub-project components (supervision Engineer). The supervision

Engineer will supervise construction works, ensuring compliance with all design parameters, including quality requirements, supervising the contractors' compliance with ESMP implementation, preparing monthly reports, and submitting them to the PCU.

Contractors: The Contractors shall assign an Environmental and Social Officer (ESO) with qualifications relevant to the environmental, social, and OHS requirements. The ESO will supervise and monitor the implementation and compliance with the ESMP clauses and other site-specific contractors' management plans.

The contractors shall prepare E&S plans as part of the Contractor Management Plan. These plans include the following:

- Contractor Environmental and Social Management Plan (C-ESMP);
- Labor management plan (LMP);
- Waste management plan (WMP);
- Occupational health and safety (OHS) plan;
- Traffic management plan (TMP);
- Emergency response plan (ERP); and
- Chance find procedures (CFP)

The contractors' responsibilities concerning the ESMP implementation are as follows:

- Implement the contents of the C-ESMP during the implementation phase;
- Supervise and monitor the contractors, sub-contractors, and suppliers of materials compliance with social and environmental requirements; and
- Prepare regular environmental and social compliance reports.

Subcontractors and Suppliers of Construction Materials: The sub-contractors and the suppliers of materials shall implement the contents of the C-ESMP and the site-specific contractors' management plans relevant to their activities.

7.3 ESMP During Pre-Construction Phase

There is no risk related to the pre-construction phase. The Ministry of Finance and Planning (MoFP) has to compensate the landowners of the main BPS per the prevailing price and the national laws and WB's ESS5 before starting the construction work.

7.4 ESMP During Construction Phase

Risks and impacts that occur during the construction phase are primarily associated with earthworks, material transportation, pipeline installation, booster pump installation, building water tanks, and the movement of heavy machinery. Such risks and impacts are short-term, local, and caused by the Contractors' activities in the area.

During the construction stage, the contractors and their sub-contractors shall carry out the mitigation measures and provide appropriate environmental training to the concerned staff.

As a follow-up for the identified risks and impacts in Chapter 6, Table 7-1**Error! Reference source not found.** identifies the components of the ESMP during the operation phase.

7.5 ESMP During Operation Phase

Table 7-2 identifies the components of the ESMP during the operation phase. The PWA/WBWD shall carry out the mitigation measures per the specified monitoring program.

7.6 Costs of Implementing ESMPs

The costs of implementing the mitigation measures of the ESMPs for the construction and operation phases are included in the matrices of the ESMPs as presented in Table 7-1 and Table 7-2 respectively. Some mitigation measures are not costed as the costs of mitigation are included in the contracts to be priced by the Contractors.

Table 7-1:Environmental and Social Management Plan During Construction Phase

Potential Risk/Impact	Source of Risk/Impact	Significance of Risk/Impact	Proposed Mitigation Procedures	Residual Risk/Impact	Implementation Responsibility	Direct Supervision Responsibility	Supervision Method	Cost Estimate for Implementing Mitigation Measures
Air quality	• Dust emissions as a result of excavation works. • Exhaust from generators & vehicles/trucks. • Construction equipment exhaust.	**Medium**	Implement a construction site management plan including the following measures: • Store construction materials in pre-identified storage areas. • Cover fine aggregate during storage. • Using emissions filter for the mobile generators used by the Contractors. • Wet the construction areas of water transmission pipelines locations. The use of water should be restricted to extremely active areas. • Regulation of speed to a suitable speed (20 km/h) for all vehicles working close to populated areas. • Implement preventive maintenance program for vehicles and equipment working on site and promptly repair vehicles with visible exhaust fume.	**Minor**	Construction contractors	ESIA/ESMP Engineer of supervision Engineer	Field supervision	Cost of dust suppression $5,000 Other mitigation costs are considered in the unit rates to be priced by the Contractor.
Noise	• Operation of construction heavy machinery. • Traffic jams caused by the heavy vehicles transporting huge amounts of materials and disposed soil. • Use of Jack-Hammers for the trench	**Medium**	Implement on-site Occupational Health and Safety Plan, including the following actions: • Minimize exposure of construction workers to different noise levels and noise impacts according to the national standards. This could be achieved through adjusting working hours, breaks, and exposure duration to be within permissible limits. • Provide the workers with earplugs/earmuffs should be available to all workers especially for those working near jack hammers/excavators. • Install mobile generators inside noise-control containments/isolation. • Provide training on how and when PPE should be used as part of employee orientation courses.	**Minor**	Construction contractors	ESIA/ESMP Engineer of supervision Engineer	Field supervision	Cost of monitoring noise $1,500 Cost of OHS training of workers $1,500 Other mitigation costs are considered in the unit rates to be priced

Potential Risk/Impact	Source of Risk/Impact	Significance of Risk/Impact	Proposed Mitigation Procedures	Residual Risk/Impact	Implementation Responsibility	Direct Supervision Responsibility	Supervision Method	Cost Estimate for Implementing Mitigation Measures
	excavation and foundation of water facilities in rocky areas. • Noise generated by generators.		• Set clear visible instructions in areas where noise levels are critical. Other mitigation measures to reduce the impact of off-site noise at the nearest sensitive receptors include: • Improve the use of construction equipment that causes a high noise level and shut down any equipment when not in use. • Regular maintenance of all equipment and vehicles. • Minimize construction through night time whenever possible to reduce disturbance to nearest community. • Inform the neighboring communities with the construction schedule. • Implement complaints system (Grievance Redress Mechanism)					by the Contractors.
Non-hazardous solid waste	• Excavation waste and surplus construction material. • Solid waste generated by construction labor, including food waste, Paper, plastic, glass, concrete, extracted soil.	**Minor**	• Design a waste separation system during each phase of sub-project implementation. • Design and establishment of a central storage area for non-hazardous waste. • Coordinate with and apply to local councils for collecting and disposal of domestic waste. • Coordinate with local councils and other concerned government agencies (e.g., MoLG) for disposing surplus excavated wastes and surplus construction material. • Record the amount of waste disposed and maintain disposal/burial and transport receipts. • During the construction phase, the above mitigation actions must be included in the contractor's contract. The contractor shall submit a site-specific waste management plan (SWM) containing the above-mentioned procedures at the minimum.	**Negligible**	Construction contractors	ESIA/ESMP Engineer of supervision Engineer	Field supervision and review of waste management plan and ensure that it is implemented	Cost of handling solid waste $1,000 Other mitigation costs are considered in the unit rates to be priced by the Contractor.
Liquid wastes	Liquid waste generated by construction labor, including wastewater collected from labor mobile latrine units at the construction sites of the sub-project facilities.	**Minor**	• Domestic wastewater should be evacuated by licensed vacuum tankers and disposed of in the Jenin WWTP or other licensed WWTP. Contractors should allocate certain areas within the construction site for the hygienic mobile latrine units for the construction staff.	**Negligible**	Construction contractors	ESIA/ESMP Engineer of supervision Engineer	Field supervision and track of disposal receipts	Cost of disposing collected wastewater $4,000

Potential Risk/Impact	Source of Risk/Impact	Significance of Risk/Impact	Proposed Mitigation Procedures	Residual Risk/Impact	Implementation Responsibility	Direct Supervision Responsibility	Supervision Method	Cost Estimate for Implementing Mitigation Measures
Hazardous waste generation and handling	Hazardous waste including empty containers of materials such as paint containers, fuel leakage, and spilled oil.	**Minor**	The Contractor shall submit a hazardous waste management plan containing at minimum these procedures. **A) General procedures for storage, transport and disposal of hazardous wastes:** • Do not allow any mixing of different types of hazardous waste. • Determine how hazardous waste management can be managed, whether by recycling or safe disposal outside the site through licensed contractors at the beginning of the construction phase. Awareness campaigns and training on sound environmental practices for hazardous solid waste management should be carried out as part of safety and occupational health procedures. • Collecting and storing used oils in designated containers to be disposed of / recycled by a specialized and licensed company to be identified at the beginning of the construction phase. • The Contractor shall prepare a register of hazardous materials and wastes, which shall include all data related to the management of hazardous wastes and materials. **B) Adopting identification system for hazardous wastes generated on site:** The Contractor should be able to identify hazardous waste types in accordance with the Palestinian Hazardous Waste Classification System. **C) Management of hazardous waste storage area** • Provide a water source in the storage area- if any. • Hazardous waste must be stored in drums, in order to facilitate handling and prevent interaction with non-compliant waste. •	**Negligible**	Construction contractors	ESIA/ESMP Engineer of supervision Engineer	Field supervision and review of waste disposal records and receipts	Cost of disposing hazardous waste $500 Other mitigation costs are considered in the unit rates to be priced by the Contractor.
Soil & groundwater	• Uncontrolled disposal of hazardous liquids such as spent oils, paint containers, or any other chemicals/additives used in	**Minor**	Implement the <u>construction site management plan</u> which includes: • Segregation and reuse options of excavated material. • Collect and dispose of solid waste in a hygienic manner. • Excavation shall be carried out in a way preventing soil erosion. • Contractors will be required to take appropriate measures to avoid and contain any spillage and pollution of the soil including the response to spill scenarios within the emergency response plan.	**Negligible**	Construction contractors	ESIA/ESMP Engineer of supervision Engineer	Field supervision and Review of contractor reports	Mitigation costs are considered in the unit rates to be priced by the Contractors.

