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INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED GRANT

FROM THE TRUST FUND FOR GAZA AND WEST BANK (TFGWB) (US\$ 25.0 MILLION)
WITH CO-FINANCING FROM
THE INFRASTRUCTURE DEVELOPMENT MULTI-DONOR TRUST FUND (PID MDTF)
IN THE AMOUNT OF (US\$ 26.0 MILLION)

TO THE

PALESTINE LIBERATION ORGANIZATION FOR THE BENEFIT OF THE PALESTINIAN AUTHORITY

FOR THE

WATER SECURITY AND RESILIENCE PROJECT

FEBRUARY 3, 2023

Water Global Practice
Middle East and North Africa Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective February 1, 2023)

Currency Unit = Israeli New Shekel (NIS)

NIS 0.28 = US\$1

US\$ = NIS 3.45

FISCAL YEAR

January 1 - December 31

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ABBREVIATIONS AND ACRONYMS

ADA	Austrian Development Agency	NIS	New Israeli Shekel
AFD	Agence Française de Développement	NPV	Net Present Value
AS	World Bank Group Assistance Strategy	NRW	Non-Revenue Water
AWP	Associated Works Project	NWC	National Water Company
BOD	Biological Oxygen Demand	HWWTP	Hebron Wastewater Treatment Plant
BWSU	Bulk Water Supply Unit	NWRC	National Water Research Center
CERC	Contingency Emergency Response Component	O&M	Operation and Maintenance
CMWU	Coastal Municipality Water Utility	PA	Palestinian Authority
COGAT	Coordinator of Government Activities in the Territories	PAC	Public Awareness Campaign
CPI	Customer Price Index	PCU	Project Coordination Unit
DA	Designated Account	PDO	Project Development Objective
DFIL	Disbursement and Financial Information Letter	PIU	Project Implementation Unit
DPG	Development Policy Grant	PMU	Project Management Unit
E&S	Environmental and social	POM	Project Operations Manual
ERP	Emergency Response Plan	PrDO	Program Development Objective
ESCP	Environmental and Social Commitment Plan	PSC	Project Steering Committee
ESIA	Environmental and Social Impact Assessment	PWA	Palestinian Water Authority
ESMF	Environmental and Social Management Plan	RF	Resettlement Framework
ESSs	Environmental and Social Standards	ROW	Right of Way
EU	European Union	RP	Resettlement Plans
FCV	Fragility, Conflict and Violence	RWU	Regional Water Utility
FIRR	Financial Internal Rate of Return	SAACB	State Audit and Administrative Control Bureau
FM	Financial Management	SDG	Sustainable Development Goal
GCRF	Global Crisis Response Framework	SDP	Strategic Development Plan
GDP	Gross Domestic Product	SEP	Stakeholder engagement plan
GHG	Greenhouse Gases	SIDA	Swedish International Development Agency
GOI	Government of Israel	SOP	Series Of Projects
GRID	Green, Resilient, Inclusive Development	SPs	Service Providers
GRM	Grievance Redress Mechanism	STEP	Systematic Tracking of Exchanges in Procurement
HRWMP	Hebron Regional Wastewater Management Project	ToC	Theory of Change
IA	Implementing Agency	ToR	Terms of Reference
IC	Institutional Capacity	UNDB	United Nations Development Business
IFRs	Internal Financial Reports	USAID	United States Agency for International Development
JCP	Jenin Connection Points	VC	Village Council
JICA	Japan International Cooperation Agency	WASH	Water, Sanitation and Hygiene
JSCs	Joint Service Councils	WB&G	West Bank and Gaza
JWC	Joint Water Councils	WBG	World Bank Group
KFW	Kreditanstalt für Wiederaufbau	WBWD	West Bank Water Department
lcd	liters per capita per day	WHO	World Health Organization
LGU	Local Government Unit	WMS	Wastewater Management Sustainability Project
M&E	Monitoring and Evaluation	WSRC	Water Sector Regulatory Council
MCM	Million Cubic Meters	WSRP	Water Security and Resilience Program
MENA	Middle East and North Africa Region	SOP-1	Series of Projects - Phase 1
NAP	National Adaptation Plan	WSS	Water Supply and Sanitation Services
NDCs	Nationally Determined Contributions	WWTP	Wastewater Treatment Plant



TABLE OF CONTENTS

DATASHEET	1
I. STRATEGIC CONTEXT	6
A. Country Context.....	6
B. Sectoral and Institutional Context.....	6
C. Relevance to Higher Level Objectives.....	11
D. Description of the Program - Series of Projects (SOP)	13
II. PROJECT DESCRIPTION.....	15
A. Project Development Objective	15
B. Project Components	15
C. Project Beneficiaries	19
D. Results Chain and Theory of Change.....	19
E. Rationale for Bank Involvement and Role of Partners	20
F. Lessons Learned and Reflected in the Project Design	21
III. IMPLEMENTATION ARRANGEMENTS	22
A. Institutional and Implementation Arrangements	22
B. Results Monitoring and Evaluation Arrangements.....	22
C. Sustainability.....	23
IV. PROJECT APPRAISAL SUMMARY	24
A. Technical, Economic and Financial Analysis	24
B. Fiduciary.....	26
C. Legal Operational Policies.....	27
D. Environmental and Social	27
V. GRIEVANCE REDRESS SERVICE.....	29
VI. KEY RISKS	30
VII. RESULTS FRAMEWORK AND MONITORING	32
ANNEX 1: Implementation Arrangements and Support Plan	42
ANNEX 2: Detailed Project Description	50
ANNEX 3: Economic and Financial Analysis.....	59
ANNEX 4: Project Map	65



DATASHEET

BASIC INFORMATION

Country(ies)	Project Name	
West Bank and Gaza	Water Security and Resilience Project	
Project ID	Financing Instrument	Environmental and Social Risk Classification
P176025	Investment Project Financing	Substantial

Financing & Implementation Modalities

<input type="checkbox"/> Multiphase Programmatic Approach (MPA)	<input checked="" type="checkbox"/> Contingent Emergency Response Component (CERC)
<input checked="" type="checkbox"/> Series of Projects (SOP)	<input checked="" type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Performance-Based Conditions (PBCs)	<input type="checkbox"/> Small State(s)
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input type="checkbox"/> Responding to Natural or Man-made Disaster
<input type="checkbox"/> Alternate Procurement Arrangements (APA)	<input type="checkbox"/> Hands-on Enhanced Implementation Support (HEIS)

Expected Approval Date	Expected Closing Date
28-Feb-2023	30-Nov-2028

Bank/IFC Collaboration

No

Proposed Development Objective(s)

The Project Development Objective (PDO) is to improve the reliability and quality of water supply services in selected areas and to strengthen the operational performance of sector institutions in the Palestinian territories.

Components

Component Name	Cost (US\$, millions)
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Improvement of water and wastewater Infrastructure and Service Management	41.40
Improvement of Water Sector Institutions Performance	7.00
Project Management and Monitoring	2.60
Contingent Emergency Response Component	0.00

Organizations

Borrower: Palestine Liberation Organization for the Benefit of the Palestinian Authority
 Implementing Agency: Palestinian Water Authority (PWA)

PROJECT FINANCING DATA (US\$, Millions)

SUMMARY

Total Project Cost	51.00
Total Financing	51.00
of which IBRD/IDA	0.00
Financing Gap	0.00

DETAILS

Non-World Bank Group Financing

Trust Funds	51.00
Partnership for Infrastructure Development MDTF	26.00
Special Financing	25.00

Expected Disbursements (in US\$, Millions)

WB Fiscal Year	2023	2024	2025	2026	2027	2028	2029
Annual	0.04	0.75	3.03	6.63	6.74	3.90	3.92
Cumulative	0.04	0.79	3.82	10.45	17.19	21.08	25.00



INSTITUTIONAL DATA

Practice Area (Lead)

Water

Contributing Practice Areas

Climate Change and Disaster Screening

This operation has been screened for short and long-term climate change and disaster risks

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	● High
2. Macroeconomic	● Substantial
3. Sector Strategies and Policies	● Substantial
4. Technical Design of Project or Program	● Substantial
5. Institutional Capacity for Implementation and Sustainability	● Substantial
6. Fiduciary	● Substantial
7. Environment and Social	● Substantial
8. Stakeholders	● Substantial
9. Other	● Substantial
10. Overall	● Substantial

COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

Yes No

Does the project require any waivers of Bank policies?

Yes No



Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

E & S Standards	Relevance
Assessment and Management of Environmental and Social Risks and Impacts	Relevant
Stakeholder Engagement and Information Disclosure	Relevant
Labor and Working Conditions	Relevant
Resource Efficiency and Pollution Prevention and Management	Relevant
Community Health and Safety	Relevant
Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
Biodiversity Conservation and Sustainable Management of Living Natural Resources	Not Currently Relevant
Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not Currently Relevant
Cultural Heritage	Not Currently Relevant
Financial Intermediaries	Not Currently Relevant

NOTE: For further information regarding the World Bank’s due diligence assessment of the Project’s potential environmental and social risks and impacts, please refer to the Project’s Appraisal Environmental and Social Review Summary (ESRS).

Legal Covenants

Conditions

Type Effectiveness	Financing source Trust Funds	Description The recipient, through the PWA has adopted the POM in form and substance satisfactory to the Association
Type Effectiveness	Financing source Trust Funds	Description The Subsidiary Agreement has been executed on behalf of the Recipient and the Palestinian Authority
Type Effectiveness	Financing source Trust Funds	Description The On-Granting Agreement has been executed on behalf of the Recipient and the Palestinian Authority



Type Effectiveness	Financing source Trust Funds	Description The PCU has been created and staffed in a manner acceptable to the Bank
Type Disbursement	Financing source Trust Funds	Description The Environmental and Social Report verifying the performance of the HWWTP against the ESMP and Standard Operating Procedures shall be completed in a manner satisfactory to the Bank.



I. STRATEGIC CONTEXT

A. Country Context

- 1. In the first three quarters of 2022, the Palestinian economy continued its rebound from the COVID-19 shock, although at a slower rate compared to 2021.** Real Gross Domestic Product (GDP) growth in the Palestinian territories reached 4.5 percent, year-on-year (y-o-y), in the first three quarters of 2022, down from 7.1 percent in 2021. In the West Bank, the economy grew by 4.1 percent in the first three quarters of 2022 driven by an increase in consumption as the COVID-related measures remained fully eased during this period. The increase in the number of West Bank Palestinians working in Israel and the settlements also aided the recovery, as the average daily wage of these workers is more than twice the average daily wage in the West Bank, implying a larger impact on demand. In Gaza, real GDP growth in the first three quarters of 2022 reached 6.7 percent, y-o-y. Similar to the West Bank, growth was mainly driven by private consumption due to the removal of the COVID-related measures and as the impact of the latest hostilities in Gaza started to ease. The boost in private consumption, in both the West Bank and Gaza, was reflected in the growth of the wholesale and retail trade sector and services, which were the main drivers of growth of the Palestinian economy on the production side. Despite this positive trajectory, the economy is yet to rebound to its pre-pandemic level
- 2. Inflation increased in the first nine months of 2022, on account of a rebound in demand as well as rising global food and fuel prices.** Data for 2022 shows that the CPI rose by 3.7 percent, y-o-y, up from 1.2 percent, y-o-y, during the same period in 2021, reflecting a pickup in demand as well as rising global food and fuel prices, mainly driven by the Russian invasion of Ukraine. The mild depreciation of the Israeli Shekel, the main currency in circulation in the Palestinian territories, kept inflation relatively low compared to other Middle East and North Africa (MENA) countries.
- 3. While employment increased in the in the first three quarters of 2022, the unemployment rate remained high.** Employment rose from 1.036 million in 2021 to 1.151 million in Q3 2022, largely driven by increased labor force participation, as more workers returned to the labor market after the COVID-19-related lockdowns eased. The number of Palestinians working in Israel has continued to increase. As a percentage of those in employment, 23 percent of Palestinians in the West Bank worked in Israel in Q3 2022 compared to 0.7 percent of Gazans. Despite a decline from 26.4 percent in 2021, unemployment in the Palestinian territories remained as high as 24.7 percent in Q3 2022. The overall rate masks a wide regional divergence whereby unemployment in the West Bank reached 12.6 percent in Q3 2022 while in Gaza it was 46.6 percent, reflecting the difficult social and economic conditions in the Strip caused by the ongoing movement and access restrictions.

B. Sectoral and Institutional Context

- 4. The water sector in the West Bank and Gaza (WB&G) is suffering from the PA's lack of sovereign control over water resources and water infrastructure development and is further challenged by climate change impacts.** This leads to highly restricted access to water resources, the perpetuation of *ad hoc* instead of strategic emergency planning, and uncertainty and delays in infrastructure project authorization and implementation. Over time, this has resulted in low per capita water availability, inadequate water service in terms of access, reliable water quantity and quality, and major seasonal water shortages. The sector's challenges are further exacerbated by climate change impacts, such as saline water intrusion associated with aquifer over-exploitation, which has made 96% of water resources unfit for use by Gaza's 2.1 million inhabitants, and changes in rainfall patterns including annual quantity, number of rain spells, seasonal distribution, intensity, and timing which have major impacts on the territories' water resources.
- 5. The existing water supply, wastewater and reuse infrastructure has deteriorated due to inadequate operation and maintenance (O&M).** Programming and financing of O&M expenses is sporadic which results in deferred maintenance, increased inefficiency of the systems, high levels of non-revenue water (NRW), and inadequate and unreliable access to potable water, particularly in Gaza and Area C of the West Bank. Despite the reform efforts supported by donors over the years, sector institutions continue to be weak and fragmented, with more than 300 small



and local water Service Providers (SP) established at the level of Local Government Units (LGUs) and Village Councils (VCs). The Palestinian Water Authority (PWA), the institution charged with sector management and development, has no technical or administrative control over LGUs, which creates a governance gap in the sector. Although the Ministry of Local Government (MoLG) exercises administrative supervision of the LGUs, water service delivery is not systematically supervised. The operational and financial performance of these providers is not sustainable, and this constrains their ability to provide reliable services to the population.

6. **The West Bank Water Department (WBWD), under the umbrella of the Palestinian Water Authority (PWA), is currently responsible for the purchases and distribution of bulk water to service providers in the West Bank.** The primary water sources are the Israeli bulk water supply company Mekorot (about 80 million m³, MCM per year) and PWA wells and springs (about 60 MCM per year). The water purchased from Mekorot accounts for 57 percent of the total water delivered for drinking purposes. The PA is increasingly dependent on Israel for water and have secured a commitment from Mekorot to provide an additional 32 MCM/year¹ (22 MCM for West Bank and 10 MCM for Gaza) in the coming two years. In addition, PA is negotiating with Mekorot for the commitment of an additional 80 MCM per year by the year 2040 as well as to increase the Palestinian domestic abstraction by 30 MCM per year, so that total purchases in the West Bank may reach, within the coming 10-15 years, some 192 MCM annually.

7. **Bulk water purchases from Mekorot expose the PWA to further arrears to Israel, which are recovered through “net lending”.** According to the PWA, the Israeli Ministry of Finance deducts an average of US\$115 million per year from clearance revenues to the PA for: (i) Mekorot water bills (an amount of around US\$ 85 million per year), and (ii) treatment of raw wastewater that flows into wadis in the West Bank and reaches Israel (in the amount of around US\$ 30 million per year. This deduction (so called “net-lending”) is only partially recovered from the Service Providers (SPs) by the PA MoF, which contributes to a continued stagnation in service delivery quality and a lack of revenues available to PWA. The PA MoF is now attempting to recover the remaining revenue shortfalls resulting from the net lending practice from the Local Government Units (LGUs). This further exacerbates the financial strain on LGUs. With the increasing demand for water in the WB&G, the financial situation of the PA MoF is expected to worsen. This will further increase the pressure on already compromised services, affecting consumers’ willingness to pay, and add to the arrears to be recovered through “net lending”. In addition, the deductions for untreated wastewater will continue until the PA implements its plan for collection and treatment of wastewater in the West Bank.

8. **The availability per capita and quality of drinking water does not meet World Health Organization (WHO) standards.** The availability of water supply for each person in the West Bank has fallen sharply from 1999 levels of 190 liters per capita per day (lcd) to only 75 lcd in 2020, in stark contrast to the supply in Israel in the range of 240–300 lcd. Availability of water in Gaza is estimated at 90 lcd, well below the conventional definition of water scarcity. Moreover, the water is of poor quality, which translates to only 6 percent of the Gaza population having access to safely managed drinking water as per the definition of Sustainable Development Goal (SDG) 6 on ensuring access to water and sanitation for all². By the same SDG measure, 80 percent of residents of the West Bank have access to improved water. The lack of access has a disproportionate impact on women, especially those who are working or of child-bearing age. For these, the lack of access to reliable and clean water is likely to increase domestic drudgery and impact their empowerment and status negatively³.

9. **More than 95% of the population in the WB&G have access to piped water connections, but water supply is intermittent.** About 30 percent of households face daily interruptions, while most people have access to water only 11

¹ According to the 2013 MOU on the RSDS that is signed by the GoI, PA and Kingdom of Jordan, the Palestinians and the Israelis will have bilateral arrangement for the supply of 32 MCM for the West Bank and Gaza from Israel.”