Potential Risk/Impact	Source of Risk/Impact	Significance of Risk/Impact	Proposed Mitigation Procedures	Residual Risk/Impact	Implementation Responsibility	Direct Supervision Responsibility	Supervision Method	Cost Estimate for Implementing Mitigation Measures
	concrete making and finishing works. • Leaching of solid wastes which are randomly disposed of. • Potential impacts on soil other than contamination include soil erosion.		• Contractors will confine the contaminants immediately after such accidental spillage					
Biodiversity	• Uprooting olive trees exist within the regional tank site • Animal species might be impacted due to hunting by the workers and/or accidental harming during construction works. • Changing the habitat of the present fauna	**Minor**	• Transplant olive trees uprooted from the regional tank site on nearby land owned by the ex-owner after coordination with Jenin Municipality and MoA. • Prevent laborers from hunting wild animals in the area. • Exercise caution when excavating trenches and laying underground cables to protect mammals, reptiles, and birds. • Produce cautionary-loud sounds before starting the construction works to alarm the animals and allow them to move to a safer place. • Minimize impacts of surplus excavated materials and construction materials waste on biodiversity and habitats outside the sub-project sites. • Limit storage of materials at the sub- project sites. • Minimize impacts of lay-down areas, surplus excavated materials, and construction materials wastes on biodiversity and habitats outside the sub-project sites.	**Negligible**	Construction contractors	ESIA/ESMP Engineer of supervision Engineer	Field supervision	Cost of re-planting olive trees$4,000 Mitigation costs are considered in the unit rates to be priced by the Contractors.
Occupational Health	• Excavation and trenching	**Critical**	The Contractor shall adopt an Occupational Health and Safety (OHS) Plan. According to OHS plan, the main mitigations measures to prevent common construction hazards are:	**Medium**	Construction contractors	ESIA/ESMP Engineer of supervision Engineer	Field supervision	Mitigation costs are considered in the unit rates

Potential Risk/Impact	Source of Risk/Impact	Significance of Risk/Impact	Proposed Mitigation Procedures	Residual Risk/Impact	Implementation Responsibility	Direct Supervision Responsibility	Supervision Method	Cost Estimate for Implementing Mitigation Measures
	• Working at height and different construction activities during sub-project implementation • Live power lines • Use of heavy construction equipment • Scaffolding		• Workers must follow safety standards and use PPE to minimize hazards while trenching and excavating. • Workers should be trained to identify and evaluate fall hazards and be fully aware of how to control exposure to such risks as well as to know how to use fall protection equipment properly. • To prevent heavy construction equipment risk, workers should follow all construction safety guidelines necessary to eliminate the exposure to such injuries and accidents. • To prevent the electrical hazard, workers should be at a safe working distance away from the power lines. • Identification of hazard sources to workers • Eliminating the sources of hazards • Training workers to recognize potential hazards, use proper work practices and procedures, recognize adverse health effects, how to use PPE and are familiar with appropriate emergency evacuation procedures. • Inspection and testing of all equipment and machines. • Follow all safety guidelines at construction sites to prevent injuries and accidents. • Preparation of an emergency response plan which shall consider risks of communicable diseases. • Provision of necessary rescue equipment. • Elaboration and management of a health and safety plan. • Provision of appropriate and sufficient first aid equipment. • There are safety and health standards that require initial check-up to workers before starting the sub-project. Then the check-up should be conducted regularly (e.g., monthly) to ensure full safety. • Operationalise Grievance Mechanism for workers in line with Project LMP					to be priced by the Contractors.

Potential Risk/Impact	Source of Risk/Impact	Significance of Risk/Impact	Proposed Mitigation Procedures	Residual Risk/Impact	Implementation Responsibility	Direct Supervision Responsibility	Supervision Method	Cost Estimate for Implementing Mitigation Measures
Visual and Landscape Impacts	• Excavation and different construction activities • Removing olive trees from the regional tank site	**Minor**	• Dispose of all construction wastes and surplus excavated materials from sub-project sites into appropriate and approved disposal sites and keep the site clean. • Compensate the loss of vegetation cover within the regional tank site by planting native plants around the site perimeter.	**Negligible**	Construction contractors	ESIA/ESMP Engineer of supervision Engineer	Field supervision	Mitigation costs are considered in the unit rates to be priced by the Contractors. Cost of re-planting olive trees$4,000
Cultural Heritage and Monuments	Excavation works	**Minor**	• Develop, document, and implement a site-specific 'Chance Find Procedure' that will detail what the construction contractor shall do if valuable artefacts or culturally valuable materials are found. The contract relating to the sub-project construction shall include the CFP. • Ensure relevant workers are trained in the requirements of the procedure before ground disturbance • Inform the Directorate of Tourism and Antiquities (DoTA)- Jenin formally in advance and before starting the construction works. • In case of finding a monument during the excavation, the excavation work shall immediately be stopped, leaving the monument as is at the site where it was found and taking photos to document the time and status of the monument. Guards should be assigned to monitor the monument and contact the DoTA-Jenin to handle the site.	**Negligible**	Construction contractors	ESIA/ESMP Engineer of supervision Engineer	Field supervision	Mitigation costs are considered in the unit rates to be priced by the Contractors.
Community Health and Safety	• Excavation and Construction activities • Use of equipment (excavators, machinery) which can cause injuries to local community	**Medium**	• Occupational health and safety guidelines should be followed on the roads. • For the construction activities of pipe trench, barriers shall be used to protect the site from any entrance of the pedestrians. • Use signs, barriers, public outreach to prevent public contact with potentially dangerous equipment while working close to populated areas and other occupied areas.	Minor	Construction contractors	ESIA/ESMP Engineer of supervision Engineer	○ Field supervision ○ Periodic reports. ○ Periodic meetings with	Mitigation costs are considered in the unit rates to be priced by the Contractors.

Potential Risk/Impact	Source of Risk/Impact	Significance of Risk/Impact	Proposed Mitigation Procedures	Residual Risk/Impact	Implementation Responsibility	Direct Supervision Responsibility	Supervision Method	Cost Estimate for Implementing Mitigation Measures
	• Communicable diseases associated with the influx of temporary construction labor • Emissions of gaseous pollutants and dust • Increased noise levels • Waste accumulation in illegal dumping sites		• Sites of regional tank and booster stations shall be marked of with fencing and signage to prevent public from entering the dangerous sites. • Communication with local communities when work activities will take place near them to ensure children are not playing in the work area. • Prepare and operationalize Grievance Mechanism in line with Project SEP. • Ensure that workers understand, sign and adhere to workers' Code of Conduct.				the communities ○ Follow up the complaints raised by communities	
Traffic	• Movement of workers' transport vehicles, the transportation of construction materials and equipment for construction, and disposal of surplus excavated material and construction waste. • Machineries and vehicles movement needed for construction works of water transmission pipelines.	**Medium**	• Contractors shall develop and stick to a site-specific traffic management plan (TMP). • Avoid vehicle movement during rush hours • Coordination with related authorities such as traffic police. • Determine the maximum speed within the sub-project sites. • Place traffic signals to warn of the movement of heavy vehicles and machineries. • Place traffic signs to warn of the movement in case of street and road closures due to trench excavations. • The speed of the vehicles should be reduced at least 500 meters before and after the entrance to the working area. • Flagman shall be used to direct vehicle traffic around construction sites and hazards during working hours. • Determine the movement of vehicles to be during the day time only. • Determine the trench excavations to be during the daytime only unless the relevant authority, e.g., traffic police, requests it to be done at nighttime. • No open trenches can be left overnight.	**Minor**	Construction contractors	ESIA/ESMP Engineer of supervision Engineer	Field supervision	Cost of implementing traffic plan and using barriers $15,000

Potential Risk/Impact	Source of Risk/Impact	Significance of Risk/Impact	Proposed Mitigation Procedures	Residual Risk/Impact	Implementation Responsibility	Direct Supervision Responsibility	Supervision Method	Cost Estimate for Implementing Mitigation Measures
			• Place traffic signals and warning tapes to warn of the movement due to trench excavation in case any trenches were left open overnight for an emergency purpose. • Secure parking areas for workers and staff at the Contractor's offices and site premises. • Ensure vehicle safety and regular maintenance.					
Labor Conditions	• Unequal wages and benefits for the same job • Indiscriminate human resources policies and procedures; • Discrimination and unequal employment opportunities; • Indiscriminate working hours and leave; • Child labor; • Gender-based violence (GBV) or sexual exploitation and abuse (SEA) or sexual harassment (SA); • Grievances application; • Occupational health and safety; •	**Medium**	• Develop and implement LMP, which the contractors shall prepare specifically to the sub-project components and nature. • Develop and implement a workers' grievance redress mechanism including provisions for the handling of GBV/SEA/SH. • Implement GBV/SEA/SH, and child protection training/awareness campaign for the contractors' staff. • No child under the age of 15 will be employed. • Persons under the age of 18 will not be employed by the sub-project unless to perform light duties.	**Minor**	PCU/PWA, supervision Engineer, Construction contractors	ES & SS of PCU & ESIA/ESMP Engineer of supervision Engineer	Field supervision	Cost of workers' training on applying GM $ 500

Potential Risk/Impact	Source of Risk/Impact	Significance of Risk/Impact	Proposed Mitigation Procedures	Residual Risk/Impact	Implementation Responsibility	Direct Supervision Responsibility	Supervision Method	Cost Estimate for Implementing Mitigation Measures
GBV/SEA/SH of Labor Influx	• Movement of workers close to the residential areas	Minor	• Maintain labor relations with local community through labor code of conduct and not to act with any behavior that may lead to any problems or disputes with the local population. • The Contractors' employees should receive orientation sessions in working in the surrounding communities. A code of conduct would need to be signed by all workers during the construction work to stay away from the communities. Also, an awareness campaign for the communities and workers will help deter unacceptable behavior. • Develop and implement a grievance redress mechanism including provisions for the handling of GBV/SEA/SH. • Implement an awareness campaign on GBV and sexual harassment.	Negligible	Construction contractors	ESIA/ESMP Engineer of supervision Engineer	Field supervision	Cost of orientation session for workers' to deal with surrounding communities $ 500
Infrastructure	• Cut off a service and/or damage to underground infrastructure due to excavation works for the water transmission pipelines	Minor	• Contractors shall get as built-drawings for the existing underground infrastructure from the service providers and coordinate the excavation works with them before starting any excavation works. • Reinstate the damaged infrastructures due to the installation of the pipelines in the main roads and reinstate any accidental damage to existing structures and private property caused by construction activities.	Negligible	Construction contractors	ESIA/ESMP Engineer of supervision Engineer	Field supervision	Mitigation costs are considered in the unit rates to be priced by the Contractors.
Land Use	• Private lands might be needed to be used as temporary construction materials' storage areas and/or for other construction purposes	Minor	• Contractors shall conduct agreements with the landowners, in line with the ESS5, including the compensations the Contractors would pay for the landowners.	Negligible	Construction contractors	ESIA/ESMP Engineer of supervision Engineer	Field supervision	Mitigation costs are considered in the unit rates to be priced by the Contractors.
Access to Sub-Project Benefits and Lack of Stakeholder En-	• Discrimination in hiring the workforce • Exclusion of concerned stakeholders in sub-project	Medium	**Employment opportunities:** ▪ Ensure sub-project GM, including mechanisms to manage GBV/SH-related grievances, is accessible and applied. ▪ Apply workers' GM. **Exclusion of stakeholders in sub-project activities and lack of sharing of information:**	Minor	PCU/PWA, supervision Engineer, Construction contractors	ES & SS of PCU & ESIA/ESMP Engineer of supervision Engineer	Field supervision	Mitigation costs are considered in the unit rates to be priced

Potential Risk/Impact	Source of Risk/Impact	Significance of Risk/Impact	Proposed Mitigation Procedures	Residual Risk/Impact	Implementation Responsibility	Direct Supervision Responsibility	Supervision Method	Cost Estimate for Implementing Mitigation Measures
	activities and consultations and lack of sharing of information • Temporary loss of accessibility to individual land/asset		▪ Use innovative communication and engagement means to reach the communities with information on the sub-project and receive their feedback. ▪ Disseminate information about the GM in the communities. ▪ Use the Arabic language in communication. **Temporary loss of accessibility to individual land/asset:** ▪ Avoid impacts through the identification of alternatives. ▪ Ensure access to GM. ▪ Implement SEP throughout the sub-project implementation phase.					by the Contractors.

Table 7-2: Environmental and Social Management Plan During Operation Phase

Potential Risk/Impact	Source of Risk/Impact	Significance of Risk/Impact	Proposed Mitigation Procedures	Residual Risk/Impact	Implementation and Supervision Responsibility	Supervision Method	Cost Estimate for Implementing Mitigation Measures
Soil and Groundwater	Increase the quantity of wastewater due to increase of per capita water consumption by operating the sub-project Wastewater generated from operating staff at sub-project facilities	**High**	▪ Conduct public awareness campaign through flyers, mass media, public meetings or workshops, or the local council to: -Encourage diverting greywater directly to open channels, storing greywater on site prior to diversion or reuse, and reusing greywater -Encourage more frequent hiring of vacuum tankers to remove sewage from cesspits -Encourage replacing cesspits with reinforced concrete septic tanks and discharge into subsurface leach fields, or are evacuated and the effluent discharged to designated safe wastewater disposal locations (Jenin WWTP) -Encourage construction of septic tanks for new buildings -Encourage implementation of small-scale, on-site wastewater systems -Increase awareness of environmental and health risks associated with sewage disposal to cesspits Encourage water conservation and protection ▪ Implementation of waste management plan by regular emptying for any existing septic tank within the facilities. ▪ Fuel tanks to be installed inside fully-sealed concrete structures	**Medium**	**WBWD/PWA**	**<u>Wastewater from communities:</u>** ▪ Records of public awareness campaigns ▪ Monitoring of residents' compliance with regulations concerning septic tanks and evacuation. **<u>Wastewater from WBWD Staff:</u>** ▪ Regular inspection of the septic tanks sites. ▪ Comparing records of consumed water quantities and evacuated wastewater quantities.	Costs are included in the O&M costs applied by the PWA and WBWD.

Potential Risk/Impact	Source of Risk/Impact	Significance of Risk/Impact	Proposed Mitigation Procedures	Residual Risk/Impact	Implementation and Supervision Responsibility	Supervision Method	Cost Estimate for Implementing Mitigation Measures
Air Quality	Operation of the diesel generators in case of emergency	**Minor**	▪ Equipment selection will consider the air emission standards. ▪ Using emissions filter for all generators in the sub-project.	**Negligible**	**WBWD/PWA**	▪ Regular monitoring of exhaust and dust emissions.	Costs are included in the O&M costs applied by the WBWD.
Noise	Operation of booster pumps and standby generators.	**Minor**	▪ Noise associated with the operation of booster pumps and standby generators will be mitigated by its containment/isolation. ▪ Equipment selection will consider the noise level standards. ▪ Noise levels for facilities installed in a separate room/enclosure: < 80 (dB(A)) outside the room/enclosure, < 55 (dB(A)) inside control room and < 40 (dB(A)) outside site boundary. ▪ Hazardous warning notices indicating ear defenders are to be worn shall be installed at entrances to rooms/enclosures where the sound level exceeds 80 (dB(A)). ▪ Replace and maintain noise muffling equipped or other used acoustic reduction technologies as needed.	**Negligible**	**WBWD/PWA**	▪ Regular monitoring of noise levels at booster stations.	Costs are included in the O&M costs applied by the WBWD.