² Safely managed drinking water is defined as the use of an improved drinking water source which is: located on premises, available when needed, and free of fecal and priority chemical contamination.

³ Das, Maitreyi. *The Rising Tide: A New Look at Water and Gender*. World Bank, 2018.



to 20 days per month. This situation shifts the burden of managing the water shortage onto consumers, with most households investing in roof tanks to bridge the water availability gap. While in the West Bank the quality of the groundwater is satisfactory, it is a major challenge in Gaza. The main aquifer has been contaminated by sea water intrusion as a result of over-exploitation, causing salt water to mix with groundwater. In addition, chloride, sulfate and nitrogen are released into the water because of poor wastewater facilities and agricultural activities.

10. Levels of Non-Revenue Water (NRW) (technical and commercial losses) are high, representing an unsustainable and potentially disastrous situation for a very water-scarce economy. The PWA's estimate of the average NRW in the West Bank (29 percent) ranges widely from "very good" (12 percent) to "very poor" (50 percent), showing large variations between service providers, while 15 percent of the water is lost at the bulk water supply level. On average, the estimated NRW in the West Bank is 267 liters of water lost per day for each household connection – enough water to increase supply by around 40 percent. NRW in Gaza is very high (38 percent), ranging from the margin of "good" (28 percent) to "very poor" (53 percent) at the service provider level. NRW amounts to a loss of 600 liters per day per connection in Gaza, enough to almost double water supply to each household⁴.

11. Sanitation coverage in the WB&G is high, but the connection to sewage networks is much higher in Gaza than in the West Bank. In Gaza, access to improved sanitation is quasi-universal, with 73 percent of the population connected to sewer networks while the remaining population relies on on-site services. In the West Bank, despite near-universal access to improved sanitation (94 percent), access to sewer connections is only about 32 percent (collecting about 21 MCM of wastewater annually), with rates varying widely by governorate. The remaining two-thirds of West Bank residents use cesspits which are emptied by vacuum tankers that dump the waste in open areas, valleys, sewage networks, or dump sites, creating serious public health and groundwater contamination risks. In Gaza, about 90 percent of the estimated 80 MCM of wastewater generated is collected and partially treated; however, reuse so far is very limited. A new project, funded by the French development agency, Agence Française de Développement (AFD), Irish Aid, and the Green Climate Fund, for the reuse of the wastewater treated at the Northern Governorates treatment facilities is under design. Furthermore, the recent commissioning of three large wastewater treatment plants in Gaza has improved the overall sanitary situation.

12. The long-term sustainability of the limited water and wastewater services provided in the WB&G remains to be addressed as the current revenues collected in the sector do not cover the cost of O&M of the infrastructure. This situation is rooted in high NRW levels, the high cost of water purchases, low billing and collection rates and inadequate tariffs which combined undermine the financial viability of most service providers and impair their ability to carry out O&M. Water and Sanitation Services (WSS) contribute 15 percent of the total LGU revenues. This amount is often retained for LGUs' general operating budgets rather than being used to cover the payments for bulk water purchases. The consequence is that the operating cost deficit must be covered by the government and donors. This funding modality undermines the ability of the providers to maintain or improve service or to attract the private sector in the operation and management of WSS. In the case of the wastewater treatment plants (WWTP), Germany's Kreditanstalt für Wiederaufbau (KfW) and the World Bank⁵ are financing the O&M costs of the WWTPs built with their funds over the first five years of operation with the commitment of the PWA and beneficiary municipalities to increase their contribution gradually through tariff adjustments or municipal support.

13. Donor coordination has been active in the water sector. This includes the World Bank, AFD, KfW, EU, Netherlands, JICA, SIDA, ADA, and USAID currently supporting the water sector. The donors established a coordination

⁴ World Bank (2018). Toward Water Security for Palestinians: West Bank and Gaza Water Supply, Sanitation, and Hygiene Poverty Diagnostic. WASH Poverty Diagnostic. World Bank, Washington, DC.

⁵ The Wastewater Management and Sustainability (WMS) Project (P172578) provides O&M financing to sustain the Northern Gaza wastewater treatment scheme for five years (until 2024). In addition, the Associated Works Project (P168739) seeks to improve the quality and quantity of bulk water supplied to select municipalities in the Gaza Strip.



group to harmonize sector reform and specific support will be provided to the PWA. The WB has held a series of meetings to inform the donors of the proposed Series of Projects (SOP) and to develop a donor coordination roadmap to support the program interventions, and effectively manage the planned investments for the performance enhancement of PWA.

Policy and Institutional Structure

14. **To address the systemic challenges of the water sector, the PA has adopted policies for a transformational and sustainable shift in the sector.** The PA enacted the Water Law in 2014 and approved the Strategic Development Plan (SDP) 2022-2032, which focuses on improving water and wastewater services within a comprehensive framework for developing governance of sector institutions. The activities envisaged under the SDP will contribute to the climate change adaptation measures included in the Palestinian Authority’s Nationally Determined Contributions (NDCs) and the National Adaptation Plan (NAP). The World Bank and the donor community have supported these reforms under different operations and analytical assessments.

15. **The guiding principles embedded in the 2014 Water Law are meant to adjust and reform the current setting of the sector.** The Law delineates the responsibilities of each institutional stakeholder, establishes clear and enforceable accountabilities, and fosters financial independence and self-sufficiency of the service providers. The Water Law has defined two main levels of water sector management, as explained below (Figure 1).

- a. The national level for policy and regulatory functions and bulk water supply where: (i) the **PWA** focuses on managing the water resources in an integrated and sustainable manner, prepares general plans, sector policies and development strategies; (ii) **the Water Sector Regulatory Council (WSRC)**, established in August 2014 as an independent legal entity reporting to the Cabinet of Ministers, regulates and monitors all matters related to the operation of water service providers; and (iii) **the National Water Company (NWC)** is expected to be responsible for bulk water supply.
- b. At the local level, water supply and wastewater services are expected to be delivered by Regional Water Utilities (RWU) which are yet to be established. The Water Law calls for the aggregation of the approximately 300 existing small SPs (water departments at the LGU level) into regional utilities to enhance the sustainability of the service delivery level.

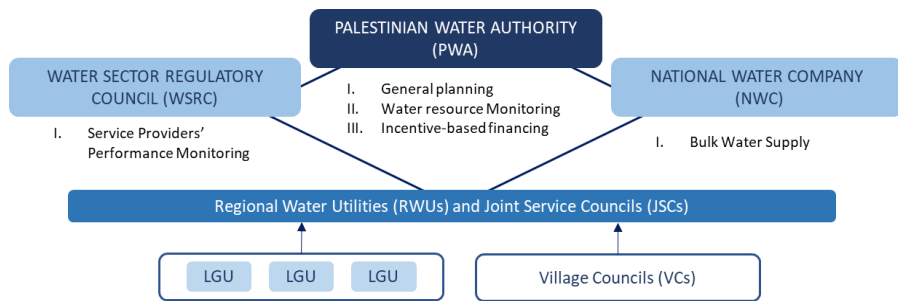


Figure 1. Institutional Arrangements of the Water Sector prescribed in the Water Law 2014 (to be operationalized)

16. **In 2021, the Cabinet adopted the bylaw⁶ that regulates the establishment of RWUs as a key step to operationalize the 2014 Water Law.** Given its importance in improving governance arrangements and creating efficiencies in the water sector, adoption of the bylaw was included in the 2022 Development Policy Grant (hereinafter

⁶ Regulation No. 17 dated June 14, 2021, regulating the establishment and licensing of regional water utilities, and identifying their roles, competencies, and the management of their financial resources, as they take charge of service provision of water and wastewater from LGUs and VCs, enhancing economies of scale in the sector in both Gaza and the West Bank.

DPG 12)⁷ as Prior Action 4⁸. The planned Regional Water Utilities (RWUs)⁹ are a critical element of the reform process, as they will provide vital water and wastewater services at the local level. The recommended approach consists of gradually reducing the number of service providers from almost 300 in 2018 to four RWUs by 2032 (three in the West Bank and one in Gaza). This process will occur by transferring provision of water and wastewater services from SPs in LGUs and Village Councils (VCs) to RWUs as shown in Figure 2 for the West Bank. The bylaw identifies: (i) the tasks of the RWUs, their competencies, structure, financial management and all matters related to their functioning; and (ii) the procedures for licensing a RWU, the license fees and the service allowance. This approach will improve governance in the sector as a small number of utilities will be responsible for service provision while operating on a commercial basis and reporting to the PWA. As the RWUs become operational, the reform will reduce inefficiencies and result in economies of scale. In Gaza, the aim of the sector reform is to transform the Coastal Municipalities Water Utility (CMWU), established as a Joint Service Council (JSC) under the Local Authorities Law of 1997, into the Gaza RWU. Consolidation of all 25 municipal SPs in Gaza into the CMWU has already started and is moving forward, albeit at a slow pace. Meanwhile the operationalization of the reform process will be supported through the proposed Program.

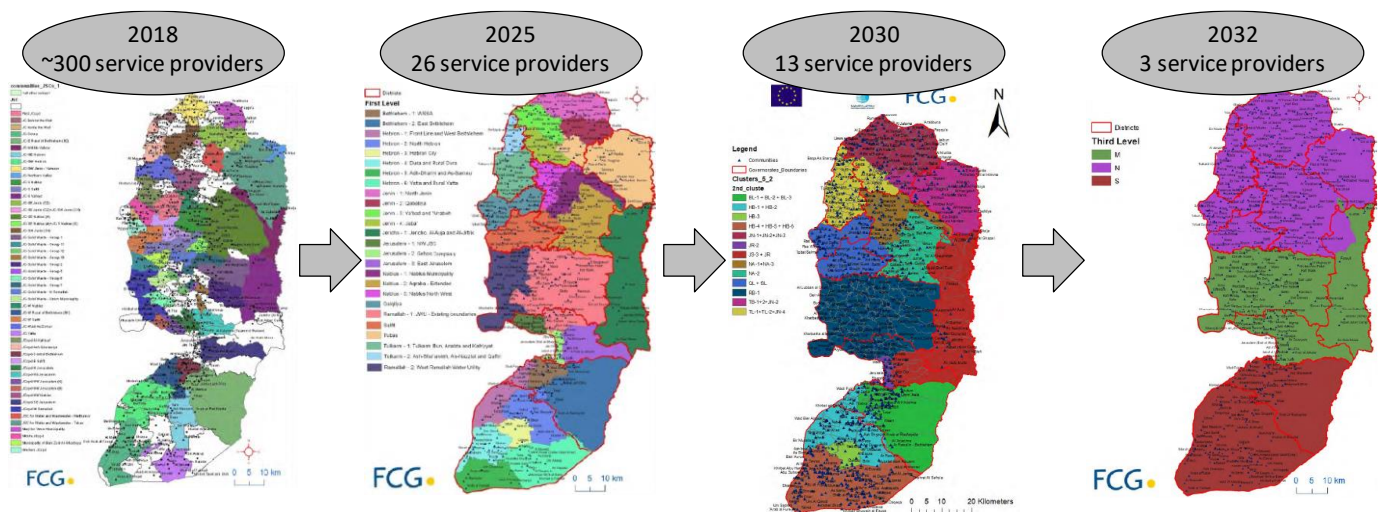


Figure 2. Proposed consolidation of the water service providers in the West Bank (Source: FCG Sweden, 2018)

17. It is expected that by end-2023, the implementation period of the DPG 12, two RWUs will be established, one in Tubas in the West Bank and another one in Rafah in Gaza. The establishment of the RWUs is not expected to result in transfer costs to the LGUs and VCs or additional costs to the consumers. Consumers will benefit from economies of scale that increase efficiency and reduce costs and enhance accountability as soon as RWU expand at district level. When a tariff increase is required, it will be based on progressive tariff blocks, meaning that the tariff will be lower for people who consume less water (mainly the poor). The risks and constraints to creating RWUs have been identified and will need to be addressed and monitored during the different stages of the regionalization process. As most service providers are LGUs, regionalization of WSS service provision means that the LGUs will be losing an important cash flow that allows them to finance non-charged services such as street cleaning and lighting, among others. It is expected that the above-mentioned DPG 12, approved in June 2022 will help mitigate these governance, and political risks through: (i) technical

⁷ The “Supporting Transparency, Inclusiveness and the Green Economy Development Policy Grant” (P177848) approved by the World Bank Board of Executive Directors in June 2022 and to be implemented in FY23.

⁸ Prior action 4 indicators: two number of RWUs that finalized their establishment procedures in the West Bank and Gaza.

⁹ The reorganization of the water service as part of the Water Sector Reform was addressed in the “Roadmap for creation of Regional Water Utilities in the Frame of the Water Sector Reform in Palestine” study prepared by FCG Sweden AB June 2018, proposing a roadmap for the creation of the RWUs.



assistance and coordinated dialogue between all partners involved in the water sector; and (ii) gradually starting with pilot cases to highlight the benefits. The pilot cases will be conducted in areas where the operating service providers have already expressed their willingness to pioneer the clustering process and to establish RWUs. These first RWUs will demonstrate the benefits resulting from the reduction of the number of operators, thus bolstering support for the clustering of new SPs.

18. **In November 2020, the PA issued decisions related to the acceleration of the establishment and registration of the National Water Company (NWC) and formation of its Board of Directors.** The NWC will replace the WBWD in providing bulk water. Much preparatory work is being carried out to implement this critical part of the reform program, including the establishment of the Bulk Water Supply Unit (BWSU) in Gaza under the Associated Works Project (AWP)¹⁰. In the short term, the BWSU will operate and maintain the new bulk water supply system in Gaza, but it is expected to transition into the NWC together with the West Bank Water Department. The decree establishing the NWC has already been issued and the hiring of a CEO and its full operationalization is underway.

19. **Climate variability and climate change are expected to exacerbate existing environmental challenges such as water scarcity, drought, desertification and food insecurity.** West Bank and Gaza will be deeply impacted by climate change; climate models for the Eastern Mediterranean project mean temperature increases between 3° to 5°C by 2050 and mean annual rainfall reductions in the range of 10-50%. Moreover, there is consensus that the level of the Mediterranean Sea will rise. Some regional studies predict a sea level rise of 30-100 cm in the Mediterranean by 2100, with severe implications for Gaza. Responding to the implications of climate change will be challenging given the current institutional and political context of West Bank and Gaza. Resources for both mitigation and adaptation measures through the updated NDCs were presented to the United Nations Framework Convention on Climate Change (UNFCCC) in October 2021. In the water sector, ambitious targets have been set in reduction of non-revenue water, increased water harvesting, re-use of treated wastewater and rehabilitation of wells and springs¹¹.

C. Relevance to Higher Level Objectives

20. **The proposed Water Security and Resilience Program (WSRP), designed as a Series of Projects (SOP), will contribute to the achievement of the development aspirations of the PA and support the commitment to improve service delivery.** The WSRP is expected to contribute to improved health outcomes of the population, in alignment with the PA's National Water Policy and Strategy 2022-2032 through (i) the provision of safe access to piped water (ii) the implementation of measures to address poor water quality in the WB&G and (iii) the increase of water supply to meet domestic demand for water

21. **The proposed WSRP is closely aligned with the World Bank Group (WBG) FY22-25 Assistance Strategy¹² for the WB&G (discussed by the Board in April 2021) and the WBG's enlarged MENA Strategy (March 2019).** The WSRP directly contributes to Focus Area 1 of the AS, namely "Strengthening Institutions for Economic and Social Prosperity" through Objective 1.2 of "Supporting Service Providers to become Financially Sustainable". It will continue supporting water sector institutions, encouraging a robust reform agenda, and providing targeted technical support for improved management of O&M toward financial sustainability of the sector. The WSRP is also embedded in the Focus Area 2 of "Boosting Innovation and Diversification for a Well-Connected Palestinian Economy" through "Objective 2.3" of "Improving Infrastructure through World Bank Investment that leverages Donor Resources and by attracting Private

¹⁰ The full name is Water Security Development - Gaza Central Desalination Program – Associated Works Phase 1 Project (P168739).

¹¹ NDC Targets - Water treatment and conservation: 70% of the treated wastewater in large-scale wastewater treatment plants in the West Bank and Gaza is re-used by 2030; 7 MCM of rainwater in the West Bank is harvested by 2032 - Water networks infrastructure: non-revenue water is reduced by 15% by 2032; 5% of rainwater in priority urban areas is drained and collected by 2032 - Water sources infrastructure: 100% of identified wells and springs are rehabilitated by 2030.

¹² Report No. 115201-GZ.



Investment.” The project contributes to the pillar Renewing the Social Contract through improving service delivery and to the pillar Resilience to Refugee/IDP and Climate Shocks by improving the resilience of water supply of the WBG’s enlarged MENA Strategy.

22. **The proposed project is aligned with the WBG Strategy for Fragility, Conflict, and Violence (FCV) 2020-2025¹³.** The project supports Pillar 2: “Remaining engaged during conflicts and crisis situations” by building and protecting essential institutions and services in areas with high prevalence of internally displaced people (IDP) and delivering critical services to IDP and recipient communities; and Pillar 4: “Mitigating the spillovers of FCV” by addressing key issues related to shocks resulting from pandemics (through improving water, sanitation and hygiene services) and climate and environmental challenges.