Potential Risk/Impact	Source of Risk/Impact	Significance of Risk/Impact	Proposed Mitigation Procedures	Residual Risk/Impact	Implementation and Supervision Responsibility	Supervision Method	Cost Estimate for Implementing Mitigation Measures
Hazardous and Non-Hazardous Waste	Leaks of diesel for standby generators and lubricating oils for the motors of the pumps and transformers. Solid waste from the employees and workers	**Minor**	▪ The hazardous waste generated should be stored and disposed of through a licensed contractor per the Palestinian HWMS for the hazardous waste. ▪ Waste Management Plan must be developed to comply with relevant Palestinian regulations and international best practices covering all types of waste to be implemented by sub-project operators. Generated solid waste should be collected in covered bins, until they are delivered via the relevant local council/licensed contractor for disposal in domestic solid waste disposal sites.	**Negligible**	**WBWD/PWA**	▪ Regular inspection of the sites to determine the disposal of generated hazardous waste and solid waste	Costs are included in the O&M costs applied by the WBWD.

Potential Risk/Impact	Source of Risk/Impact	Significance of Risk/Impact	Proposed Mitigation Procedures	Residual Risk/Impact	Implementation and Supervision Responsibility	Supervision Method	Cost Estimate for Implementing Mitigation Measures
Occupational Health and Safety	Exposure to chemicals; work accidents	**Minor**	▪ The Occupational Safety and Health Plan shall include the following procedures as a minimum: ▪ Identify and remove hazards to workers. ▪ Follow safety standards and use PPE. ▪ Conduct periodic medical examinations for workers to ensure their safety. ▪ Follow all safety guidelines at sites required to prevent injury and accidents. ▪ Inspection and testing of all equipment and machinery. ▪ Prepare an emergency response plan. ▪ Provide the necessary rescue equipment and adequate and enough first aid. ▪ Develop and manage a plan to ensure safety. ▪ The applied procedures should cover the following risks at a minimum: ▪ Risk of injury during operation. ▪ Personal injury risks for workers and employees as a result of truck traffic on site. ▪ Hazards associated with closed spaces or anywhere where breathing is difficult.	**Negligible**	**WBWD/PWA**	▪ Review the implementation of the occupational health and safety plan. ▪ Review the accident records of workplace ▪ On-site occasional inspection.	Costs of implementing OHS requirements are included in the O&M costs applied by the WBWD.

Potential Risk/Impact	Source of Risk/Impact	Significance of Risk/Impact	Proposed Mitigation Procedures	Residual Risk/Impact	Implementation and Supervision Responsibility	Supervision Method	Cost Estimate for Implementing Mitigation Measures
Labor Conditions	• Indiscriminate human resources policies and procedures; • Discrimination and unequal employment opportunities; • Indiscriminate working hours and leave; • Child labor; • GBV or SEA or SA; • Grievances application; and • Occupational health and safety	**Minor**	▪ Abide with the Palestinian Civil Service Law No. 4 of 1998 for the permanent staff and the Palestinian Labor Law for the casual staff; ▪ Implement the clauses of the LMP; ▪ Develop and implement a grievance redress mechanism with provisions for handling GBV/SEA/SH; and ▪ Implement GBV/SEA/SH training/awareness campaign for the PWA/WBWD staff.	**Negligible**	**WBWD/PWA**	▪ Field supervision ▪ Follow up the complaints raised by the employees	Costs of implementing mitigation measures are included in the O&M costs applied by the WBWD.
Community Health and Safety	Maintenance works for the water transmission pipelines and/or any other facility	**Minor**	▪ Provide a complaint mechanism for the community. ▪ Conduct semiannual community meetings to record any concerns/complaints they may have.	**Negligible**	**WBWD/PWA**	▪ Follow up the complaints raised by communities. ▪ Periodic meetings with the communities.	Costs of implementing mitigation measures are included in the O&M costs applied by the WBWD.
GBV/SEA/SH	PWA/WBWD's staff movement near the residential areas during carrying out the O&M works	**Minor**	▪ Maintain labor relations with the local communities through labor codes of conduct and do not act with any behavior that may lead to problems or disputes with the local population. ▪ Develop and implement a grievance redress mechanism including provisions for the handling of GBV/SEA/SH. ▪ Develop a worker's GM for the PWA/WBWD. The workers shall be made aware of the workers' GM, and will also be able to lodge complaints to the special referral pathways for grievances on GBV, SEA, SH.	**Negligible**	**WBWD/PWA**	▪ Field supervision ▪ Follow up the complaints raised by communities.	Cost of orientation sessions for WBWD/PWA's staff to deal with residential areas $500.

Potential Risk/Impact	Source of Risk/Impact	Significance of Risk/Impact	Proposed Mitigation Procedures	Residual Risk/Impact	Implementation and Supervision Responsibility	Supervision Method	Cost Estimate for Implementing Mitigation Measures
Infrastructure	**Electricity:** Burden on the provision of electricity service for operating the water facilities **Wastewater:** Increase the quantity of wastewater due to increase of per capita water consumption	**Wastewater: High Electricity: Negligible**	Electricity: ▪ Use of energy-efficient equipment ▪ Comply with the operational manual and design recommendations for controlled mechanisms to allow the safe shutdown of facilities in the case of interruptions to the power supply. ▪ Follow lessons learnt and procedures that have been experienced previously by PWA with other water supply facilities regarding diesel availability **Wastewater:** Refer to mitigation measures on "Soil and Groundwater"	**Wastewater: Medium Electricity: Negligible**	**WBWD/PWA**	**Electricity:** ▪ Regular monitoring of electricity service at facilities **Wastewater from communities:** ▪ Records of public awareness campaigns ▪ Monitoring of residents' compliance with regulations concerning septic tanks and evacuation	Costs are included in the O&M costs applied by the PWA and WBWD.

Potential Risk/Impact	Source of Risk/Impact	Significance of Risk/Impact	Proposed Mitigation Procedures	Residual Risk/Impact	Implementation and Supervision Responsibility	Supervision Method	Cost Estimate for Implementing Mitigation Measures
Emergency Risks and Impacts	Natural disasters, fire, electrocution, Israeli aggression, or any other malfunction during the operation phase	**High**	▪ Develop and implement an emergency response plan (ERP) per the Palestinian regulations regarding emergency preparedness requirements and the World Bank procedures on disaster prevention and preparedness following an eligible crisis or emergency. ▪ Communicate the roles and responsibilities of laborers in case of an emergency. ▪ Train all operation workers in general health and safety matters and on the specific hazards of their work. Training should include basic hazard awareness, site-specific hazards, safe work practices, and emergency procedures for fire, evacuation, and natural disasters as appropriate. ▪ Furnishing sub-project sites with tools and equipment for coping with fire, electrocution, etc. ▪ Display emergency contact numbers clearly and prominently at strategic places in sub-project facilities.	**Minor**	**WBWD/PWA**	• Regular inspection of the presence of an ERP ▪ Regular inspection of the presence of tools and equipment for coping with fire, electrocution, etc.	Costs are included in the O&M costs applied by the PWA and WBWD.

7.7 Monitoring and Reporting

The effectiveness of the proposed mitigation actions and the environmental and social management plan will be monitored during the various phases of the sub-project implementation using measurement equipment (as appropriate) and standard techniques to ensure accurate results. These results will be maintained in an accessible database and analyzed; corrective/additional actions will be taken as necessary. Matrices include monitoring indicators, methods, frequency, responsible parties, and cost.

The PCU/PWA will oversee the implementation of the mitigation measures by the ES and the SS. The supervision and monitoring of the implementation of the mitigation measures will be carried out by the supervision Engineer.

The Contractors shall prepare and submit to the supervision Engineer a monthly report on implementing the environmental and social mitigation measures. The Report shall cover monitoring the environmental and social issues, OHS compliance, OHS incidents and accidents, training conducted, and any other significant activities carried out during the reporting period.

As per the Environmental and Social Commitment Plan (ESCP) of the WSRP-1, the PCU/PWA shall submit the reports presented in Table 7-3 to the World Bank.

Table 7-3: Environmental and Social Reporting to World Bank

No.	Reporting Type	Timeframe
1.	**Regular Reporting:** Prepare and submit to the World Bank regular monitoring reports on the ESHS performance of the sub-project, including but not limited to the implementation of the ESCP, status of implementation of E&S instruments required under the ESCP (e.g., Resettlement Plan (RP)), and stakeholder engagement activities and functioning of the grievance mechanism(s) in accordance with the SEP).	-Starting from the Sub-Project Effectiveness Date -Quarterly reports shall be submitted to the World Bank throughout Sub-Project implementation. -Submit each report no later than 15 days after the end of each reporting period.
2.	**Incidents and Accidents:** Promptly notify the World Bank of any incident or accident related to the sub-project which has, or is likely to have, a significant adverse effect on the environment, the affected communities, the public or workers, including, inter alia, cases of SEA, SH, and accidents that result in death, serious or multiple injuries (e.g. road and traffic accidents, communicable diseases) during sub-project related civil works, operation and maintenance of infrastructure, technical assistance (e.g. training) and other relevant sub-project activities. The anticipated risk of such incidents and accidents is low to moderate and requisite mitigation measures, proportionate to the level of risk, will be included in E&S instruments, as required, and implemented during the sub-project. Subsequently, at the World Bank's request, prepare a report on the incident or accident and propose any measures to address it and prevent its recurrence.	-Notify the World Bank no later than 48 hours after learning of the incident or accident. -Fatalities will be reported within 24 hours after occurrence. -Provide subsequent reports to the World Bank within a timeframe acceptable to the World Bank
3.	**Contractors' Monthly Reports:** Require Contractors and Supervising Engineer to provide monthly reports on ESHS performance in accordance with the metrics specified in the respective bidding documents and contracts and submit such reports to the World Bank.	Submit the monthly reports to the World Bank as annexes to the reports to be submitted under action 1 above, and if required earlier, separately upon request.

Monitoring Procedure

The contractors shall implement and comply with the ESMP requirements as stated earlier. The ESIA/ESMP Engineer of the supervision Engineer shall supervise and monitor the implementation of the ESMP. The ES and SS shall attend the sub-project site to supervise and monitor the implementation of the ESMP frequently.

At any stage of construction, if the contractor has not taken appropriate action to achieve compliance with the environmental and social clauses after repeated notices of violation and warnings of noncompliance, and significant environmental or social impacts are occurring or imminent, the ESIA/ESMP Engineer should order the contractor to stop work until environmental and social performance is brought under control and up to acceptable standards.

The ES and SS shall ensure that the contractor shall implement the requirements of the ESMP. The ES and/or SS will conduct onsite visits to all sub-project sites at least four times a month or any other time to oversee the implementation of ESMP. As part of their regular activities, the ES and/or SS will oversee and document (including pictures) the performance of contractors in implementing the environmental and social mitigation measures for all sub-project sites throughout the construction phase. This will involve both spot check visits to the worksites, reviews of records kept by the supervision Engineer and the contractors, and daily reports prepared by them. The frequency of site visits should consider the magnitude of activities and their associated environmental and social risks and impacts.

Each visit and interaction with the contractors should be documented, in the database, including identifying the non-compliant performance and its significance and guidance on the actions to be taken. PCU will follow up, as needed, to ensure the timely resolution of non-compliant issues with environmental and social clauses. This may include further communications with the contractors' administration, issuing notices of deficiency or warnings, and other actions if needed.

At any stage of construction or other work, if the contractor has not taken appropriate action to achieve compliance with the environmental and social clauses after repeated notices of violation and warnings of noncompliance, and significant environmental or social risks and impacts are occurring or imminent, the supervision Engineer should order the contractor to stop work until environmental and social performance is brought under control and up to acceptable standards..

Table 7-4 and

Infra-structure	-Numbers and types of service cut-tings -Complaints from neigh-boring com-munities	Con-struc-tion sites	▪ Visual record-ing for any ser-vice cut-ting ▪ Devel-opment and practice of Griev-ance Mecha-nism	Daily	▪ C-ESMP ▪ SEP ▪ Griev-ance Mech-anism	ESIA/ESMP Engineer of supervision Engineer	In-cluded in su-pervi-sion scope and costs

Land Use	-Numbers of land encroachments -Complaints from neighboring communities	Construction sites and adjacent areas	▪ Site inspections of land encroachments ▪ Development and practice of Grievance Mechanism ▪ Complaints raised by neighboring communities	Daily	▪ C-ESMP ▪ SEP ▪ Grievance Mechanism	ESIA/ESMP Engineer of supervision Engineer	Included in supervision scope and costs
Access to Sub-Project Benefits and Lack of Engagement	-Number of complaints related to hiring workforce -Number of consultation meetings -Number of booklets, information brochures, posters, flyers -Number of complaints related to accessibility to individual land/asset	Construction sites and adjacent areas	▪ Complaints raised by the workforce in the sub-project area ▪ Development and practice of Grievance Mechanism ▪ Complaints raised by neighboring communities	Daily	▪ C-ESMP ▪ SEP ▪ Grievance Mechanism	ESIA/ESMP Engineer of supervision Engineer	Included in supervision scope and costs

Table 7-5 identify the component of the environmental and social monitoring plan, including the cost, during the construction and operation phases, respectively.

Table 7-4: Environmental and Social Monitoring and Follow-up Plan During the Construction Phase

Potential Risk/Impact	Monitoring Indicator	Monitoring Site	Monitoring Method	Monitoring Frequency	Monitoring Plan	Monitoring Responsibility	Monitoring Cost
Air quality	Air quality: nitrogen oxides, sulfur oxides and carbon monoxide in the case of old engines, as well as hydrocarbons and opacity for construction machinery and equipment.	Construction sites	▪ Exhaust measurement device and gas analyzer ▪ Bad odor ▪ Use of PPE ▪ Record of induction for workers ▪ Active dust suppression ▪ Dust complaints from workers and neighboring communities ▪ Visual inspection of vehicles and equipment	Once before construction + Monthly	C-ESMP	ESIA/ESMP Engineer of supervision Engineer[28]	Included in supervision scope and costs[29]
	Dust emissions: -Investigate dust complaints from workers and residents of affected areas -No dust generation						
Noise	The intensity of noise levels, exposure duration and noise impacts (compliance with national and WB standards)	Construction sites	Measure the noise level by the portable measuring device at the nearest receptors	Daily and as needed	C-ESMP	ESIA/ESMP Engineer of supervision Engineer	Included in supervision scope and costs
			Record of equipment maintenance	Monthly			

[28] ESIA/ESMP Engineer of supervision Engineer will monitor, and ES and SS of PCU/PWA will oversee the compliance with the E&S requirements

[29] The cost of monitoring is related to the salaries of ESIA/ESMP Engineer of supervision Engineer and ES and SS of the PCU, the ESO of the contractors, and other relevant expenses (insurance, end of service compensation, etc.). The staff of PCU will work on other sub-projects, and their input for the Jenin Bulk Water Supply sub-Project is limited and not on a full-time basis. All of these costs are included in the supervision scope of these entities.

Potential Risk/Impact	Monitoring Indicator	Monitoring Site	Monitoring Method	Monitoring Frequency	Monitoring Plan	Monitoring Responsibility	Monitoring Cost
	Complaints from neighboring communities		Record and document complaints received from workers and neighboring communities	Daily			
Waste management	Hazardous waste accumulation	Construction sites	Regular hazardous waste storage area inspection to identify hazardous waste dumped randomly.	Daily	▪ C-ESMP ▪ Waste Management Plan (WMP)	ESIA/ESMP Engineer of supervision Engineer	Included in supervision scope and costs
	Solid waste and metallic scraps accumulation		▪ Review of statements and receipts ▪ Regular inspection of the waste storage area.	Daily			Included in supervision scope and costs
	Liquid waste generated from the workers		Review waste disposal records and ensure regular evacuation of wastewater tanks	Daily			

Potential Risk/Impact	Monitoring Indicator	Monitoring Site	Monitoring Method	Monitoring Frequency	Monitoring Plan	Monitoring Responsibility	Monitoring Cost
Excavated material	-Cleanness of site -Disposal facilities are in place	Construction sites and disposal sites	▪ Review waste records regularly. ▪ Document the amount of extracted soil from excavation work as well as backfilling material brought to the site, if any. ▪ Monitoring disposal sites of surplus excavated material	Daily	C-ESMP, WMP	ESIA/ESMP Engineer of supervision Engineer	Included in supervision scope and costs
Biodiversity (Flora and Fauna)	Number of breaching events regarding biodiversity values Complaints from neighboring communities and others concerning harmful risks and impacts on plants and animal health.	Construction sites	Visual recording	Daily	C-ESMP	ESIA/ESMP Engineer of supervision Engineer	Included in supervision scope and costs