23. **The Program is also aligned with the WBG’s COVID-19 response approach and the Green, Resilient, Inclusive Development (GRID) recovery framework.** The Program is aligned with Pillar 4 of the World Bank COVID-19 Crisis Approach Paper: “Strengthening policies, institutions, and investment for rebuilding better”¹⁴. It will build resilience in the water supply and sanitation sector and strongly contribute to a green recovery. The Project contributes to the PA’s efforts at climate mitigation by supporting electricity co-generation from wastewater biogas production. In addition, it supports the PA’s climate adaptation targets by increasing resilience to climate-change-exacerbated water shortages and droughts through avoiding aquifer pollution and reducing abstraction of water by reusing treated wastewater for agriculture. Finally, a Country Climate and Development Report (CCDR) is in preparation and will inform priority actions and reforms that may be supported by the Series of Project.

24. **The Program is designed in alignment with the WBG’s new Global Crisis Response Framework (GCRF).** The WSRP builds on the GCRF pillars to strengthen climate resilience and to build the institutional capacity to address these challenges. All the projects envisioned under the WSRP SOP will include major infrastructure investments for increasing the access to safe water and sanitation services, which directly relate to Pillar 3 (Strengthening Resilience) of the GCRF. The increased access to water and sanitation will (i) increase Palestinians’ crisis and pandemic preparedness by providing access to safe WASH services; and (ii) increase resilience to droughts which are expected to worsen as a result of climate change impact on rainfall. Furthermore, the individual projects under the WSRP will include specific investments to strengthen the water institutions and improve the overall governance of the sector. These objectives are closely aligned with Pillar 4 (Strengthening Policies, Institutions and Investments for Rebuilding Better) of the GCRF.

25. **The Program contributes to the World Bank Group’s twin goals of eradicating extreme poverty and promoting shared prosperity while addressing climate change risks.** It will support poverty alleviation by improving the operational and financial efficiency of water service providers which will help improve access to sustainable water service delivery and support shared prosperity by improving the integrated management and sustainable development of water sector resources which will improve the long term human capital development prospects as well as providing the basic requirements for businesses to function. The program will also make strong contributions to improving the governance of water sector institutions within an integrated legal and institutional framework; and improving the financial sustainability of service providers.

26. **The Program will also contribute to the achievement of the objectives set forth in the World Bank’s 2016-2023 gender strategy¹⁵.** By increasing access to and improving WSS services in the Palestinian territories, the Program will have a particularly positive impact on women. The Program will also develop and adopt gender-sensitive citizen engagement mechanisms to promote best practices among residents to ensure responsible and sustainable use of drinking water and WSS services. Finally, the Program will support the PWA in identifying the barriers and root causes

¹³ Report No. 146551.

¹⁴ World Bank (2020) *COVID-19 Crisis Response Approach Paper: Saving Lives, Scaling-up Impact and Getting Back on Track*. Unpublished paper. Washington, DC.

¹⁵ Report No. 102114.



of women's underrepresentation in managerial and technical positions in the water sector and in the definition and implementation of an action plan to tackle the identified barriers.

D. Description of the Program - Series of Projects (SOP)

27. **The proposed Water Security and Resilience Program (WSRP) is an SOP aimed at supporting the ambitious agenda for climate-resilient water and sanitation infrastructure investments and reforms, building on the World Bank's support to the sector over the past decades.** The overall Program Development Objective (PrDO) is to (a) ensure equitable access of the population to climate-resilient, safely managed water supply and sanitation services, (b) enhance capacity of the water sector for planning, regulating, and monitoring performance of service delivery institutions, and (c) create enabling conditions for improved service delivery, and the efficient O&M of infrastructure. The Program will have a 12-year implementation span for developing capacity of the water sector to design and implement measures to increase resilience to climate change impacts and natural disasters. Earlier projects in the WB&G were more limited in their scope and ambition. Over the past years, PA's increased understanding of sector reform needs and strong commitment to improving the performance of sector institutions laid the ground for a more comprehensive framework that combines major infrastructure investments with long-term policy reform, strategic development, planning, and capacity building of the water sector institutions and SPs. The SOP will provide strategic coherence and long-term support for the establishment of the Regional Water Utilities up to 2035. It will signal commitment and continuity for the reform process, while the projects, staggered over time, will incentivize performance to encourage the client to access successive rounds of financing. The SOP will also provide an opportunity for learning and adaptation between projects. The Program aspires to extend the achievements of the ongoing water projects to promote access to safe, continuous water supply in areas with high risks of climate change impacts. The subsequent projects in the series will support the implementation of the next generation of reforms and policy instruments, including support for the update of the National Water Strategy for the period beyond 2035, which should include climate change adaptation measures for communities and water utilities.

28. **The proposed SOP approach will ensure continuity of sector engagement on long-term objectives including improved governance and financial frameworks, improved health outcomes, increased economic productivity, and enhanced resilience of communities to climate-induced events.** The ambition of the SOP is to improve access to safely managed water supply services. On the sanitation side, the SOP will support the development of required in-depth analysis and studies for future investments in the collection, treatment, and disposal of wastewater for priority areas/regions. The SOP will support the implementation of reforms aiming to develop and improve enabling conditions for RWUs (water service providers and others) in the provision of affordable, reliable, inclusive, and sustainable WSS services. The improvements in the water sector brought about by the proposed program will improve the financial performance of the participating service providers, which will reduce their arrears. The activities scheduled in the program will also increase transparency, and facilitate the management of arrears by the PA. These actions can contribute to achieving the broader goal of reducing the impact of the water sector on net lending. Moreover, support for the operation of the Hebron WWTP, through the management of slurry and wastewater from downstream communities, can directly reduce the charges that Government of Israel (GoI) deducts from the PA on wastewater crossing the Israeli border. It is estimated that this could reach up to \$15 M savings per year, and hence will further reduce net lending.

29. **WSRP is expected to consist of three projects that will overlap in time and vary in geography, with a consistent component-level design that will facilitate scaling-up as the SOP is implemented.** The three projects in the series are expected to commence in 2023, 2025, and 2029, respectively. The anticipated duration of each project is five years, with overlaps for project preparation and tendering stages; the Program completion is thus expected by 2035. The first project, ("SOP-1", or "the Project") will focus on addressing the most urgent needs on the PWA's list of priorities, including extending access to safely managed water supply services to the people of the Jenin area, while also supporting the O&M of the new Hebron WWTP, which will be commissioned by December 2023. The support of the O&M of the



Hebron WWTP under SOP-1 will fulfill the commitments made by the World Bank under previous operations. Jointly with AFD and EU, the World Bank provided funds will support the construction of the Hebron WWTP under the HRWMP-I¹⁶. The World Bank commitments under WSRP include US\$ 5.6 million for the O&M costs of the WWTP for a 5-year period (from commissioning onward) on a declining basis.



Figure 3. PrDO and Targets

30. **The SOP-1 will support the clustering of SPs and design a systematic approach to improving their operational and managerial performance, including NRW studies.** This will lay the foundation for the utilities’ nationwide establishment and create the necessary conditions for the subsequent projects that will provide performance-based support to the established utilities. Under SOP-1, two RWUs will be established within the target areas in the West Bank, while the capacity-building activities will be conducted throughout the Palestinian Territories. The proposed SOP-1 will support wastewater collection, treatment, disposal, and/or reuse review studies to inform preparation of the subsequent projects in the series.

31. **SOP-2 will provide support to improve the operational and technical capacity of SPs. SOP-3 will focus on the financial sustainability of newly established utilities and attempt to support the sustainability of the sector as much as the fragile Palestinian context allows.** SOP-2 and SOP-3 will provide water supply services in the governorates most vulnerable to climate change and include investments in sewerage collection, treatment, and disposal or reuse in the WB&G. Until long-term solutions can be implemented, short-term wastewater management solutions are expected to

¹⁶ Hebron Regional Wastewater Management Project- Phase I (P117449).



include regulated disposal at permitted sites (sludge management) to reduce discharges and reduce the financial losses that uncontrolled pollution generates. Each project in the proposed Program will be structured into four components: Component 1 (Improvement of Water and Wastewater Infrastructure and Service Management), Component 2 (Improve Performance of Water Sector Service Providers), Component 3 (Project Management and Monitoring), and Component 4 (Contingent Emergency Response Component, CERC). The relative funding allocation to the four components will vary between the three projects, reflecting the progress of the SOP and the development needs of the sector.

II. PROJECT DESCRIPTION

32. **SOP-1 will finance water supply infrastructure and capacity building to improve water services to the people of Jenin Governorate, in addition to covering the O&M for the Hebron WWTP and will support capacity-building for sector specialists and institutions at the level of the PA.** The current domestic water supply in the target areas is dependent on private groundwater and vendors, making it vulnerable to the climate change-induced impacts on rainfall patterns and other relevant climate-related factors. The project intends to increase resiliency of the target communities to the climate change-exacerbated risk of floods, droughts, and rising temperatures. The target areas of the project lack adequate water infrastructure, both for bulk supply and distribution. The lack of an appropriate supply system, combined with the rapidly increasing demand for water, results in an intermittent service where water quality and services are not monitored.

A. Project Development Objective

PDO Statement

33. The Project Development Objective (PDO) is to improve the reliability and quality of water supply services in selected areas and to strengthen the operational performance of sector institutions in the Palestinian territories.

PDO Level Indicators

- Increase bulk water availability through Salem and Al Jalameh connection points (Cubic meters/year).
- Number of households benefitting from 24/7 water supply through individual connections (number)
- Percentage of water samples compliant with WHO standards in project area (Percentage)
- Number of regional water utilities established through clustering of service providers in the West Bank; and their performance monitored against the KPIs (Number).
- Performance of PWA staff for sector management improved

B. Project Components

34. **The proposed Project will support the provision of essential water services and technical support to improve the sector performance in the WB&G.** The PWA and the World Bank are engaged in a policy and operational dialogue to identify the best options to improve water and sanitation services and to benefit consumers in the short, medium, and long term. The project will build on and sustain the current World Bank-supported engagement under the Associated Works Project, WMS¹⁷ and HRWMP-I¹⁸ projects which target improvement of water and wastewater services in WB&G by expanding access to safely managed water, improving the quality of WSS services, and enhancing the operational and financial performance of the service providers. The project will balance targeted infrastructure construction and modernization investments with continued support to the ongoing national reform efforts including

¹⁷ Wastewater Management Sustainability Project (P172578).

¹⁸ Hebron Regional Wastewater Management Project- Phase I (P117449).



strengthening of key water sector planning, regulatory and service delivery institutions. The project will support technical assistance to evaluate the impact of water and sanitation projects in the WB&G by: (i) supporting the design and implementation of data-driven analytical work; and (ii) improving capacity among the project implementing entities, government, and other sector counterparts to undertake impact evaluations. The project will also strengthen and maintain close coordination with other donors to ensure complementarity of financing and support for institutional reform, policy development, and infrastructure investment'. The PDO and the results framework is aligned with the objectives of other World Bank operations including the DPG 12 and the new urban operation – WB&G Resilient Local Government and Municipal Services Project (P178723). This alignment will translate into close cooperation between projects during implementation.

35. **The Project will consist of four components which are summarized below. Additional details are available in Annex 2.**

36. **Component 1. Improvement of Water and Wastewater Infrastructure and Service Management (US\$41.4 million)** aims to improve water supply and bolster the population's resilience to increasing water shortages through investments in water facilities based on identified priorities. It will also finance the required infrastructure for bulk water supply and the expansion of water distribution networks to remove critical bottlenecks and improve water allocation. The aim of these investments is to provide safely managed water supply services to the unserved and under-served population. This component will also finance the O&M of the Hebron WWTP to ensure the efficiency of the plant performance, and will include the following sub-components:

(a) **Sub-Component 1.1 – Bulk Water Supply System in Jenin (US\$ 23.0 million):** The project will finance the construction of the Northeast Jenin Bulk Water Supply System which will include the Salem and Al Jalameh connection points, bulk water transmission pipeline, balancing and regional tanks, and main and local booster pump stations.

(b) **Sub-component 1.2 – Northeast Villages Water Distribution System in the Jenin area (US\$ 11.3 million):** (Deir Abu Daief, Jalaboun, Arabuna, Northern Beit Qad, and Southern Beit Qad) making up to about 1,500 new connections (residential, institutional and commercial). The Project will also finance the rehabilitation of existing wells, pipes and storage facilities.

(c) **Sub-Component 1.3 – Hebron Wastewater Operation and maintenance (US\$ 5.6 million):** this sub-component will finance the required services O&M of the Hebron wastewater treatment plant, which is expected to be commissioned and put into operation by June 2023, for five years (project duration) on a gradually decreasing basis.

37. The budget for this component will also provide for the supervision service for the construction (in the amount of US\$ 1.5 million) alongside the preparation of engineering design and implementation of environmental and social impact assessments for the planned SOP-2 interventions.

38. **Component 2. Improvement of Water Sector Institutions Performance (US\$7.0 million)** will finance goods, works and services to strengthen the water institutions and enhance the SPs' operational and financial efficiency and their responsiveness to emergencies. It will also provide necessary support to implement the sector reform and improve the social accountability of service providers. This component will include the following subcomponents:

a) **Subcomponent 2.1: Strategic planning and sector reform (US\$ 4.0 million)** will support the implementation of water sector reform and interventions to enhance the PWA's capacity to develop and implement water sector policies and strategies. The subcomponent will finance: (i) the activities associated with the clustering of the 11 SPs in the project area to create a Regional Water Utility in Jenin; (ii) institutional capacity building for PWA to lead the reform agenda efforts; and (iii) support to the WSRC to ensure that tariffs are set in an economic and fair manner.



- b) **Subcomponent 2.2: Improve Financial and Operational Performance of the Service Providers (US\$ 1.0 million)** will: (i) design a national systematic approach to improving the SPs operational and managerial performance; (ii) provide technical assistance to support the preparation of a detailed methodology for implementing improvement programs at the clustered service provider level (including incentives for clustering); (iii) support the operation of the two RWUs identified under the DPG, i.e. Rafah and Tubas, once they are established; (iv) finance goods and services for the WBWD to allow its transition into the NWC; (v) design and implement training modules for water institutions and service providers' staff; (vi) assess the gender diversity in the relevant SPs in line with Equal Aqua HR assessment.
- c) **Subcomponent 2.3: Improve Social Accountability of Service Providers (US\$ 2.0 million)** will support technical assistance for the design and implementation of a Public Awareness Campaign (PAC) for improved service delivery to consumers and responsiveness of SPs to client demand, based on reliable information systems and real-time communication with beneficiaries. This subcomponent will provide technical assistance to identify and implement potential mitigation measures to reduce the impact of the project on private water vendors' livelihoods.

39. **Component 3: Project Management and Monitoring (US\$2.6 million)** will support: (i) the Project Coordination Unit (PCU) hosted within PWA; (ii) the existing Hebron Wastewater Treatment Plant (HWWTP) PIU until its closing date (iii) the hiring of experts on a competitive basis to reinforce the PCU; (iv) the enhancement of the career prospects of PWA staff, specifically female staff, by supporting their training (v) a paid internship program that will facilitate the entry into the utility of water engineers, E&S specialists, and financial and economic specialists studying in local universities.

40. **Component 4: Contingent Emergency Response Component (CERC) (US\$0.0 million)** will improve the PA's ability to respond effectively in the event of an eligible emergency in line with World Bank procedures on disaster prevention and preparedness¹⁹. Following an eligible crisis or emergency, the Recipient may request the Bank to reallocate project funds to support emergency response and reconstruction. This component will allow the PA to request the World Bank to not only recategorize and reallocate uncommitted financing from other project components to cover an emergency response and recovery costs, but also channel additional funds to fully or partially replenish funds reallocated to the CERC should they become available because of an eligible emergency²⁰. The CERC will be established and managed in accordance with the provisions of the World Bank Policy and World Bank Directive on Investment Project Financing. The CERC, if activated, will be able to finance eligible activities included in the positive list stipulated in the Project Operations Manual (POM).

Project Cost and Financing

41. The total project financing made available through the Trust Fund for Gaza and West Bank (TFGWB) is equivalent to US\$25 million, in addition to which co-financing in the amount of US\$26 million is allocated from the Partnership for Infrastructure Development²¹ (PID) Multi Donor Trust Fund (MDTF). The lending instrument is Investment Project Financing to be implemented over a five-year period. **Table 1** provides a breakdown of the project costs by component.

¹⁹ A CERC is a financing mechanism to strengthen a borrower country's response and recovery capacity by allowing World Bank investment project funds to be quickly reallocated to emergency recovery activities after an eligible emergency has occurred or is about to occur. This financing mechanism averts the need for time-consuming project restructuring because the budget line is already there.

²⁰ Once the requirements for activating it are met, uncommitted funds from the project are reallocated to the CERC and made available for crisis or emergency response. To facilitate a rapid response, a formal project restructuring is deferred to within six months after the CERC is activated.

²¹ The Development Partners include Australia, Denmark, Finland, France, Italy, Netherlands, Norway, Portugal, Sweden, and the United Kingdom.

Table 1. Project Financing Costs (US\$ millions)

Project Components	Project Costs	PID MDTF	TFGWB
Component 1: Improvement of Water and Wastewater service management	41.40	19.00	22.40
Subcomponent 1.1: Jenin Bulk Water Transmission pipeline 1	23.0	12.0	11.0
Subcomponent 1.2: Water distribution network for the villages	11.3	6.00	5.30
Subcomponent 1.3: Hebron Wastewater Operation and maintenance	5.6	0.00	5.60
Consultancy services for construction supervision	1.5	1.00	0.50
Component 2: Improve performance of Water Sector Service Providers	7.0	5.00	2.00
Subcomponent 2.1: Sector Reform and Strategic Planning and the provision of tools, equipment, and vehicles for O&M purposes, support to RWUs	4.0	3.00	1.00
Subcomponent 2.2: Improve Financial and Technical Performance of SPs	1.0	1.00	0.00
Subcomponent 2.3: Improve Social Accountability of SPs	2.0	1.00	1.00
Component 3: Project Management and Monitoring	2.6	2.00	0.60
Component 4: Contingent Emergency Response Component	0		
Contingencies (Physical and Price @ 10%)	0.0		
Total project costs	51.0	26.00	25.00

Climate Co-Benefits

42. **The project envisions key adaptation measures to climate change in the water sector.** The project will increase the resilience of the beneficiaries to extreme heat and drought through the diversification of water sources, investments in water infrastructure, better management and O&M of water and wastewater resources, and improvements in the quality of water and water services. The project activities will: (i) increase the water buffering capacity by 5,000 m³; (ii) reduce the NRW by building a modern water supply system with prepaid metering system; (iii) improve awareness for water conservation through the implementation of the PAC; and (iv) enable potential water reuse from the Hebron WWTP. All these measures will bolster resilience to the effects of climate change in the Palestinian Territories, including changes in the rainfall regime, the reduction of water resources availability and the extreme heat and drought.

43. **The project activities are expected to reduce Greenhouse Gas (GHG) Emissions into the atmosphere by reducing NRW and the reliance on water-tanker trucks.** The GHG emissions associated with the operation of water systems come from the energy consumption of the pumping for lifting and transporting the water. Within this context, the project activities include the upgrade and rehabilitation of the conveyance system, thus leading to a reduction of technical losses and overall NRW. This reduction in the NRW will also reduce the volume of water that is pumped and transported but then lost in the system without reaching the consumer. Furthermore, the installation of new water distribution systems in the project area is expected to replace the use of diesel-fueled water-tanker trucks, which are estimated to currently serve around 70 percent of the population in the target villages, generating a constant flow of GHG gases among other atmosphere pollutants affecting air quality.

44. **The SOP-1 contribution to reducing GHG emissions was estimated at 2,334 tones CO₂ equivalent per year.** The estimation used the World Bank Group Green House Gas Accounting tool for water investment and lending projects. This model compares the yearly emissions of the bulk water supply and distribution system envisaged under the project (project scenario) with the alternate counter-factual scenario (baseline scenario) of continuing with the current delivery system of using water-tanker trucks. The scenarios were compared assuming that the expected water demand for the 2040 horizon in the target villages in the project area is met. The GHG expected emissions for the next 20 years for the baseline scenario were estimated at 121,344 tones CO₂ equivalent, while the emissions for the same period when replacing the water-tankers trucks with a modern, state-of-the-art water distribution system will reach only 74,459 tones CO₂ equivalent, a net reduction of 46,885 tones CO₂ equivalent.



C. Project Beneficiaries

45. **The direct beneficiaries of SoP-1 are the consumers who will receive higher quality services through a better and more reliable water supply and experience associated gains in health and economic welfare²².** An estimated 100,000 residents in Jenin Governorate will benefit from additional water provided through the bulk water transmission line financed under subcomponent 1.1. In addition, 1,500 households in Northeast Jenin villages will benefit from new water distribution networks planned under subcomponent 1.2. Communities to be covered by the project are prioritized based on the population density, poverty profile, and WASH conditions, as well as their exposure to climate change risks. It is expected that people in the Palestinian territories, especially women and girls, will benefit from project interventions in the form of reduced illnesses, reduced discomfort, and diminished stress associated with the lack of access to safely managed water supplies and sanitation. Households will also benefit from improved interactions with the water utilities and reduced response time in addressing their complaints.

46. **The second group of beneficiaries includes institutional beneficiaries which will benefit from improved infrastructure and capacity.** The primary institutional beneficiaries will be PWA, Hebron municipality, WSRC, and SPs within the distribution network who will profit from enhanced distribution capacity, customer satisfaction, as well as training to translate these infrastructure improvements into improved financial sustainability and greater accountability to customers. Other institutions including local governments, municipalities, and village councils in the project areas will also benefit from strengthened institutional capacity to manage the water sector and provide higher-quality public services.

47. **The third group includes the domestic private sector companies that will benefit from the Project** by serving as suppliers of materials, equipment, and services, for the Project. Private sector beneficiaries will also include other commercial consumers whose businesses may benefit from increased access to reliable water supply.

48. **A fourth group of beneficiaries includes recent graduates.** The candidates selected for the internship program will benefit from access to the labor market, as well as professional development opportunities. The internship program will have a special focus on female students.

D. Results Chain and Theory of Change

49. **The Project's results chain posits that achieving the provision of sustainable water services requires concurrent advances in improving water supply infrastructure and building service providers' capacity.** When institutional reforms are not accompanied by capital investments, the sustainability of outcomes can be compromised. In turn, utility reforms not reinforced by infrastructure investments can be undermined because without noticeable service improvements, a delivery gap arises that can reduce support for reforms by the public and sector staff. To maximize effect of the Project-supported investments, the Project will use a three-pronged approach as follows:

- i. Supply-side interventions: climate-resilient infrastructure and enhanced capacity for O&M of WSS systems.
- ii. Policy-level interventions to develop an enabling environment and regulatory oversight for improved service provision through improved institutions and information that would allow for increased resilience while also incorporating climate data in planning and decision-making on the WSS systems and WSS sector in general.
- iii. Demand-side interventions: community behavior change activities related to the conservation of water, payment for public services, tariff revision, and acceptability of water prices.

50. **Synergies between infrastructure improvements and capacity building will be central to each stage of the Project's results chain.** In the long term, through these interventions, the Program will create an enabling environment for service delivery, contribute to improved public health outcomes, increase the allocative efficiency of investments,

²² The gains in health and economic welfare are inherently associated with an increased and more reliable water supply but will not be monitored as an explicit project outcome.



and improve resilience of service provision to climate change impacts.

51. **The results chain is reflected in the Project’s results framework. The monitoring system will also record data on contract management, institutional performance, O&M, and the Grievance Redress Mechanism (GRM).** The PCU M&E staff will be responsible for collecting the baseline data and for entering data into the monitoring system. The proposed Theory of Change (ToC) for the SOP-1 is presented in figure 4 below.

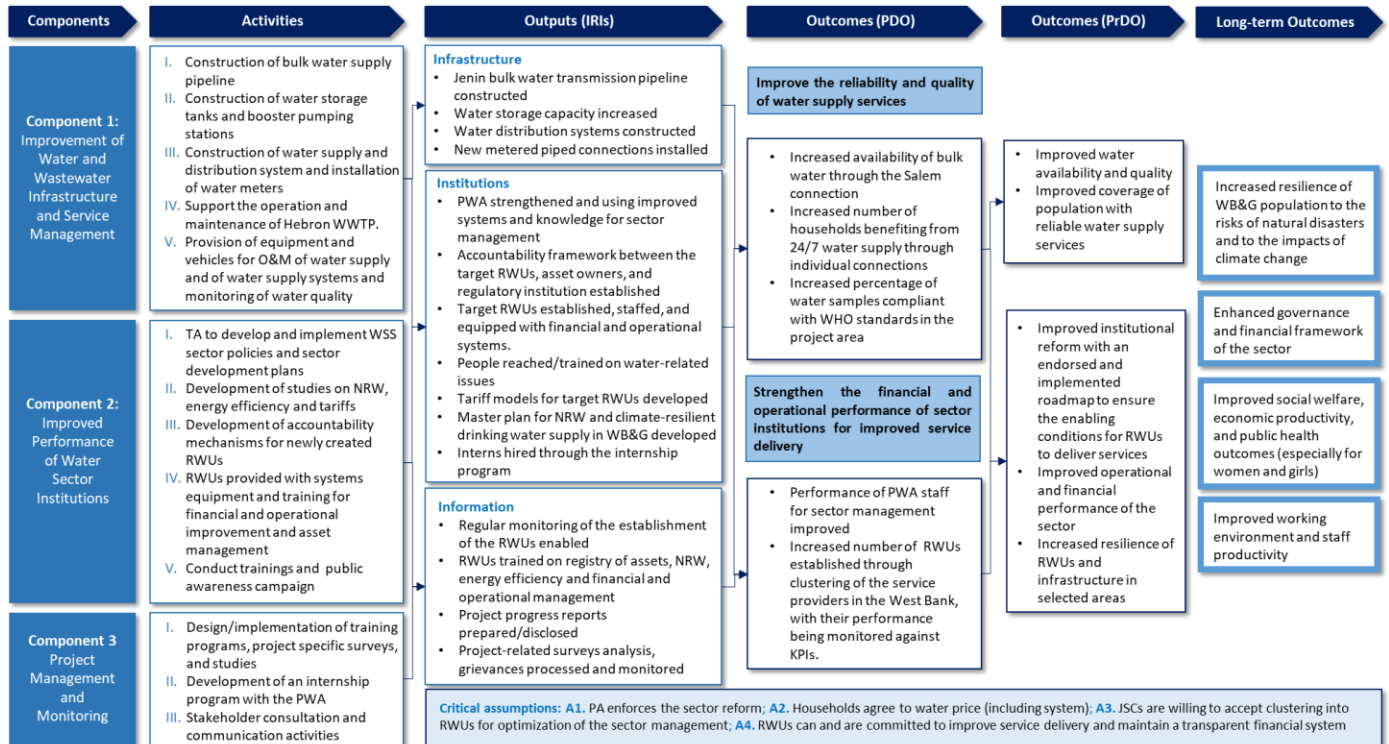


Figure 4. SoP-1 Theory of Change

E. Rationale for Bank Involvement and Role of Partners

52. **The Bank is uniquely positioned to help address the WB&G’s most pressing development challenges in the water sector.** With a deep and enduring engagement through multiple investment projects and analytical work, the Bank has helped improve the coverage, quality, and sustainability of infrastructure services in the water and wastewater sector. These investment projects and the Bank-led analytical work are usually co-financed by the PID MDTF which enhances aid coordination by consolidating donor support under a single fund using the World Bank’s standardized project management tools and procedures, including management of environmental and social risks.

53. **The Bank’s convening power is central to facilitating the coordination at the technical, political and donor levels, which is essential for efficient project delivery and achieving developmental outcomes.** Coordination between the political authorities and technical water agencies in Palestine and the Government of Israel (GoI) is necessary, including upfront mechanisms to expedite rehabilitation or retrofitting activities in emergencies and conflict situations. This is the case for the ongoing discussions with the Coordination of Government Activities in the Territories (COGAT) on material entry into Gaza.



F. Lessons Learned and Reflected in the Project Design

54. The proposed SOP-1 is designed to incorporate the following key principles derived from lessons from the global Water portfolio and from extensive analytical sector work and experiences from ongoing projects.

55. **Strong leadership and commitment from the implementing entity is needed to facilitate project implementation and provide inclusive services in project areas.** The Project's implementation arrangements have a major impact on the quality and efficiency of project activities and hence Project outcomes. The implementation arrangements will clarify in detail the roles and responsibilities of the PCU. Moreover, the proposed implementation arrangements will consider the capacity of the PCU to mitigate potential risks. A recent review of water services found that a clear mandate and deliberate objective to reach the unserved population, accompanied by intensive customer outreach to gain trust and increase willingness to pay, are most effective to ensure sustainable service delivery. A social accountability mechanism will strengthen consumer-water utility relations.

56. **Fragility, conflict, and wars can cause unexpected delays and complications in project implementation.** In challenging contexts and conflict situations, flexibility and active engagement are imperative. The present Project includes precautions to mitigate the potential impacts of the ever-changing context in the WB&G including (i) readiness of project activities to adapt and change to the context; (ii) strong commitment and proactivity on the part of both the client and World Bank teams; (iii) committed staff with extensive experience designing and implementing projects in fragile contexts; (iv) experienced Donor partners with an intimate understanding of the local context; and (v) emergency response planning integrated into the design of the Project. All these aspects are key factors to achieving results in a fragile context. Moreover, the adaptability and flexibility of teams are important.

57. **Close coordination and effective communication between stakeholders at all levels and stages of the project cycle is of utmost importance to achieve a common understanding of the challenges facing the project and the status of implementation.** At a technical level, coordination between the client, the World Bank team, and donor partners should take place as early as project preparation. Coordination with the GoI is important for implementation, which can be further expedited by establishing mechanisms proactively. Moreover, almost daily coordination and facilitation of material entry, energy supply, construction, etc. is required by the World Bank. Likewise, high-level engagement on the part of the World Bank with the PA, as well as GoI and other development partners, is critical to keep implementation going.

58. **In the technical design, it is important to consider fiscal constraints, the viability of energy-efficient solutions, and areas of collaboration with urban sector projects to create enforceable policies for recovering O&M costs.** Particularly in WB&G, where uncertainty exists as to the availability and predictability of financial resources for the O&M of water infrastructure, a life cycle costing approach should be used to ensure that capital, operating, maintenance, and replacement costs over the whole life of an infrastructure facility are considered as part of the technology selection process. Also, in a situation where energy is potentially unreliable, less energy-intensive solutions should be carefully considered, such as alternate energy sources (e.g., on-site solar panels) or less energy-intensive treatment technologies. In the water sector, the current arrangements have restricted the ability of SPs to function as autonomous water utilities, with the LGUs reluctant to cede water-related revenue streams. As a result, most SPs do not generate sufficient revenues for sustainable O&M, while also lacking incentives to generate more revenues. The ring-fencing of service revenues in combination with commercial-like arrangements for O&M will help to move the service providers towards O&M cost recovery and improved services.



IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

59. **The proposed management structure for the project incorporates lessons learned under the ongoing water projects (AWP, WMS and HWWTP).** The PWA will be the implementing agency (IA) for the project. The project will continue to rely on Project Coordination and Implementation Units whereby technical support will be provided to PWA and service providers in the two target areas (Hebron and Jenin) on a full-time basis. The newly established Project Coordination Unit (PCU) will be responsible for project oversight, monitoring, reporting, hiring of consultants, contract awards and contract management, financial management, implementation of environmental and social safeguards and coordination with stakeholders. To support implementation of Component 1, the PWA will create a Project Implementation Unit (PIU) with site engineer(s) responsible for the daily management of the project. The capacity of this PIUs will be complemented for effective project implementation and permit the reintegration of its staff into the respective entity (PWA, JWC etc) structures at project completion. The POM will be adopted by the PWA as a condition of project effectiveness. The PWA will assign a PCU coordinator to ensure close coordination directly with the PWA management on all matters related to the transition between the three projects under the SOP.

60. **The project implementation arrangements aim to ensure sufficient implementation capacity in the PWA for project implementation and coordination of activities with stakeholders.** The PCU will be responsible for implementation of project activities, including contract management, supervision and quality control, and the administration of the works contracts with support from PIU. The PCU will be responsible for the project financial management functions, including preparation and submission of separate interim financial reports (IFRs); project progress reporting and monitoring; and compliance with environmental, social, and fiduciary requirements in line with the POM. **Annex 1** provides a detailed description of the implementation arrangements under the project.

61. **The PWA will ensure the early participation of the relevant institutions and SPs at the technical level, so they have the capacity to operate the distribution and bulk systems.** At the distribution level, PWA has already been engaging the village councils in Northeast Jenin on the project goals. At the bulk level, the WBWD which continues to be under the umbrella of PWA, will operate the assets until its fully transitioned into National Water Company. The EU is funding a capacity building operation for the WBWD to transition into the NWC, and this project will provide any necessary goods and services needed for the WBWD to operate the bulk assets.

62. **Given the ambition of the project and of subsequent projects in the SOP, the project will adopt a revised approach to the Project Steering Committee (PSC), requiring it to be chaired by the Program Director.** This will allow obtaining higher-level support for monitoring and support of the project and advance discussions on the subsequent SOP. The PSC will include representatives of the MoF, Ministry of Agriculture, Environmental Quality Authority, MoLG, and local district-level stakeholders, key water utilities, and representatives of NGOs and academia. This council will serve as a coordination platform for the multifaceted interventions. Meetings will be conducted semiannually and as needed, to report on the project progress and seek support on the multisectoral aspects of project implementation. As needed, relevant authorities and stakeholders will participate during the implementation of relevant project activities. Details of the PSC arrangements will be documented in the POM.