Potential Risk/Impact	Monitoring Indicator	Monitoring Site	Monitoring Method	Monitoring Frequency	Monitoring Plan	Monitoring Responsibility	Monitoring Cost
Occupational Health and Safety	-Using of PPEs -Number and type of accidents and injuries	Construction sites	▪ Continuous inspection for the Contractors' compliance with the "Occupational Health and Safety" requirements. ▪ Regular reporting of any accidents, as well as records and reports on health, safety and welfare of workers ▪ Continuous monitoring of all hazardous events. ▪ Regular inspection of workers against pathogenic agents and provision of immunization when needed	Daily	Occupational Safety and Health Plan	ESIA/ESMP Engineer of supervision Engineer	Included in supervision scope and costs

Potential Risk/Impact	Monitoring Indicator	Monitoring Site	Monitoring Method	Monitoring Frequency	Monitoring Plan	Monitoring Responsibility	Monitoring Cost
Labor Conditions	Complaints from workers	Construction sites	▪ Complaints raised by workers ▪ Development and practicing of Grievance Mechanism	Daily	▪ C-ESMP ▪ Grievance Mechanism	ESIA/ESMP Engineer of supervision Engineer	Included in supervision scope and costs
Community Health and Safety	Number and type of accidents and injuries Complaints from neighboring communities	Construction sites	▪ Visual recording of Contractors' compliance with mitigation measures ▪ Regular reporting of any accidents ▪ Complaint raised by neighboring communities	Daily	▪ C-ESMP ▪ SEP ▪ Sub-project performance ▪ Grievance Mechanism	ESIA/ESMP Engineer of supervision Engineer	Included in supervision scope and costs
Visual impacts	Visual disturbance due to over-ground storage of excavated products and raw materials.	Construction sites	Visual recording	Daily	C-ESMP	ESIA/ESMP Engineer of supervision Engineer	Included in supervision scope and costs

Potential Risk/Impact	Monitoring Indicator	Monitoring Site	Monitoring Method	Monitoring Frequency	Monitoring Plan	Monitoring Responsibility	Monitoring Cost
Soil and Groundwater		Construction sites	▪ Visual recording for any contaminant to soil ▪ Review waste records regularly. ▪ Document the amounts of extracted soil from excavation works, and other backfilling material brought to the site for the materials balance	Daily	C-ESMP	ESIA/ESMP Engineer of supervision Engineer	Included in supervision scope and costs
Cultural and archeological sites	-Date, time, location and status of monuments found accidently -Indication of chance finds	Construction sites	Documenting procedures of chance finds	Daily	▪ C-ESMP ▪ Chance Finds Procedures	ESIA/ESMP Engineer of supervision Engineer	Included in supervision scope and costs

Potential Risk/Impact	Monitoring Indicator	Monitoring Site	Monitoring Method	Monitoring Frequency	Monitoring Plan	Monitoring Responsibility	Monitoring Cost
Impacts on traffic	Accidents, complaints and observations	Construction sites particularly along the water transmission pipelines route	▪ Visual inspection of compliance with traffic management plan contents ▪ Monitoring traffic flow at construction sites ▪ Number of accidents ▪ Complaints raised by neighboring communities	Daily	▪ C-ESMP ▪ Traffic Management Plan (TMP)	ESIA/ESMP Engineer of supervision Engineer	Included in supervision scope and costs
GBV/SEA/SH of Labor Influx	Complaints from neighboring communities	Construction sites	▪ Complaints raised by neighboring communities ▪ Development and practicing of Grievance Mechanism ▪ Commitment to worker's code of conduct	Daily	▪ C-ESMP ▪ Grievance Mechanism	ESIA/ESMP Engineer of supervision Engineer	Included in supervision scope and costs
Infrastructure	-Numbers and types of service cuttings -Complaints from neighboring communities	Construction sites	▪ Visual recording for any service cutting ▪ Development and practice of Grievance Mechanism	Daily	▪ C-ESMP ▪ SEP ▪ Grievance Mechanism	ESIA/ESMP Engineer of supervision Engineer	Included in supervision scope and costs

Potential Risk/Impact	Monitoring Indicator	Monitoring Site	Monitoring Method	Monitoring Frequency	Monitoring Plan	Monitoring Responsibility	Monitoring Cost
Land Use	-Numbers of land encroachments -Complaints from neighboring communities	Construction sites and adjacent areas	▪ Site inspections of land encroachments ▪ Development and practice of Grievance Mechanism ▪ Complaints raised by neighboring communities	Daily	▪ C-ESMP ▪ SEP ▪ Grievance Mechanism	ESIA/ESMP Engineer of supervision Engineer	Included in supervision scope and costs
Access to Sub-Project Benefits and Lack of Engagement	-Number of complaints related to hiring workforce -Number of consultation meetings -Number of booklets, information brochures, posters, flyers -Number of complaints related to accessibility to individual land/asset	Construction sites and adjacent areas	▪ Complaints raised by the workforce in the sub-project area ▪ Development and practice of Grievance Mechanism ▪ Complaints raised by neighboring communities	Daily	▪ C-ESMP ▪ SEP ▪ Grievance Mechanism	ESIA/ESMP Engineer of supervision Engineer	Included in supervision scope and costs

Table 7-5: Environmental and Social Monitoring and Follow-up Plan During Operation Phase

Potential Risk/Impact	Monitoring Indicator	Monitoring Site	Monitoring Methods	Monitoring Frequency	Monitoring Responsibility	Monitoring Cost
Soil and Groundwater	Spill or leakage of chemicals and/or wastewater	Booster Pumping Stations	• Regular inspection to detect any possible leaks. • Regular inspection of the waste storage area. • Regular inspection of septic tanks • Review waste disposal records	Weekly	WBWD	Included in supervision scope and costs[30]
Air Quality	Carbon monoxide, Sulphur dioxide, Nitrogen oxides and total hydrocarbons	Booster Pumping Stations	Exhaust emissions from standby generators	Semiannual during the normal operation of the standby generators	WBWD	Included in supervision scope and costs
Noise	The intensity of noise levels, exposure periods and noise impacts	Booster Pumping Stations	Measure the noise level by portable measuring device at the nearest receptors	Once every six months	WBWD	Included in supervision scope and costs
	Complaints from nearby communities		Record and document complaints received from residents	Upon receiving a complaint		
Occupational Health and Safety	-Using of PPEs -Number and type of accidents, injuries and diseases	Sub-Project Sites	• Regular reporting of any incidents, as well as records and reports on workers' safety and health. • Regular inspection of performance of general safety and protection equipment. • Continuous monitoring of all hazardous events. • Regular inspection of workers against pathogens and provision of immunization when needed.	Upon implementing O&M activities	WBWD	Included in supervision scope and costs

[30] The cost of monitoring is related to the salary/ies of the ES and SS staff and other relevant expenses (insurance, end of service compensation, etc.). The ES and SS will be appointed by the WBWD/PWA to follow-up on the E&S requirements at sub-projects sites; their input for the Jenin Bulk Water Supply Sub-Project is limited and not on a full-time basis and they will work on other sub-projects.