B. Results Monitoring and Evaluation Arrangements

63. **A project M&E system will be implemented as part of the project design.** The PCU including the staff in the field will be responsible for: (i) collecting all data for results indicator monitoring of the project's performance toward achievement of its objective on a regular basis from the field through their supervision teams and with inputs from the construction supervision teams; (ii) developing progress reports on civil works and institutional activities and timely



identifying bottlenecks; and (ii) preparing semi-annual and quarterly progress reports. Other independent quantitative and qualitative evaluations (such as citizen engagement, the satisfaction of beneficiaries, gender, hygiene education, and promotion, etc.) will be conducted by a consulting firm, and non-governmental organizations (NGOs) to ensure greater independence. The M&E specialist, to be recruited under the PCU, will oversee data collection, analysis, evaluation, and reporting in close coordination within the PCU. The M&E specialist (engineer) will prepare consolidated monthly reports to track the progress of civil works and compliance with environmental and social standards. A detailed review of the implementation progress will be conducted at the project's midterm review to assess the progress, potential for scale-up, and any adjustments required (see details in **Annex 1**).

C. Sustainability

64. **Social sustainability.** Using the Water Sector Awareness Strategy (2016) as a base, the project will ensure social sustainability through the engagement of all stakeholders in project preparation. The project will implement public awareness and intensive community mobilization, behavior change campaigns, and the development of stronger accountability measures between PWA, SPs, and customers. The project, in close coordination and collaboration with universities and other institutions, will employ several different instruments to promote social accountability mechanisms at the local level such as the use of community scorecards to identify joint actions for improvements during semi-annual stakeholder meetings and the establishment of a customer complaint mechanism in the project area. Within schools, the existing teacher associations will be empowered to support WASH activities and leverage the involvement of parents to sustain maintenance activities and supplies of WASH materials.

65. **Institutional sustainability.** The overarching goal for improving water sector governance is to support the creation of strong and responsive water sector institutions, where the roles and responsibilities of all actors are clear. The project will support the implementation of the most technically viable and cost-effective arrangements/institutional setup for WSS services in the targeted districts. This will ensure an enabling environment for service providers through which quality and affordable services can be provided to households, social institutions, and businesses. The project will provide capacity-building and technical assistance for service providers and will closely engage them in project implementation, which will increase ownership of project activities and its outcomes.

66. **Financial sustainability.** Improved financial accountability and reporting by PWA and service providers will support the formation of an evidence-based determination of water tariffs and predictability of financial subsidies provided by the PA. Improved institutional performance will set the foundation for sustainable longer-term investment by the PA and stakeholders, aimed at gradual progress toward financial viability and reduced fiscal risk presented by the water sector.

67. **Technical sustainability.** The project will work closely with PWA and other institutions, and academia to develop/improve the technical design and sector institutions reform and capacity-building methods, which will support the operational sustainability of the institution and the water infrastructure in the post-project phase. This will include careful consideration of water source options (quality, quantity, security/climate resilience, and operational implications) and operational capacity constraints. In addition, the project will focus on the use of system innovations, and the modernization of technical standards and designs will provide water supply schemes that can be managed efficiently and operate reliably, meeting customer demands for levels of service and affordability.

68. **Environmental sustainability.** The overall environmental impact of the project investments in selected communities in the Jenin region will be largely positive and will include (i) provision of safe drinking water supply, and (ii) overall improvement of water supply systems due to efficiency gains. It will also reduce the reliance on diesel-operated tanker trucks. The adverse environmental impacts associated with the project activities are mainly construction related and are moderate in scale; temporary and reversible in nature; limited in impact; and can be effectively prevented, minimized, or mitigated through good environmental management practices.



IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis

Technical

69. **The proposed SOP-1 relies on approaches, methodologies, and technical designs appropriate for the Palestinian territories.** The technical design of SOP-1 is under preparation by engineering firms hired with AFD financing to prepare the Preliminary Design, Detailed Design, and Tender Documents for the Connection Points Jenin Water Supply (JCP), which will be finalized by early 2023. Therefore, the procurement processes will be initiated and launched before Project effectiveness. The plan is to ensure the immediate start-up of works contracts as soon as the Project becomes effective. The preparation of terms of reference for key consulting services (pre-contract services and supervision of construction, and public awareness and hygiene campaign) has been initiated.

70. **The technical approach of the infrastructure interventions in the Jenin area to follow the design that is being prepared by the AFD-funded firm.** The Jenin water project consists of bulk transmission pipelines with a total length of 26²³ km with nominal pipe diameters ranging from DN 500mm to DN 150mm. The water from the connection point will provide additional drinking water to Jenin area, including for commercial, institutional and industrial demand. This will be achieved by realizing the following activities:

- Construction of 26 km of ductile iron pipe from the connection point to the regional reservoir,
- Construction of main BPS with balancing Tank 3,000m³,
- Construction of regional Tank 6,000m³
- Construction of water distribution systems in villages northeast of Jenin.
- Provision of tools and equipment for O&M of facilities. The JSC will also be provided with other facilities such as warehouses for storage, workshops, and office buildings.

71. The source of water is the connection point with Mekorot. There was an agreement (Red Sea-Dead Sea agreement between PA and Gol) to provide the water supply required for the project. The intervention will also improve utilization of the limited pre-existing systems, facilitated by activities to raise operational efficiencies such as metering, use of gravity, reduction of non-revenue water, and energy efficiency savings.

72. The detailed engineering design for the Jenin Bulk pipeline is being prepared by an international firm and will emphasize the use of technologies that are well adapted to the needs and capacities of water utility, taking into consideration infrastructure sustainability, climate risks, population size and economic growth. The engineering design and bidding documents for at least 50 percent of the project amount will be completed prior to project effectiveness.

73. The detailed engineering design for the Jenin Northeast village's water distribution systems is being finalized by a local consultancy firm. The system includes pipelines with diameters ranging from 300mm to 75 mm, booster stations, pumping stations, and water tanks. The bidding documents are expected to be finalized by March 2023.

74. The Hebron WWTP construction is at 67% completion as of October 2022. The design and construction of the HR WWTP provides secondary treatment with a design capacity of 22,500 CM per day in the first phase. The volume(mass) of Biological Oxygen Demand (BOD) pollution load to be removed by the treatment plant under the project is 3000 Ton/Year. The number of project beneficiaries is 165,000. The commissioning of the plant is expected to be completed by end of 2023; at which point the plant will be put in operation. The O&M costs of the WWTP will be financed, on a

²³ The last 20 km of the pipeline and Janzzur deep Well with Balancing Tank 500m³ and BPS, Burqin BPS (In-line BPS), and Qabatiya BPS (In-Line BPS) to be financed by KfW



declining basis, including staff costs, equipment and supplies (100% of O&M costs for the first year following commissioning of the HR WWTP, followed by a progressive reduction of costs for each year over the five-year period).

75. The need for strong technical assistance under component 2 to improve the sector reform and SPs operations stems from thorough assessments performed in the past years with Donor's support. The results of these assessments are captured in FCG, and other reports, which highlight a set of priority actions that are now incorporated under component 2 of the Program. The project will support PWA in the following: (i) asset management, (ii) operation and financial management, (iv) improving efficiency and productivity, and (v) creation and support of RWU.

76. **The project will also support the development and implementation of a Public Awareness Campaign**, with special consideration given to conventional and non-conventional water sources, water conservation, water quality standards, environmental protection, gender, disability inclusiveness, climate adaptation strategies, and renewable energy sources.

77. The proposed implementation duration of the project is five years and nine months. A general implementation plan can be found in **Annex 2**.

Economic and Financial Analysis

78. **Economic Analysis: The project is expected to generate an economic internal rate of return (EIRR) of 16.4 percent and has an economic net present value (NPV) of NIS 192 million, assuming the inclusion of average carbon prices and a discount rate of 6 percent.** Net positive benefits are expected not only for consumers and, but also for society as the project will reduce the dependence on tanker trucks in the area, and hence reducing GHG emissions in the process. The analysis captures the infrastructure investments in Jenin Governorate, and associated costs (contingencies and project management).

79. **The estimates of the EIRR and economic NPV are based on a cost-benefit analysis which compares the project to a "without project" scenario.** In the "without project" scenario, the population will increasingly depend on tanker trucks as access to safe water sources gets increasingly strained. As access to groundwater is heavily restricted by Israel, the only source of water in the absence of sufficient piped water is the use of tanker trucks. In the "with project" scenario, the proposed investments will take place in the northeastern quadrant of Jenin Governorate. This area includes four localities which have currently no piped water service at all. The remaining localities are amongst the worst served in the West Bank. The project will greatly increase the access to safe water supply, while improvements to the network are expected to significantly reduce technical water losses. Details are available in **Annex 3**.

80. **The Financial Internal Rate of Return (FIRR) is expected to be only 3 percent and the financial NPV is negative at NIS 38 million, assuming a discount rate of 6 percent.** These results show that the earnings are projected to be insufficient for full replacement of the depreciated infrastructure after its economic lifetime. Assuming a reduction in technical water losses (as a result of the proposed investments and the project component), the very high cost of Mekorot water (and the subsequent pumping of that water because of the area's topography) will require an increase in revenues through a combination of increases in collection efficiencies (as part of the improvement program starting in 2023) and a tariff indexation mechanism to be introduced in 2026 once the system is operating. In such a scenario, the project will not generate sufficient cash flow to pay for the operation and maintenance of the system. Yet, the endorsement of the unified bylaw for water and wastewater by the Council of Ministers in 2021 allows for the gradual implementation of tariff adjustments. Assuming such a tariff increase will be implemented by 2030, the financial viability of the project will be ensured as the project will then generate a positive financial net present value (for more details, see Annex 3).

81. **Rationale for public sector financing.** Public sector financing is critical to address the infrastructure deficit in the water sector in the WB&G. The provision of water service delivery infrastructure is typically a public sector responsibility



as these are very large investments that generate significant positive externalities. In addition, public intervention is also required to ensure equitable service provision across geographies and socio-economic strata.

B. Fiduciary

(i) Financial Management

82. **A financial management (FM) capacity assessment for PWA was carried out for the ongoing AWP and HRWMP projects and was updated for this project.** The implementation of agreed-upon financial management arrangements and related risk mitigation measures proposed in Annex 1 will satisfy the requirements of the Bank Policy on IPF. The overall financial management risk for this grant is assessed as “Substantial”.

83. **The same FM and disbursement arrangements for the ongoing projects will apply to this project.** PWA will be responsible for the project’s FM and disbursement. The project will rely on the current FM and disbursement specialists supporting the Hebron and AWP projects. PWA is adequately staffed and has built a proven record of successfully implementing World Bank and other donors’ supported projects.

84. **The PCU will prepare and issue annual operating budgets, as well as financial progress reports.** The government accounting system (“BISAN”) will capture all project-related transactions by component and each financier and will be used to record, report and monitor project accounts. PWA will produce Interim Financial Reports (IFRs) on a semi-annual basis and submit them to the Bank within 45 days after the end of each period. Project financial statements will be audited in accordance with international audit standards by an independent audit firm competitively selected and acceptable to the World Bank or by the State Audit and Administrative Control Bureau (SAACB). The Terms of Reference (ToR) must be acceptable to the Bank. The external auditor, using relevant technical specialists as needed, will also conduct an annual technical audit. The cost of the audit will be financed from the grant proceeds. The audited annual project financial statements will be publicly disclosed on the Bank’s public domain. **Annex 1** provides the details of the FM assessment, risks and associated mitigation measures, and proposed FM and disbursement arrangements.

(ii) Procurement

85. **Procurement under the project will be carried out in accordance with the World Bank’s Procurement Regulations for Investment Project Financing (IPF) Borrowers, dated November 2020.** The “Guidelines on Preventing and Combating Fraud and Corruption in projects Financed by IBRD loans and IDA Credits and Grants” dated October 15, 2006 and revised in January 2011 and as of July 1, 2016. The project will use the Systematic tracking of Exchanges in Procurement (STEP) to plan, record, and track procurement transactions. Further, the PA Public Procurement Law (PPL) No. 8 of year 2014 became effective on July 1, 2016, may be used subject to requirements specified in Section V of Procurement Regulations. When approaching the national market for specific procurements to be identified in the Procurement Plan, national procurement procedures may be used subject to requirements specified in Section-V of Procurement Regulations.

86. **PWA will have overall responsibility for procurement and contract management under the project, through the existing PCU.** The PCU includes a qualified procurement specialist who will manage all aspects of project procurement, and additional procurement specialists might be hired during implementation to strengthen PWA capacity. An updated procurement risk and capacity assessment of PWA was carried out by the Bank to identify potential risks and propose appropriate mitigation measures. Procurement risk is rated Substantial.

87. **In line with the World Bank Procurement Regulations, PWA has prepared a draft Project Procurement Strategy for Development (PPSD), which outlines the most appropriate procurement arrangements for the project, based on a market and risk analysis.** The PPSD and Procurement Plan for the first 18 months of the project will be finalized by negotiations. During implementation, the Procurement Plan will be updated with the Bank’s approval, at least annually



and as required, to reflect actual project implementation needs. PWA shall use the Bank’s Systematic Tracking of Exchanges in Procurement (STEP) system to prepare, clear, and update its procurement plan and document procurement transactions. Detailed procurement arrangements are included in **Annex 1**.

C. Legal Operational Policies

	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

D. Environmental and Social

88. **The environmental risk rating is “substantial”**. Under Components 1.1 and 1.2 key environmental risks are related to occupational health and safety (OHS) during construction, operation and maintenance (O&M) of transmission and distribution lines, water tanks, pumping stations, and other equipment, and risks associated with handling hazardous wastes. The possible risks of pollution include the generation of hazardous and non-hazardous wastes. The non-hazardous waste includes solid waste generation during the construction of pressure lines, water tanks, pumping stations, and distribution networks and house connections. Other environmental risks include, noise, dust, traffic interruptions, and temporarily impeded pedestrian access. Under Component 1.3 suboptimal O&M of the Hebron WWTP will result in a matrix of risks to the quality of effluent and sludge management; OHS risks to workers and operator; health and safety concerns to communities surrounding the WWTP, including foul odors, breeding mosquitoes and vectors; pollution to groundwater by infiltration of substandard effluent. Flow of substandard effluent in Wadi- Assamen can pose risks to communities located downstream of the WWTP and transboundary issues when crossing the Green Line to Israel. Hebron industrial estate includes a significant number of stone-cutting businesses which dispose their waste in a form of slurry into the sewage network. The slurry impedes the biological processes in the WWTP and can damage the performance of the WWTP. To mitigate this risk, disbursement under Component 1.3 will only commence after the Bank approves the WWTP facility E&S Performance Report that will be prepared to, among other issues, verify that requisite mitigation measures dealing with the slurry disposal are in place and are being complied with. Project TA activities will potentially cover a wide range of studies and detailed designs and bidding documents, and these activities will be screened, and proportionate E&S instruments will be prepared in accordance with ESF Guidelines for TA. For the CERC, the POM will include a list of eligible activities and requisite E&S instruments will be prepared accordingly, as the need arises.

89. **The social risk rating is “substantial”**. Main social risks include (i) small-scale private land needs (e.g. to widen the RoW if needed, building water tanks etc.) and livelihood impacts due to temporary access restrictions during construction (e.g. on agricultural land, in commercial areas etc.). No large-scale private land acquisition or resettlement is involved and exact land needs will be determined once detailed designs for subprojects are finalized; (ii) labor management risks: while no large-scale labor influx is expected, working terms and conditions could pose some risks; (iii) community health and safety risks including exposure to communicable diseases, and road safety during construction; (iv) social exclusion/inequitable provision of project benefits to, and/or lack of meaningful engagement with women and marginalized groups (e.g. persons with disabilities, women headed households, the poor, communities in Access Restricted Areas (ARAs) and rural and/or relatively remote locations etc.); and (v) social resistance to measures to improve tariff collection and reduction of NRW, and a continuing lack of poor water conservation practices among communities. The project SEA/SH risk rating has been assessed as “low” using the Bank’s screening tool for civil works and feedback from consultations with women’s groups and female community members. Possible resistance of LGUs to form RWUs could be an additional risk due to the loss of revenue this would entail for



LGUs. However, ongoing discussions with the LGUs in the target areas have shown that they are in favor of clustering into a Regional Water Utility. Furthermore, the proposed Resilient Municipal Services Project “MDP4” is expected to include a water KPI that will encourage the legal and fiduciary separation of water departments from the LGU/municipality, as the first step to clustering SPs. At the national level, under DPG-12, the establishment of two RWUs in Rafah and Tubas will be implemented in FY 23. Possible resistance from water tanker operators to the project could be an additional risk, as the livelihoods of this group may be negatively affected by the increase of access to potable water in beneficiaries’ homes. To address this, the project will support to PWA in conducting an analysis on the possible alternative livelihood options for the water tanker operators.

90. **The volatile political and security context in the West Bank and Gaza is a contextual risk.** Delays of permission to construct the part of the Northeast Jenin water system, which is located in "Area C" in the West Bank, can extend the duration of work. The construction of the Hebron WWTP has also experienced delays and work stoppages over the years due to multiple community complaints regarding potential risks associated with the treatment plant and demands for wider local area development. Extended delays to fulfill outstanding commitments by the PA may pose significant risks to the project. PWA received in principle approval for the implementation of pipeline through area C. the final approval will be granted once the detailed designs are completed and shared with the Israeli authority.

91. **As the design of individual subprojects is still being finalized, the following ESF instruments have been prepared by PWA, consulted on, cleared by the Bank, and publicly disclose on January 15, 2023:** Environmental and Social Management Framework (ESMF, also including Community Health and Safety Measures); Resettlement Framework (RF); and Stakeholder Engagement Plan (SEP). Labor Management Procedures (LMP) prepared by PWA, consulted on, reviewed and cleared by the Bank and publicly disclosed by February 2023. Once the design of subprojects is available, site-specific E&S instruments (Environmental and Social Impact Assessments and Plans (ESIA/ESMPs), and if required Resettlement Plans (RPs)) will be prepared and consulted on by PWA, reviewed and cleared by the Bank and publicly disclosed prior to starting the bidding process for activities. Measures to address social exclusion issues will also be included in the detailed design of activities (e.g. for social accountability, determining water tariffs etc.). An Environmental and Social Commitment Plan (ESCP), covering the project ESF commitments, has also been prepared by PWA, reviewed and cleared by the Bank, and publicly disclosed by project appraisal (January 15, 2023).

92. **PWA has developed experience and capacity for E&S risk management in accordance with World Bank requirements (safeguards and ESF).** Under WSRP, responsibility for E&S management will be assigned to E&S Specialists in the West Bank PCU, and engineers in the Hebron and Jenin field teams. For the Hebron WWTP, the E&S Monitoring and Compliance Specialist and any other relevant staff will be maintained throughout the operation of the WWTP. PWA’s capacity for ESF implementation will be strengthened further under WSRP.

93. **Existing grievance mechanisms (GMs), for both workers and beneficiaries, will be used for WSRP.** PWA has established GMs under Bank-financed projects and these GMs are working well and include features for processing potential cases of GBV/SEA/SH. Details about the GM are included in the project SEP.

94. **Gender: As part of the preparation, the project drew from multiple gender assessments carried out in the water sector with a focus on PWA.** The findings of the assessment confirmed a gender gap in the water sector at both institutional and community levels. At the community level, women are the primary users, managers of water and guardians of households’ hygiene and water supply, but have inequitable access to information and training, limiting their knowledge on water quality, pollution etc. At the institutional level, women are under-represented in leadership and technical positions at PWA and there are gender gaps in terms of career advancement, salaries and access to specialized trainings. Unemployment is also particularly high among the youth (ages 19-29) with young women disproportionately affected: unemployed graduates stand at 66 percent for females and 39 percent for males (PCBS 2022). This is no different in the water sector where on average, in the region, only 7 percent of employees in water institutions surveyed tend to be women (with new female recruits at 7 percent only too) and only 11 percent offer



mentorship programs (Equal Aqua).²⁴ A combination of factors contributes to underrepresentation of women in the labor market. For example, access to skills development and hands on training/apprenticeship are more limited for women than men because of the nature of networking in male dominated spheres; guidance in public education systems are often absent, and young female students from universities may not hear about opportunities or are discouraged to apply due to concerns about type of job or mobility, particularly when travel to onsite work is required (Hillis et al 2018; Maier et al 2022). Furthermore, and for those who are already in the workplace, women may not have access to the same technical and leadership trainings and professional development exposure as men therefore making it difficult to advance their careers. It could be a result of the limited time women have in the workplace to juggle responsibilities and professional development opportunities due to their care responsibilities at home (Maier et al 2022; World Bank 2020;).

95. **To address these gaps, the project will support measures to improve women’s inclusion and participation at both the community level as well as in the PWA institution.** At the community level, the project will engage with female beneficiaries to raise their awareness about project activities and safe water usage, consult with them at all stages, and reflect their views in the design and implementation of the project. It will do this by conducting awareness raising concerns and holdings sessions in collaboration with community-based organizations during times and in locations suitable for women. It will also set a quota of 30 percent minimum of women’s participation in the consultations. At the institutional level, the project will implement the Equal Aqua HR assessment to capture detailed data on staff composition (by gender and type of position) and diagnose barriers for women’s entry, recruitment, retention, and advancement in the relevant institutions. The findings of this assessment, including the information on the underlying drivers of gender disparities in water sector employment, will help develop a set of actions that promote female employment, particularly in technical and managerial positions. The assessment will also help further fine-tune the existing proposed actions under the project to create a pipeline of female professionals to enter the utility workforce, including an internship program for young female specialists and outreach activities with schools and communities to empower young women to pursue careers in the water sector. Building on PWA’s ongoing commitment to raise awareness of the importance of gender diversity across all job types, additional activities may also include trainings among all staff to counter perceptions that reinforce gender stereotypes in field work. To measure progress made in closing gaps, the project will measure uptake of internships filled by women with a target of 40 percent and share of interns who found employment after completion of program, of which female.

V. GRIEVANCE REDRESS SERVICE

96. **Grievance Redress.** Communities and individuals who believe that they are adversely affected by a project supported by the World Bank may submit complaints to existing project-level grievance mechanisms or the Bank’s Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project-affected communities and individuals may submit their complaints to the Bank’s independent Accountability Mechanism (AM). The AM houses the Inspection Panel, which determines whether harm occurred, or could occur, as a result of Bank non-compliance with its policies and procedures, and the Dispute Resolution Service, which provides communities and borrowers with the opportunity to address complaints through dispute resolution. Complaints may be submitted to the AM at any time after concerns have been brought directly to the attention of Bank Management and after Management has been given an opportunity to respond. For information on how to submit complaints to the Bank’s Grievance Redress Service (GRS), please visit <http://www.worldbank.org/GRS>. For information on how to submit complaints to the Bank’s Accountability Mechanism, please visit <https://accountability.worldbank.org>.

²⁴ <https://wbwaterdata.org/breakingbarriers/en/tool/>



VI. KEY RISKS

97. The overall risk rating for the project is “Substantial”. The most pronounced risk areas, discussed below, are: (a) political and governance; (b) macroeconomic; (c) sector strategies and policies; (d) institutional capacity for implementation and sustainability; (e) fiduciary; and (f) environment and social.

- **Political and Governance Risk – High:** The overall political and governance situation in the PA may change quickly due to internal and external forces. The PWA is particularly vulnerable to political capture, insecurity, and instability in this fraught environment. Risks to the achievement of the project’s objectives include changing political leadership and policy direction, turnover of management and staff, difficulties in implementing sector reform, and complex political resistance to proposed activities such as tariff reform.
- **Macroeconomic Risk – Substantial:** Overall, the PA is currently experiencing significant financial limitations due to the continued restrictions on movement, COVID 19 pandemic implications, the subsequent associated dwindling tax revenues and the significant reduction of foreign aid. If net lending, through GoI deductions from clearance revenues, increases in it may further affect the PWA’s financial standing. The continuous lack of access to tax revenue from Area C is another central constraint that poses a risk to the PA’s fiscal sustainability. A close and continuous dialogue with the PWA and MoF will be required to keep a strong focus on the project and to secure the budget for project implementation, including through interaction with donors in order to support PWA’s commitment to the initiated reforms. Under current plans, the Bank will continue support to strengthen financial stability and financial integrity through annual Development Policy Grants that provide financing to the PA budget to keep the focus on development priorities and strategic reforms abreast.
- **Sector Strategies and Policies Risk – Substantial.** The sector’s weak institutional capacity and the disparities between formally adopted policies and the on-the-ground reality pose high risks. The Water law and by-laws, policies and water sector strategies underlying sector reform have been developed, but implementation (supported by the donors) has been slow and uneven due to the difficult technical and political environment. A financial and economic analysis that includes a risk assessment will help to define mitigation measures to ensure that the risks in implementing the proposed investments will be managed.
- **Technical design —Substantial.** There are risks associated with potential construction delays and cost overruns. Anticipated construction periods and cost estimates are based on experience of construction in the region and current prices for materials and equipment, but the volatile political and security environment in WB&G may cause bid prices and construction progress to substantially differ from appraisal estimates. This risk is being mitigated by: (i) adapting designs to benefit to the extent possible from lessons learned from recent projects in the West Bank and Gaza on restrictions on “dual use” materials; (ii) employing consultants to support the PCU to manage the construction contracts; and (iii) close supervision by the TTL and task team based in WB&G. In coordination with other external partners, the project will also provide a robust technical assistance and direct training and capacity building support to PWA and SPs staff to manage implementation risks and improve the sustainability of project outcomes.
- **Institutional Capacity for Implementation and Sustainability – Substantial:** The Institutional capacity weaknesses of the water sector entities are a major concern. The weak implementation capacity will be mitigated by the establishment of a capable project implementation and coordination unit within the PWA, and in the field as appropriate, to ensure support and project coordination across key agencies involved (MoF, PWA, MOLG, Municipalities). Furthermore, the Project will also include a robust technical assistance component that will direct training and capacity building support to the PWA and other entities’ staff to manage implementation risks and to improve the sustainability of the proposed infrastructure in close coordination with external partners. And finally, the active Programmatic Technical Assistance “Towards Water Security for the



Palestinians” (P167309) will provide support to the PWA for implementing of institutional capacity activities.

- **Fiduciary Risk – Substantial:** PWA has good experience implementing World Bank-funded projects and its capacity for financial management (FM) is good. However, financial management capacity among other stakeholders may be lower and affect the quality of financial reporting. An FM manual will be developed for the project. PWA has good procurement experience working with the World Bank through different projects, Procurement under the project shall be carried out in accordance with the World Bank’s Procurement Regulations for IPF Borrowers, dated November 2020, however procurement process has experienced major delays in ongoing Bank funded operations due to lack of coordination between institutions involved in the process. The Procurement Risk is assessed as Substantial.
- **Environment and social – Substantial:** the ES risks have been rated substantial due to the large geographical coverage of project activities and a wide array of risks both in the construction and operation phase, in addition to legacy and reputational risks associated with the Hebron WWTP. Those risks will be addressed by a number of instruments including community health and safety plans, site specific ESMPs and RAPs, solid waste management plan, sludge management plan, pest management plan, labor management procedures, and through direct citizen engagement and stakeholder consultations. GRM mechanisms will be ensured to intercept and deal with any expected complaints.
- **In addition to these risks, Stakeholder risks are classified as “Substantial”:** The stakeholder risk consists of two parts. The first is the risk of poor cooperation between PA entities as the Project will require significant coordination with the MoLG and municipalities. The PSC to be established as part of project implementation will provide overall coordination. The Project will carry out consultations with the beneficiaries and other entities during project preparation. In addition, it will be critical to develop a security risk management system, including building consensus and support with local communities through participatory planning and job-creation and planning for a response and contingencies in case of conflict-related disruptions.



VII. RESULTS FRAMEWORK AND MONITORING

Results Framework

COUNTRY: West Bank and Gaza

Water Security and Resilience Project

Project Development Objectives(s)

The Project Development Objective (PDO) is to improve the reliability and quality of water supply services in selected areas and to strengthen the operational performance of sector institutions in the Palestinian territories.

Project Development Objective Indicators

Indicator Name	PBC	Baseline	End Target
Improve the reliability and quality of water supply services			
Increase bulk water availability through Salem and Al Jalameh connection points (Cubic meters/year)		0.00	7,000,000.00
Number of households benefitting from 24/7 water supply through individual connections (Number)		0.00	1,500.00
Percentage of water samples compliant with WHO standards in project area (Percentage)		0.00	95.00
Strengthen financial and operational performance of sector institutions in the Palestinian territory			
Number of regional water utilities established through clustering of service providers in West Bank; and their performance monitored against the KPIs (Number)		0.00	2.00
Performance of PWA staff for sector management improved (Yes/No)		No	Yes



Intermediate Results Indicators by Components

Indicator Name	PBC	Baseline	End Target
Improvement of water and wastewater infrastructure and service management			
Length of the Jenin bulk water supply pipeline constructed (Kilometers)		0.00	26.00
Water storage capacity in the project area increased (Cubic Meter(m3))		0.00	5,000.00
Length of water distribution network in villages of the North-East Jenin constructed (Kilometers)		0.00	100.00
New metered piped water supply connections in Jenin area installed (Number)		0.00	5,000.00
Daily volume of wastewater treated through the Hebron Wastewater Treatment Plant (Cubic Meter(m3))		0.00	15,000.00
Improve performance of water sector institutions			
Target RWUs established, staffed, and equipped with financial and operational systems (Number)		0.00	4.00
National public awareness campaign conducted (Yes/No)		No	Yes
Number of junior professionals hired as interns (Number) (Number)		0.00	25.00
Number of female interns reached through the internship program supported through the project (Number)		0.00	10.00
of which female recruited as staff by PWA (Number)		0.00	7.00
Project Management and Monitoring			
Number of people benefitting from training on project management under the project (Number) (Number)		0.00	100.00
Number of female professionals benefitting from training		0.00	50.00



Indicator Name	PBC	Baseline	End Target
under the project (Number) (Number)			
Number of regular stakeholders meetings for the project (Number)		0.00	10.00
Percentage of grievances responded to in the stipulated time (Percentage)		0.00	80.00

Monitoring & Evaluation Plan: PDO Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Increase bulk water availability through Salem and Al Jalameh connection points	Quantity of water received from Mecarot per year through the new Salem connection point to serve Jenin Governorate.	Monthly	Daily measurements and reports of PWA.		PWA
Number of households benefitting from 24/7 water supply through individual connections	Individual piped water supply connections include those of households, commercial enterprises, and institutions, which are meters and included in the utility database.	Semiannual	Database of target service providers, design reports, and project M&E reports.	Data reported by service providers will be verified by the Water Sector Regulatory Council and through regular customer surveys.	Service providers, PCU/PWA.
Percentage of water samples compliant	The indicator will track and	Monthly	Data and	Laboratory test results.	The Joint Committee of



with WHO standards in project area	monitor the quality of supplied water in the main pipelines and from the network as guided by the basic indicators of quality assessment used by the WSRC: (i) Percentage of water samples containing free chlorine residual; (ii) percentage of water samples free of total coliform bacteria contamination.		reports of MoH, PWA, Service Providers, and WSRC. Aggregated results shall be reported through the annual WSRC report.		the PWA, MoH and WSRC are responsible for follow-up on indicators of water quality, particularly free chlorine in water samples.
Number of regional water utilities established through clustering of service providers in West Bank; and their performance monitored against the KPIs	The project targets the establishment of two regional water utilities in the Jenin and Tubas areas. In Jenin, this shall be achieved through clustering of the existing North-west joint service council for water with the to be established (under the project) North-east joint service council for water and Jenin water department under the Municipality towards the Jenin Regional water utility. In Tubas area the project shall support the establishment of the Tubas regional water utility.	Annually	PWA data, project reports.	The process of clustering and establishment of the RWUs will follow the stages and procedures described in the Roadmap for the creation of Regional Water Utilities in the frame of the Water Sector Reform in Palestine and subsequent regulations/by-laws.	PWA



Performance of PWA staff for sector management improved	The indicator will measure the number of staff of PWA, WSRC and RWUs trained and passed the qualification exam on (i) development of asset management plans; (ii) non-revenue water management; (iii) economic and financial analysis; (iv) tariff setting and calculation; (v) financial and commercial management of utilities; (vi) design of climate resilient water infrastructure. The total number of staff trained on separate topics should be not less than 100 people.	Semiannual.	Progress reports of PWA, evaluation of trainings, and self-reported results of post-training exams.	A training plan will be developed in the first year of the project implementation and staff of PWA, WSRC and RWUs will be nominated to take part in the trainings. Upon completion of trainings, the exams will be administered by PWA and the WB to confirm the qualification.	PWA and WSRC.
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Monitoring & Evaluation Plan: Intermediate Results Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Length of the Jenin bulk water supply pipeline constructed	Construction of the 26 km bulk water supply pipeline from Salem connection point to the regional reservoir.	Quarterly	Construction supervision reports, project reports.	Progress reports	PWA
Water storage capacity in the project area increased	Construction of the water tanks with a storage	Quarterly	Construction supervision	Progress reports	PWA



	capacity of 5,000m3 to serve the villages of South Jenin with population of 40,000 people.		reports		
Length of water distribution network in villages of the North-East Jenin constructed	The intended construction of distribution network target 6 villages in the North-East Jenin.	Quarterly	PWA reports	Progress reports	PWA
New metered piped water supply connections in Jenin area installed	The indicator will measure the number of new metered individual connections established through the project in the North-East Jenin area.	Semiannual	Progress reports, registry books of the RWU.	Construction progress reports	PWA PCU and RWU
Daily volume of wastewater treated through the Hebron Wastewater Treatment Plant	The indicator will measure the quality of effluent treated at the Hebron Wastewater Treatment Plant.	Monthly	Hebron municipality/wastewater unit reports.	Volume measurement and quality testing	Hebron municipality, PWA
Target RWUs established, staffed, and equipped with financial and operational systems	Regional Water Utilities in the project area (Jenin, Northeast JWC, Rafah and Tubas) are established and operational. Operational also defines the fact that the RWUs are staffed and equipped with the necessary technical, financial, and commercial systems to collect and process data on the key	Semiannual	RWUs books, PWA progress reports and WSRC annual reports.		RWUs, PWA/PCU, and WSRC



	performance indicators to WSRC and PWA.				
National public awareness campaign conducted	The indicator will measure progress in design and implementation of the Public awareness campaign to be supported through the project. The PAC will be designed around several themes that would include: (i) the importance of responsible water use for resilience against the droughts and other climate change impacts in WB&G; (ii) links between health, hygiene, water and wastewater, (iii) PWA and LGUs' roles in providing safe water services, and the importance of water fee payments; (iv) information on water projects and the program.	Semiannua l	PWA/PCU progress reports	The public information campaign will have indicators to track progress in its implementation.	PWA
Number of junior professionals hired as interns (Number)	This indicator measures a number of interns formally enrolled in the annual internship of the program. The program content will be reviewed and updated for each participants	Semiannua l	PWA Progress reports, RWUs.	The PWA jointly with RWUs will develop an internship program that will include an outreach at the main educational institutions - (universities and	PWA/PCU



	department of PWA .			vocational schools) to engage young specialists in the water sector and project/program implementation. The selection of interns will be merit-based, according to the criteria specified in the POM. The internship program will cover a range of profiles and specializations - public health, engineering, accounting and financial management, communication and social mobilization, GIS, etc.	
Number of female interns reached through the internship program supported through the project					
of which female recruited as staff by PWA	Number of female junior professionals hired as interns subsequently recruited as staff by PWA	Annual	PWA HR records	Review of PWA HR records	PWA
Number of people benefitting from training on project management under the project (Number)	This intermediate indicator measures the number of people benefitting from the	Annually	PCU/PWA		



	trainings on engineering, safeguards aspects of project management under the World Bank project.				
Number of female professionals benefitting from training under the project (Number)					
Number of regular stakeholders meetings for the project	This indicator measures the number of meetings that take place at the national, and local levels with participation of the key stakeholders (PWA, MoF, local and municipal level authorities, representatives of civil society). Meetings will be conducted once a year at the national level and as needed but not less than twice a year and the local levels.	Smi-annual	PCU/PWA	Minutes of stakeholders meetings	
Percentage of grievances responded to in the stipulated time	This indicator captures the efficacy of project delivery systems, specifically the grievance redress mechanism which will capture grievances or perceived irregularities. Stipulated service standards for response times will be outlined in the Project	Annually	Project Monitoring and Information System		PCU/PWA and RWU