Potential Risk/Impact	Monitoring Indicator	Monitoring Site	Monitoring Methods	Monitoring Frequency	Monitoring Responsibility	Monitoring Cost
Labor Conditions	Complaints from employees	Sub-Project Sites	▪ Complaints raised by employees • Development and practicing of Grievance Mechanism	Weekly	WBED	Included in supervision scope and costs
Community Health and Safety	-Number and type of accidents -Number and contents of complaints -Number of meetings with adjacent communities	Sub-Project Sites	• Regular reporting of complaints records. • Record minutes for various meetings and sessions. • Continuous monitoring of all emissions reduction activities.	Each six months	WBWD	Included in supervision scope and costs
Waste Management	Hazardous waste accumulation Spill or leakage of chemicals / hazardous waste	Sub-Project Sites	• Follow up and documentation in the waste register • Tracking records of empty containers either disposed through licensed contractors or returned to vendors.	Field weekly monitoring and documentation in monthly reports	WBWD	Included in supervision scope and costs
	Solid waste accumulation		• Review of statements and receipts • Regular inspection of the waste storage areas and sites in general to determine the random disposal of waste.	Weekly		
	Liquid waste generated from the workers		• Regular inspection of septic tanks Review waste disposal records	Weekly		
GBV/SEA/SH	Number and contents of complaints	Sub-Project Sites	• Regular reporting of complaints records. • Interview of adjacent communities	Upon implementing O&M activities	WBWD	Included in supervision scope and costs
Emergency Risks and Impacts	-Presence of an Emergency Response Plan (ERP) -Presence of tools and equipment for coping with fire, electrocution, etc. -Number of failures in responding to emergencies	Sub-Project Sites	• Regular inspection of the presence of an ERP • Regular inspection of the presence of tools and equipment for coping with fire, electrocution, etc.	Monthly	WBWD	Included in supervision scope and costs

8 CONSIDERATION OF ENVIRONMENTAL AND SOCIAL CLAUSES IN BIDDING DOCUMENTS

Most environmental and social risks and impacts of the sub-project during the construction phase will result from activities directly under the control of the Contractors and their sub-contractors and will be mitigated by both. The PWA/WBWD will be responsible for operating the new water facilities following completion. Consequently, ensuring that the contractors and their sub-contractors effectively mitigate construction-related activities risks and impacts is the core of the sub-project's Environmental and Social Management Plan (ESMP). This will be done by ensuring that environmental and social management of construction activities are mandatory parts of the Construction Works Contracts. Also, the Environmental and Social Commitment Plan (ESCP), is a commitment of the PWA to implement the environmental and social requirements under the ESMP during the construction and operation phases.

8.1 Environmental and Social Clauses for the Contractors

The PWA shall incorporate the following standardized environmental and social clauses in the tender documentation and contract documents so that potential bidders are aware of environmental and social performance requirements expected from them, able to reflect that in their bids, and are required to implement the clauses for the duration of the contract. The PWA will enforce compliance by contractors with these clauses.

The clauses cover four subjects:

i. Environment, Social, Health and Safety (ESHS)

ii. Environmental and social monitoring by contractors

iii. Environmental and social liabilities

iv. Grievance mechanism for workers

Additionally, the contractors shall prepare E&S plans as part of the Contractor Management Plan. These plans include the followings:

- Contractor Environmental and Social Management Plan (C-ESMP);
- Labor management plan (LMP);
- Waste management plan (WMP);
- Occupational health and safety (OHS) plan;
- Traffic management plan (TMP);
- Emergency response plan (ERP); and
- Chance find procedures (CFP)

8.1.1 Environment, Social, Health and Safety

There are clauses for contractors which address environmental, social, health and safety concerns.

The purpose of the ESHS clauses for contractors is to define minimum standards of practice acceptable to the PWA and World Bank. The clauses will be included in the bidding documents and contract.

8.1.2 Contractor Environmental and Social Management Plan

Before starting to implement the sub-project, the contractors must prepare and submit a C-ESMP to the PCU/PWA and supervision Engineer for approval. The C-ESMP will provide a detailed explanation of how the contractor will comply with the ESHS clauses and demonstrate that sufficient funds are budgeted for that purpose and that sufficient capacity is in place to oversee, monitor and report on C-ESMP performance. The C-ESMP must include specific mitigation measures based on the sub-project's environmental and social management plan, the sub-project components, the proposed work method

statement, and the nature of the sub-project sites. The C-ESMP should include management plans that cover the following issues:

1. Gender-Based Violence

The contractor must address the risk of gender-based violence through:

- Mandatory and repeated training and awareness raising for the workforce about refraining from unacceptable conduct toward local community members, specifically women;
- Informing workers about national laws that make sexual harassment and gender-based violence a punishable offence and prosecuted;
- Introducing a Worker Code of Conduct as part of the employment contract, signed by all employees and including sanctions for non-compliance (e.g., termination); and
- Adopting a policy to cooperate with law enforcement agencies in investigating complaints about gender-based violence (GBV).
- Developing and implementing GM including provisions for the handling of GBV/SEA/SH.

2. Child Labor

The contractor must follow the LMP. As the construction activities will involve hazardous work, persons under the age of 18 will not be employed by the sub-project (this is according to the Palestinian Labor Law No. 7 of 2000, article No. 93).

3. Labor Influx

Where labor comes from outside the local area, the contractor shall maintain labor relations with local communities through labor codes of conduct.

4. Road

To carry out the construction works, the contractor may close or divert certain specified roads, either permanently or temporarily. The contractor should arrange diversions to provide alternative routes for transportation.

After breaking up, closing or otherwise interfering with any street to which the public has access, the contractor shall make such arrangements as may be reasonably necessary to cause as little interference with the traffic in that street during the implementation of the construction works as shall be reasonably practicable. Wherever construction works to interfere with existing public or private roads or other ways over which there is a public or private right of way for any traffic, the contractor shall construct diversion ways wherever possible.

5. Movement of Trucks

The contractor moving solid waste materials shall take strict measures to minimize littering of roads by ensuring that vehicles are licensed and loaded in such a manner as to prevent falling off or spilling of construction materials and by sheeting the sides and tops of all vehicles carrying sand, other materials, and debris. Construction materials should be brought from registered sources in the area, and debris should be transferred to assigned places in landfills with documented confirmation.

6. Traffic Safety Measures

The contractor shall provide, erect and maintain traffic signs, road markings, barriers and traffic control signals and other measures that may be necessary for ensuring traffic safety around construction sites.

The contractor shall not commence any work that affects the public roads and highways until all traffic safety measures necessitated by the work are fully operational.

7. Access to Sub-Project Sites

The contractor shall take all reasonable precautions to prevent or reduce any disturbance or inconvenience to the owners, tenants, or occupiers of adjacent properties, and to the public generally. The contractor shall maintain any existing right of way across the whole or part of the construction site and public and private access to adjoining frontages in a safe condition and to a standard not less than

that pertaining at the commencement of the contract. If required, the contractor shall provide acceptable alternative means of passage or access to the satisfaction of the persons affected.

8. Noise and Dust Control

The contractor shall take all practicable measures to minimize the nuisance from noise and dust caused by collection equipment. This includes:

- Respecting the normal working hours close to residential areas.
- Maintaining equipment in good working order to minimize extraneous noise from equipment movement and emissions or fumes from the equipment.
- Shutting down equipment when it is not directly in use.
- Using operational noise mufflers if needed.
- Providing spray water when required to minimize the impact of dust.
- Limiting the speed of equipment used for waste collection.

9. Protection of the Existing Installations

The contractor shall adequately safeguard all tents, barracks, structures, works, services or installations from harm, disturbance, or deterioration during the construction period. The contractor shall take all necessary measures required to support and protect all tents, barracks, structures, pipes, cables, and other apparatus during the construction period and to repair any damage that occurs in coordination with the concerned authorities.

10. Protection of Trees and Other Vegetation

The contractor shall avoid the loss of trees and damage to other vegetation wherever possible. Adverse effects on green cover within the vicinity of construction sites shall be minimized.

11. Cultural Resources

The contractor will train construction crews and supervisors to spot potential archaeological finds. In the event of a potential finding, the contractor will stop work and follow the chance find procedure.

12. Clean-up of Sites on Completion of Work

The contractor shall clean up all sites before the start-up and after completing the works to remove oil and waste properly in environmentally-good practices and safe disposal following hygiene procedures.

13. Worker Health and Safety

The contractor will submit an OHS plan before commencing any work on the site. The contractor's OHS plan should include, among others, the PWA and supervision Engineer satisfaction at all times:

- Providing occupational health and safety training to all employees involved in work.
- Providing protective masks, helmets, overalls, safety shoes, and safety goggles, as appropriate.
- Providing workers in high noise areas with earplugs or earmuffs.
- Ensuring availability of first aid kits.
- Providing employees with access to toilets (male & female) and potable drinking water.
- Providing safety and occupational safety measures to workers with Personal Protection Equipment (PPE).
- Properly dispose of solid waste at designated permitted sites of landfill allocated by the local authorities, and attach the receipt of waste from the relevant landfill authority.

14. Site Construction Safety and Insurance

Further to enforcing compliance with environmental management, the contractor is responsible and liable for the safety of site equipment, labor and daily workers attending to the construction site and the citizens' safety for each sub-project site as mandatory measures.