	<p>Operation Manual Numerator: Total number of grievance cases from the project addressed in accordance to established protocol. Denominator: Total number of grievance cases received from the project.</p>				
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ANNEX 1: Implementation Arrangements and Support Plan

COUNTRY: West Bank and Gaza
Water Security and Resilience Program

Project Implementation Arrangements

1. **The recipient of the grants will be the MoF, the PWA will act as the implementing agency for the project with responsibility for the overall management of the project. The PWA will provide strategic direction and guidance to the PCU that will be charged with responsibility for the day-to-day management of the project.** The PCU staff will review the quality of the subprojects and ensure their compliance with World Bank standards. The PCU will be responsible for financial management, procurement, overall contract management and will also be ultimately responsible for the administration of activities and investment subprojects. The PCU will maintain the core team and support staff as needed during the project period. Pre-contract services and construction supervision responsibilities will be carried out by specialized engineering firms. The PCU will engage an engineering firm for construction supervision. In addition, the PCU staff in the field that will include (two) engineers based in the target areas to ensure coordination between different elements of the project in the field and to be responsible for day-to-day monitoring of physical implementation progress and reporting. The MoLG and SPs will also be involved as key stakeholders during implementation of the project. **A Program director** will ensure effective coordination between PWA management and the PCU, in addition to maintaining the continuity between the different projects under the SOPs. The project implementation arrangements chart is presented in **Figure 1.1** below.

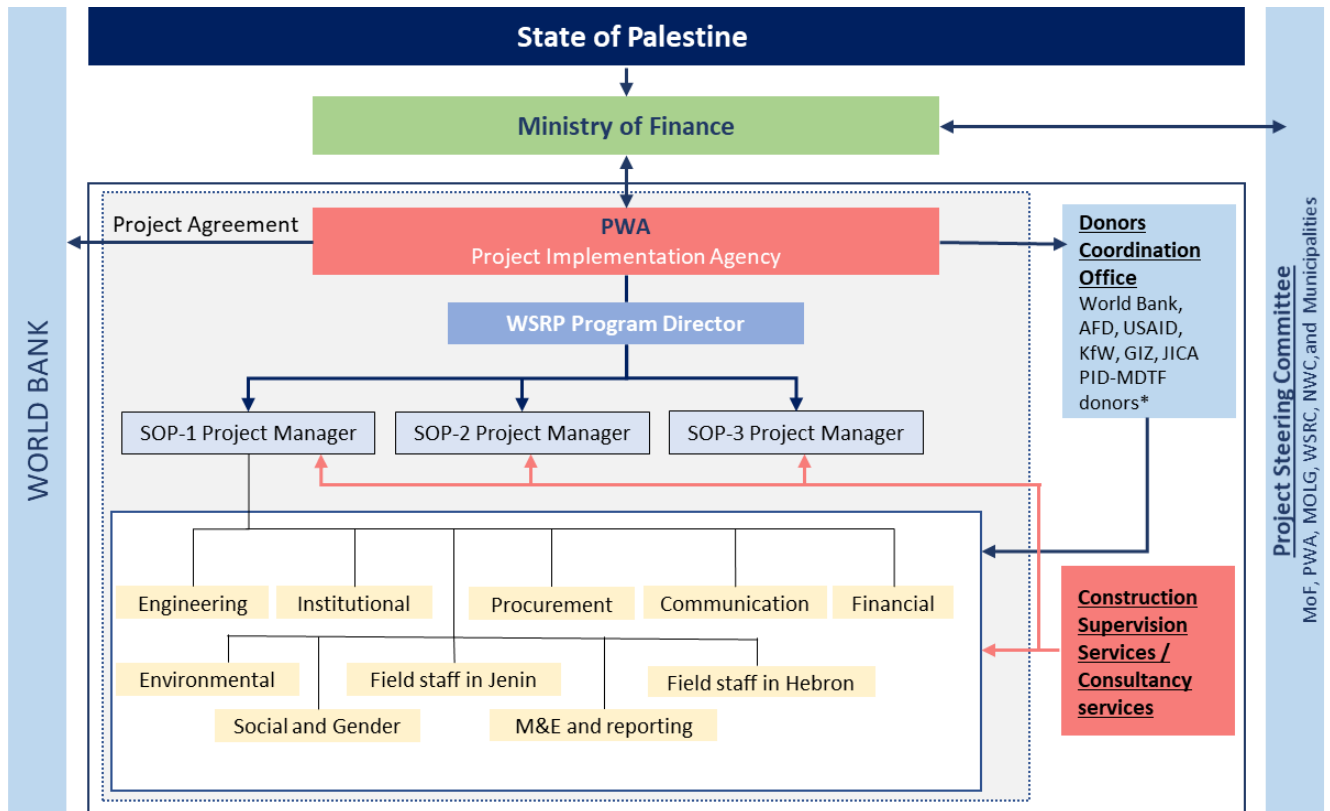


Figure 1.1. Implementation Arrangements



2. **The project will also hire an institutional expert responsible for water sector reform activities, to be primarily in charge of the coordination and implementation of activities under sub-component 2.1.** These activities are designed to improve the capacity of different sector institutions for improved service delivery and coordination and cover a broad range of stakeholders and institutional beneficiaries. The consultants are expected to facilitate dialogue with the involved agencies, support implementation of the first stage of reforms, and demonstrate results on tangible actions, allowing PWA to move forward the creation of the RWUs in two years (by December 2024). Once the RWUs are created, the PWA will continue being responsible for the sector planning, water sector policies, and the monitoring functions

3. **PSC.** Given the ambitiousness of the project and of the subsequent SOP, the project will adopt a revised approach to the PSC, requiring it to be chaired by the Program Director. This will facilitate higher-level support for the monitoring and follow-up on the project and allow to advance discussions on the subsequent projects within the SOP. The PSC will include representatives of the Ministry of Finance, Ministry of Agriculture, Environmental Quality Authority, MoLG, and local district-level stakeholders, WBWD, WSRC, newly established RWUs and representatives of NGOs and academia. This council will serve as a coordination platform for the multifaceted interventions. The PSC meetings will be conducted semiannually and as needed, to report on the project progress and seek support on the multisectoral aspects of project implementation. As needed, relevant authorities and stakeholders will participate during the implementation of relevant project activities. Details of the PAC arrangements will be documented in the POM.

Financial Management and Disbursements

4. **Fiduciary risks.** The country level fiduciary risk level in the PA system is rated as Substantial before mitigation. This is due to weak budget execution and the accumulation of arrears which affects service delivery. The risk is mitigated through an experienced implementer which has sufficient capacity. The project level risk is rated at Substantial which will be mitigated with close supervision and regular audits. The entity level risk is rated at Substantial as PWA has experience managing similar projects and has experience with World Bank policies and procedures as well as good internal controls.

5. **Project Risks.** The overall project risk from a financial management perspective is Substantial. The FM arrangements are designed to ensure that funds are used for the purpose intended and that timely information is produced for project management and oversight, and to comply with the Bank's fiduciary requirements. Below are the main risks and mitigating measures:

6. **Risks include:** (i) inadequate accounting and reporting system; (ii) misappropriation and ineligible expenditures on the ground; (iii) co-mingling project funds with the ongoing program and/or with other development partners' funds; (iv) overestimating Program's cash flow projections or replenishments; and (v) IT security breach.

7. **Mitigating Measures:** The Project will be ring fenced through the institutional set up. After declaration of effectiveness, a 2 separate DA accounts will be opened –one per TF—for the project and there will be no co-mingling of funds. There will be capacity building for the teams at PWA which will reduce the country risks.

8. An independent external auditor, acceptable to the Bank, will be hired on a competitive basis, to perform annual external audit for the Program's financial statements.

- PWA will open a separate cost center in its accounting system to separately account for the Project funds and expenditures incurred.
- PWA will estimate cash flow projections based on the approved annual budget and disbursement plan.
- A Financial Procedures Manual as part of the Project Operations Manual will be updated to meet the Project's FM requirements.
- An assessment of the IT systems will be made to ensure that no IT security breach is possible.



Financial Management System

9. **Flow of funds and banking arrangements:** Bank financing will be a grant to be disbursed through a project-specific Designated Accounts (DAs) opened and operated by PWA. Withdrawal Applications submitted to the Bank will be prepared by PWA and signed by the authorized signatures at MOF before submission to the Bank. PWA will vest the sole responsibility to disburse and will have a monitoring and supervision system in place with regular reporting to the Bank. Additionally, PWA will maintain a monthly reconciliation statement between their records and the Bank's records per the World Bank's Client Connection. Such reconciliation will set out the disbursements by category as well as the DA balance. Disbursement and payment requests will be based on approved agreements and services predefined in the Project documents. DA bank account records will be reconciled with bank statements on a monthly basis by PWA. A copy of each bank reconciliation statement together with a copy of the relevant bank statement will be reviewed monthly by the Project Financial Officer at PWA, who will investigate and resolve any identified differences. Detailed banking arrangements, including control procedures over all bank transactions (for example, check signatories, transfers, and so on), will be documented in the Financial Section of the POM. **Figure 1.2** describes the funds flow for the Project.

10. **Information Systems:** A computerized FM system is in place and efficiently operational at PWA which is the Bisan government system. The FM system is capable of producing timely, relevant, and reliable financial information that will enable PWA's management to plan, implement, monitor, and appraise overall progress toward achievement of its objectives. A new cost center will be opened in their accounting system, which will be used by PWA to record all transactions.

11. **Accounting Policies and Procedures Manual:** PWA will prepare a financial management manual covering all administrative, financial and accounting, and budgetary procedures relevant to the activities to be financed under the Project. The manual will describe the payment procedures, including controls and oversight arrangements.

12. **Staffing.** The Project's activities including financial management will be handled by PWA. Staffing is adequate, and segregation of duties is ensured. The staffing will be reviewed annually to ensure it remains adequate for project needs as implementation progresses.

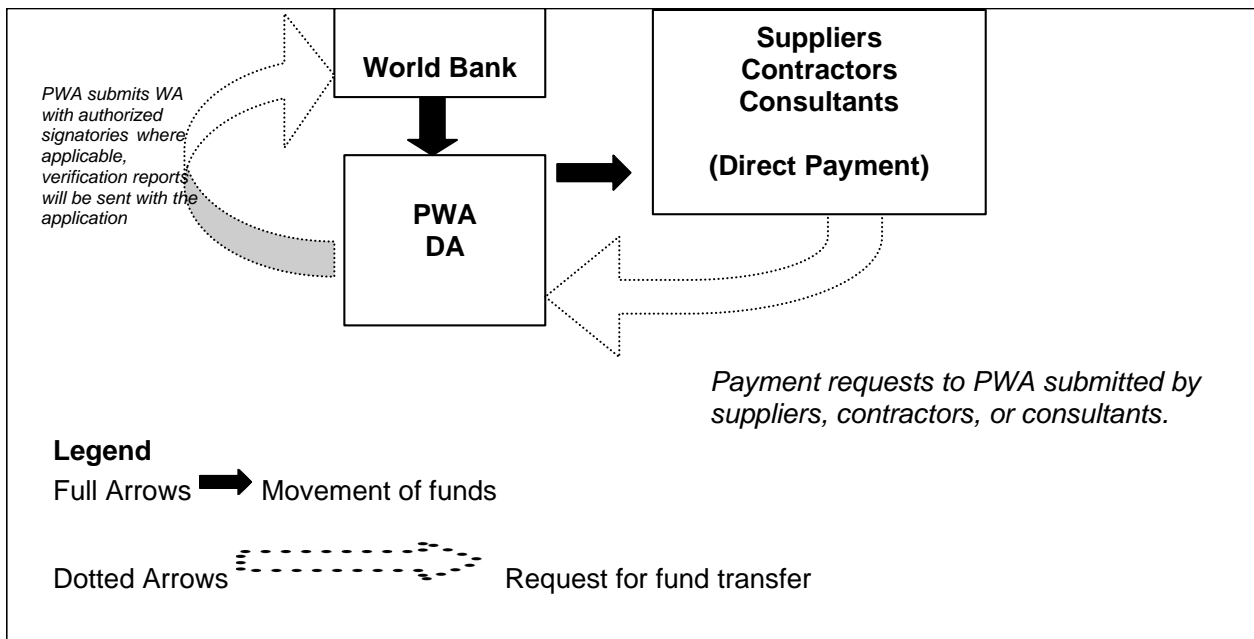


Figure 1.2: Flow of Funds for the Project



13. **Financial Reporting and Monitoring:** PWA will have overall responsibility for financial management of the **Project**. Specifically, PWA will be responsible for: (i) reporting on the grant's financial data; (ii) preparing activity budgets (Disbursement Plan) quarterly as well as annually, monthly DA reconciliation statements, and periodic SOEs, withdrawal schedule, semi-annual IFRs and annual financial statements; and (iii) ensuring that the Project's FM arrangements are acceptable to the World Bank. PWA will produce semi-annual and annual reports as outlined below and submit these to the Bank.

14. **Semi-annual unaudited IFRs** (submitted within 45 days after period-end):

- (i) Financial reports include a statement showing for the period and cumulatively (project life or year-to-date) inflows by sources and outflows by main expenditure classifications; opening and closing cash balances of the Project; and supporting schedules comparing actual and planned expenditures with detailed deviation analysis between actual and budgeted figures;
- (ii) Contract listing, reflecting all signed contracts under the grant with the value of each amount disbursed under each contract as at the report date;
- (iii) DA statement and reconciliation showing deposits and replenishments received, payments supported by WAs, interest earned on the account, and the balance at the end of the reporting period.

15. **Annual Project Financial Statements** (submitted within six months after year-end):

- (i) A Statement of Sources and Uses of Funds (by grant category/activity showing Bank and counterpart funds separately);
- (ii) A Statement of Cash Position for the Project's funds from all sources;
- (iii) Statements reconciling the balances on the DA accounts to the Bank balances shown on the Statement of Sources and Uses of Funds;
- (iv) Notes to the Financial Statements for significant accounting policies and all other relevant information.

16. **Accounting Policies and Procedures:** PWA accounts will be maintained on a cash basis of accounting augmented with appropriate records and procedures to track commitments and to safeguard assets. Accounting records will be maintained in USD.

17. **External Audits:** The Grant Agreement (GA) will require the submission of annual audited the Project's financial statements within six months after year-end. Project financial statements will be audited in accordance with international audit standards by an independent audit firm competitively selected and acceptable to the World Bank or by the State Audit and Administrative Control Bureau (SAACB). The Terms of Reference (ToR) must be acceptable to the Bank. The cost of the audit will be financed from the grant proceeds. The audited annual project financial statements will be publicly disclosed on the Bank's public domain.

The external auditors will be expected to express an opinion on the audited the Project's financial statements, on the eligible use of the Bank's contribution to the Project, the accuracy and propriety of expenditures and the extent to which these can be relied upon as a basis for loan disbursements, and the DA transactions, balances, and compliance with Bank procedures.