8.1.3 Environmental and Social Monitoring by contractor

The contractor shall monitor, keep records and report on the following environmental and social issues for the sub-project.

- **Safety:** hours of work, recordable incidents and corresponding Root Cause Analysis (lost time incidents, medical treatment cases), first aid cases, high potential near misses, and remedial and preventive activities required.
- **Environmental incidents and near misses:** environmental incidents and high potential near misses and how they have been addressed, what is outstanding, and lessons learned.
- **Major works:** those undertaken and completed, progress against sub-project schedule, and key work fronts (work areas).
- **E&S requirements:** noncompliance incidents with permits and national law (legal noncompliance), sub-project commitments, or other E&S requirements.
- **E&S inspections and audits:** by contractor, engineer, or others, including authorities—to include date, inspector or auditor name, sites visited and records reviewed, major findings, and taken actions.
- **Workers:** number of workers, an indication of origin (local, nonlocal nationals), gender, age with evidence that no child labor will be involved, and skill level (unskilled, skilled, supervisory, professional, management).
- **Training on E&S issues:** including dates, number of trainees, and topics.
- **Details of any security risks:** details of risks that the contractor may be exposed to while performing its work—the threats may come from third parties external to the sub-project.
- **Worker grievances:** details including occurrence date, grievance detail, and date submitted; actions taken and dates; resolution (if any) and date; and follow-up yet to be taken—grievances listed should include those received since the preceding report and those that were unresolved at the time of that report.
- **External stakeholder grievances:** grievance and date submitted, action(s) taken and date(s), resolution (if any) and date, and follow-up yet to be taken—grievances listed should include those received since the preceding report and those that were unresolved at the time of that report. Grievance data should be gender-disaggregated.

8.1.4 Environmental and Social Liabilities of the Contractor

The contractor will be legally and financially accountable for any environmental or social damage or prejudice caused by his staff; thus, he shall put in place controls and procedures to manage his environmental and social performance. A breakdown of the cost of noncompliance for each mitigation measure will be enclosed in the bidding documents. These will include:

- Mitigation measures to be included in the contract will be specified in the sub-project ESMP.
- Deductions for environmental noncompliance will be added as a clause in the Bill of Quantities (BOQ) section.
- Environmental penalties shall be calculated and deducted from each submitted invoice.
- Any impact that is not properly mitigated will be the object of an environmental/social notice by the supervision Engineer.
- For minor infringements and social complaints, an incident which causes temporary but reversible damage, the contractor will be given the notice to remedy the problem and restore the environment. No further actions will be taken if the Supervision Engineer confirms that restoration is done satisfactorily.
- For social notices, the Supervision Engineer will alert the contractor to remedy the social impact and to follow the issue until solved. If the contractor does not comply with the remediation request, work will be stopped and considered under no excused delay

- If the contractor hasn't remedied the environmental impact during the allotted time, the Supervision Engineer will stop the work and notify the contractor, indicating a financial penalty according to the non-complied mitigation measure specified in the bidding document.
- No further actions will be required if the Supervision Engineer sees that the restoration is done satisfactorily. Otherwise, if the contractor hasn't remedied the situation within one day, any additional days of stopping work will be considered no excused delay.
- Environmental notifications issued by the Supervision Engineer might include one or more environmental penalties.
- In the event of repeated noncompliance totaling 5% of the contract value, the Supervision Engineer will bring the environmental and social notices and the deduction history to supervision Engineer in order to take legal action.

8.1.5 Grievance Mechanism for Workers

The contractor will put in place a Grievance Mechanism for his workers that is proportionate to his workforce, according to the following principles:

- **Provision of information:** All workers should be informed about the grievance mechanism at the time they are hired, and details about how it operates should be easily available, for example, included in worker documentation or on notice boards.
- **Transparency of the process:** Workers must know to whom they can turn in the event of a grievance and the support and sources of advice that are available to them. All line and senior managers must be familiar with their organization's grievance procedure.
- **Keeping it up to date:** The process should be regularly reviewed and kept up to date, for example, by referencing any new statutory guidelines, changes in contracts or representation.
- **Confidentiality:** The process should ensure that a complaint is dealt with confidentially. While procedures may specify that complaints should first be made to the workers' line manager, there should also be the option of raising a grievance first with an alternative manager, for example, a human resource (personnel) manager.
- **Non-retribution:** Procedures should guarantee that any worker raising a complaint will not be subject to any reprisal.
- **Reasonable timescales:** Procedures should allow for time to investigate grievances fully but should aim for swift resolutions. The longer a grievance is allowed to continue, the harder it can be for both sides to get back to normal afterwards. Time limits should be set for each stage of the process, for example, a maximum time between a grievance being raised and the setting up of a meeting to investigate it.
- **Right of appeal:** A worker should have the right to appeal to PWA or national courts if he or she is not happy with the initial finding.
- **Right to be accompanied:** In any meetings or hearings, the worker should have the right to be accompanied by a colleague, friend or union representative.
- **Keeping records:** Written records should be kept at all stages. The initial complaint should be in writing, if possible, along with the response, notes of any meetings, and the findings and the reasons for the findings.
- **Relationship with collective agreements:** Grievance procedures should be consistent with any collective agreements.
- **Relationship with regulation:** Grievance processes should comply with the national employment code.

8.2 PWA's Commitment During Operation Phase

PWA/WBWD will manage and operate the new water supply system and carry out its relevant O&M requirements. PWA/WBWD shall carry out the obligations of the ESMP and Monitoring and Reporting Procedures mentioned in Sections 7.5 and 7.7, respectively, during the operation phase.

9 REFERENCES

1. Environmental and Social Management Framework (ESMF), Water Security and Resilience Program WSRP) - Phase 1 (WSRP-1), Palestinian Water Authority (PWA), 2023
2. Environmental and Social Commitment Plan (ESCP), WSRP-1, PWA, 2023.
3. Stakeholder Engagement Plan (SEP), WSRP-1, PWA, 2023.
4. Labor Management Plan (LMP), WSRP-1, PWA, 2022.
5. Resettlement Framework, WSRP-1, PWA, 2022.
6. The World Bank Environmental and Social Framework (ESF), 2017.
7. Geomolg Portal for Spatial Information in Palestine, https://geomolg.ps/L5/index.html?viewer=A3.V1
8. Estimated Population in the Palestine Mid-Year by Governorate,1997-2026, Palestinian Central Bureau of Statistics (PCBS).
9. Projected Mid -Year Population for Jenin Governorate by Locality 2017-2026, PCBS, May 2021, https://www.pcbs.gov.ps/statisticsIndicatorsTables.aspx?lang=en&table_id=695
10. Population, Housing and Establishment Census of 2017- Jenin Governorate, PCBS, January 2019.
11. Transportation and Communications Statistics in Palestine, Annual Report: 2022, PCBS, July 2023.
12. Climatic Averages, Palestine Meteorological Department (PMD), https://www.pmd.ps/en/climatic-average
13. Environmental Profile of the West Bank, Volume 7, Jenin District, Applied Research Institute Jerusalem (ARIJ), 1996
14. Transportation and Communications Statistics in Palestine, Annual Report: 2022, PCBS, July 2023
15. Poverty Maps for the Palestinian Territories, PECS and Census 2017, Technical Report, 2019.
16. Population, Housing and Establishments Census 2017, Census Final Results, Jenin Governorate, PCBS, 2019.
17. The Encyclopaedia of Palestinian Camps, https://palcamps.net/ar/
18. The Encyclopedia of Palestinian Villages, https://palqura.com/.
19. Strategic Development Plan (SDP) for Jenin City for Years 2018-2021, Jenin Municipality, 2018.
20. Strategic Development Plan (SDP) for Burqin for Years 2023-2027, Burqin Municipality, 2023.
21. Strategic Development Plan (SDP) for Qabatiya for Years 2018-2021, Qabatiya Municipality, 2018.
22. Arab American University of Palestine (AAUP) Profile, 2023
23. Water Quality Index (WQI) for Water Resources in Jenin District, Al-Quds University, 2019
24. ANERA Article for Agriculture in Jenin, https://www.anera.org/stories/jenin-palestine-securing-productive-future/
25. Agricultural Cluster for Development - Jenin- Ministry of Agriculture, 2021
26. Water and Sewerage Master Plan for the North and North-West Region of the West Bank, PWA, 2017.