In addition to the audit report, the external auditors will be expected to prepare a Management Letter giving observations and comments, and recommending improvements in accounting records, systems, controls, and compliance with financial covenants in the Bank GA.

18. **Implementation Support:** Financial Management activities will include, but not be limited to, review of SOEs, review of semi-annual IFRs, and review of annual audited financial statements and management letters, as well as timely follow-up on issues raised by the external auditor. The FM team will join implementation support missions over the duration of the project. Bank supervision missions will consist of visits to PWA and the field as necessary. Relevant documentation will be made readily available to Bank supervision missions.



Disbursements

19. **The proceeds of the Grant will be disbursed in accordance with the World Bank's disbursements guidelines, as outlined in the Disbursement and Financial Information Letter (DFIL).** The Project will follow "Reporting-Based Disbursements" with IFRs that include cash forecasts covering one or two quarters and amended as deemed necessary; other disbursement procedures such as direct payments, reimbursements, and special commitments will also be applicable if necessary. Withdrawal Applications (WAs) will be submitted to the Bank for direct payments to suppliers and consultants (if needed). The documentation supporting expenditures will be retained at the PCU and held readily accessible for review by the external auditors and Bank implementation support missions. All disbursements will be subject to the conditions of the GA and disbursement procedures as defined in the DFIL.

20. **DAs:** The DAs will be held in USD as main account and Euro, ILS as sub-accounts. A forecast will be prepared at the start of the project with the required amount for the first six months and subsequent disbursements into the DAs will be requested through WAs, reconciled bank statements, and copies of all bank statements. The supporting documentation for requests for direct payment should be records evidencing eligible expenditures (copies of receipt, suppliers' invoices).

21. **Planning and Budgeting:** A disbursement plan will be prepared as well as a financial budget for the life of the Project (broken down by year and by quarter). PWA will prepare the budget for the coming year, which will include the figures for the year, analyzed by quarter. The budget for each quarter will reflect the detailed specifications for the Project activities, schedules, and expenditures on monthly and quarterly Project activities. The annual budget will be sent to the Task Team Leader (TTL) at least two months before the beginning of the Project's fiscal year for review.

Procurement

22. **The PWA will have overall responsibility for conducting procurement under the project.** Procurement under the project will be carried out by the existing PCU in PWA.

23. Procurement of goods, works, and services will be carried out in accordance with the World Bank Procurement Regulations for IPF Borrowers, dated November 2020, and the provisions stipulated in the Financing Agreement. The project will be subject to the World Bank's Anticorruption Guidelines, dated July 1, 2016.

24. **Key Procurement Risks:** The key procurement risks identified include delays caused by bureaucratic decision-making processes; delays including coordination and interface between CTD and PWA; delays in decision making, cabinet approval; delay in contract signing, delays in selection of supervision consultants. delays due to potential COI, unclear lines of accountability and coordination among various project stakeholders, weak PWA contract management capacity, and fragmentation in donor funding and inadequate supervision and oversight. In Addition, poor quality of technical design and bidding documents (e.g., incomplete technical designs, poorly defined scope of work and technical specifications, or unrealistic completion periods), qualified international bidders being discouraged from participating and cost and time overruns during contract implementation because of the prevailing security conditions; unrealistic cost estimates and failure to complete requisite actions prior to contract award.

25. The following are key measures that are being taken during project preparation and/or are included in the project design to mitigate the above procurement risks: conduct on the job training for the procurement and engineering staff on preparation of bidding documents. Maintain a close and continuous follow up with CTD and other concerned entities to avoid delays at all stages of procurement process. Procurement and bidding documents acceptable to the Bank, are under preparation for the works packages under Component 1, the project will provide needed support to PWA in the bidding process and other consultancy services are being initiated.

26. **Systematic Tracking of Exchanges in Procurement (STEP).** The project will implement STEP, a World Bank planning and tracking system, which would provide data on procurement activities and establish benchmarks. The



details of the activities of the Procurement Plan would be transferred to STEP. No activities procured outside STEP will be considered as eligible. The activities first need to be added to STEP, get approved by the World Bank, and then the procurement process starts through STEP.

27. Further, **the PA Public Procurement Law (PPL) No. 8 of year 2014 became effective on July 1, 2016.** When approaching the national market for specific procurements to be identified in the Procurement Plan, national procurement procedures may be used subject to requirements specified in Section V of Procurement Regulations.

28. **Standard Procurement Documents.** The World Bank's Standard Procurement Documents, Requests for Proposals, and Forms for Consultant Contracts shall be used for Open International Competition. For the national open tendering, the project may use National Standard Bidding Documents.

29. **PPSD.** The client, with the support of the World Bank team, has prepared a PPSD, which was discussed during negotiations and cleared by the World Bank. The PPSD included a Procurement Plan of activities for the project duration. The PPSD elaborates the methods and market approach and describes the availability of contractors in the country/region for type of works included in the project design. The project does not include complex arrangements requiring specialized skills, for example, dialogue-based arrangements that present probity risk. Thresholds for the World Bank's review are described in the PPSD.

30. **Record keeping.** All records pertaining to the award of tenders, including bid notifications, registers pertaining to sale and receipt of bids, bid opening minutes, bid evaluation reports, all correspondence pertaining to bid evaluation, communication sent to/with the World Bank in the process, bid securities, and approval of invitation/evaluation of bids, would be retained by PWA.

31. **Frequency of procurement supervision by the World Bank.** The Bank's Prior Review thresholds for Substantial risk rating projects will apply. In addition to prior review, the Bank will carry out two supervision missions a year, and one ex-post procurement review that would cover at least 15 percent of the contracts awarded during the review period.

32. **Mitigating fraud and corruption, transparency, accountability, and participation: governance and anti-corruption agenda.** All the contract opportunities and contract awards will be widely published on the internet, country procurement agency's website, PWA's websites, and when required on United Nations Development Business (UNDB). The PWA will set up a system to ensure that the staff/consultants who handle the procurement process/contract management/contract execution do not join the consultants/contractors. This will be reviewed during supervision missions. Other actions are (a) alerting PWA's officials/staff about any fraud and corruption issues; (b) alerting bidders against adopting fraud and corruption practices; (c) awarding contracts within the initial bid validity period and closely monitoring the timing; (d) taking action against any corrupt bidder in accordance with the Procurement Regulations of the World Bank; (e) preserving records and all documents regarding public procurement; (f) publishing contract award information (contract award notice) on UNDB online through STEP, country procurement agency's website, and agencies' websites within 10 business days from the borrower's notification of contract award to the successful bidder/proposer/consultant; (g) ensuring timely payments to the suppliers/contractors/consultants and imposing liquidated damages for delayed completion; and (h) enforcing a procurement filing system.

33. **Procurement complaints handling.** PWA will be guided by the World Bank's Procurement Regulations. The PWA will inform the World Bank as soon as the procurement complaint is received and the outcome subsequently. The PWA should update complaints in STEP regardless of being prior or post-reviewed by the bank and maintain/update all the documents in the system. The PWA also should have a system to register and monitor the receipt and resolving of complaints. The progress of such actions will be reviewed by the World Bank during supervision missions.



34. **Incremental operating cost.** The costs that would be borne by the project would be procured using the recipient's administrative procedures, which were reviewed and found acceptable to the World Bank.

Monitoring and Evaluation

35. The PWA through its PCU will be responsible for: (i) regular monitoring the performance of the project toward achievement of its objective and result indicators, (ii) producing progress reports to monitor progress under the Project and timely identification of bottlenecks, and (iii) preparation of semiannual and quarterly progress reports. Regarding infrastructure works, the contractor will be responsible for monitoring and reporting the data on works-specific intermediate indicators (such as the km of water pipes constructed or number of household connections). Meanwhile, the construction supervision firm will be responsible for the analysis of the data provided. From this data, the progress towards achieving the main PDO indicators will then be inferred by the M&E team. In addition, a M&E specialist will be responsible for organizing and merging the data coming from project areas to track the advancement of the Program against the indicators detailed in the results framework. The M&E specialist will compile the available data in consolidated monthly reports to track the progress of civil works and compliance with environmental and social standards. A detailed review of implementation progress will be conducted at the project's midterm review to assess the progress, potential for scale-up, and any adjustments required.

36. The PCU will design and set up an appropriate project-level M&E system for enhanced result orientation and better coordination. The M&E framework will be an integral part of the POM. The M&E system will record data on contract management, institutional performance, O&M, and grievances. Methodologies, procedures, data sources, and clear roles and responsibilities for data collection and entry will be determined before the M&E system is put into operation.

37. A key aspect of the results monitoring will be the consumer satisfaction surveys for water services and with the engagement processes. Consumer satisfaction surveys will be conducted every year for selected subcomponents after the start of project implementation to assess satisfaction levels and measure attributable outcomes of the project. Surveys for the engagement processes will be conducted every year using various means of communication. Baseline surveys will be conducted in the first year of project implementation after effectiveness. The project will hold frequent community roundtables or forums with water users to inform them of the status of investments, seek their feedback regarding project implementation progress, and discuss any corrective action which was taken to address issues raised through the feedback process. Results of such meetings will be documented and reported through the regular M&E process. An impact evaluation will be carried out before project closing.

Strategy and Approach for Implementation Support

38. The strategy for implementation support has been developed based on the experience gained in the implementation of the AWS, WMS and HWWTP and based on the design of the project as the first series in the proposed program and its risk profile. The World Bank ensured sufficient technical support to the PWA by strong and frequent presence of the in-country task team leader. The project team will continue providing support to PWA and its implementation units and local services providers. The plan will ensure fiduciary compliance with World Bank guidelines and look to adequately carry out all risk mitigation measures defined in this annex.

**Table 1.1. Implementation Support Plan and Resource Requirements**

Time	Focus	Skills Needed
First 18 months	<ul style="list-style-type: none"> Finalize ESF documents. Finalize and approve the POM; Contract staff for PCU and staff in the field. Fiduciary and ESF staff training. launch procurement process for: (i) the bulk water transmission pipelines; and (ii) launch the procurement of key consultancies under component 2 Establishment of M&E and reporting systems 	A variety of technical skills, such as Task Team Leader (TTL), engineering, Procurement, Environmental and social staff (E&S), financial management, construction management, communication and utility reform and management experience.
18–30 months	<ul style="list-style-type: none"> Procurement of key works contracts under component 1; Procurement of consulting services under components 1 and 2 Social mobilization and inclusion Continued support to implementation of works and consultancies, including implementation of systematic training programs and technical assistance. 	Task Team Leader (TTL), engineering, Procurement, Environmental and social (E&S), financial management, construction management, and utility reform and management experience.
Mid-term review	<ul style="list-style-type: none"> Formal review generally held around project midpoint, during which representatives of the Bank and the Borrower reassess the relevance, efficacy and effectiveness of Project Design (including Project objectives and implementation approach). 	TTL, Co-TTL, Procurement, ESF, financial management, construction management, M&E and utility reform experience

Table 1.2. Skills Mix Required for the Duration of Project Implementation

Skills Needed	Number of Staff Weeks	Number of Trips	Comments
Task team leader(s)	40	12	Headquarters
Civil engineer	30	—	Engineer consultant
Institutional specialist	10	4	National /International consultant
Environmental specialist	10	—	Field -based staff
Social specialist	10	—	Field-based staff
Communication specialist	10	—	Field-based consultant
MIS Specialist	6	—	Field-based staff
FM specialist	10	—	Field-based staff
Financial analysis specialist	6	—	Field-based consultant
Procurement Specialist	10	—	Field-based staff



ANNEX 2: Detailed Project Description

COUNTRY: West Bank and Gaza Water Security and Resilience Program

1. WSRP-1 is the first in the planned SOP, the proposed Program that is expected to improve living conditions and public health outcomes through enhanced access to WSS services for all. To achieve higher access, resilient, sustainable, and positive change in WBG's WSS sector, the Program will take a comprehensive approach addressing infrastructure gaps with the focus on the unserved population, weak institutional capacity as well as sector reform resilience to climate change impacts and natural disasters.

2. The SOP will focus on developing physical and institutional capacities within the sector to improve the sector performance for better service delivery. Implementation of the sector reforms is linked with the design of the SOP and lays the foundation for the project institutional and implementation arrangements. The institutional reform roadmap was developed based on the findings of the existing PWA institutional Reform and Sector strategy, Policy and other sector studies, with implementation of some of the activities started. Details of the priority reforms for the sector have been included in NSPIP ToR. The findings and recommendations of the NSPIP will need to be finalized and endorsed by the PA through discussions with the sector stakeholders as part of the sector reform. The SOP will support implementation of activities included in the program, as outlined below:

- Undertake a full-fledged baseline assessment of WSS conditions in the Palestinian territory to establish baseline indicators for the sector and design the WSS database;
- Develop a feasibility study for options for aggregation of utilities based on the technical and economic parameters;
- Conduct a review of business lines within the PWA and develop a proposal to optimize service delivery models, including through establishing Regional Water Utilities;
- Conduct an inventory of WSS assets and develop appropriate models for assets ownership and O&M;
- Prepare and endorse the framework for the exchange of information in the water sector to inform investment decisions, and that will serve as an adequate monitoring framework for the sector;
- Establish a link between the water resources (surface and underground) database and WSS for sector planning purposes;
- Strengthen sector financing framework through review of tariffs and subsidies in the sector, including the development of tariff models;
- Prioritize optimized WSS investments, improve allocative and technical efficiency of the public financing in the O&M of the sector;
- Revise financing models for the existing service providers to create adequate incentives for expansion of services as possible.

3. The proposed programmatic approach will ensure continuity in sector engagement that would offer an opportunity to address institutional development challenges in stages by incrementally introducing reform efforts alongside large-scale infrastructure. The Program is thus based on three pillars of activities – infrastructure, utility capacity building and sector reform – implemented over a prolonged period and contributing to intermediate results and ultimate program outcomes as outlined in **Figure 2.1** below.

6. The three projects in the series are expected to commence in 2023, 2025, and 2029, respectively, as shown in Figure 2.1. The anticipated duration of each of the three projects is five years, with overlaps for project preparation and tendering. SOP completion is thus expected by 2035. The first project will have a financing volume of US\$ 51.0 million. Subsequent projects are expected to have a total financing volume of about US\$65 million each, with the financing envelope of each subsequent project to be considered separately.

7. The Project Development Objective (PDO) of SOP-1 is to improve reliability and quality of water supply services in selected areas and to strengthen the operational performance of sector institutions in the Palestinian territories.

Component 1 - Improvement of Water and Wastewater Infrastructure and Service Management (US\$ 41.40 million)

8. Component 1 of the WSRP-1 will focus on the (i) Jenin Bulk Water Supply System that will include construction of bulk main supply and distribution pipelines, regional reservoir tanks, and main and local booster pump stations under Subcomponent 1.1; (ii) construction of a water supply system in northeast Jenin villages in northeast area (Deir Abu deef, Araboneh, Northern Beit Qad, and Southern Beit Qad), including distribution pipelines, reservoirs, and booster pumps under Subcomponent 1.2 ; and (iii) the operation and maintenance of the Hebron Wastewater Treatment Plant under Subcomponent 1.3

a) Sub-Component 1.1 – Bulk Water Supply System in Jenin (US\$ 23.0 million):

9. The Jenin area will receive an additional daily quantity of 25,200 m³/d from Salem, Al Jalameh connections and Janzzur well. The project will 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 through the construction of the 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 and by Janzzur well source inside Jenin city.

10. The project is designed to serve the population of targeted communities up to 2040, thus, the hydraulic modeling and design arrangements including the sizing of water supply pipelines, storage/ balancing tanks, selection of booster pumping sets, and other appurtenances designed taking into account the water demands of years 2020 and 2040. The communities served by Jenin subcomponent 1.1 are summarized in the table below:

Table Error! No text of specified style in document.2.1. Jenin subcomponent 1.1 Served Communities²⁵

No.	Communities	Population (Capita)		No.	Communities	Population	
		2020 ²⁶	2040			2020	2040
1	Jenin Industrial Zone						
2	Jenin	52,632	77,256	9	Arabuna	1,081	1,587
3	Jenin Camp	10,986	16,125	10	Arrana	2,550	3,742
4	Beit Qad	2,072	3,041	11	Wadi Dabi'	945	1,386
5	Deir Abu Deif	7,429	10,905	12	Burqin	7,515	11,030
6	Faqqu'a	4,651	6,827	13	Al Jalameh	2,392	3,510
7	Jalboun	2,967	4,355	14	Qabatiya	25,773	37,831
8	Deir Ghazaleh	1,191	1,747	15	Al Shuhada	2,424	3,559
					Total Population	124,608	182,904

An average growth rate derived from the PCBs published population forecasts during the 10 intermediate years appears that the growth rate decreased from 2.09 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 of 140,364 by PCBPS for the mid of the year 2026 as a base year for calculation of population in 2040.

²⁵ Preliminary Design, Detailed Design, Preparation of Tender Documents, and Construction Supervision Services for Connection Points Ramallah and Jenin Water Supply Project. Financed by AFD

²⁶ Data are the published estimates of the Palestinian Central Bureau of Statistics (PCBS) for the communities that will be served by this project for Jenin in the middle of 2020

11. The following figure shows an overview map for the served communities by the Jenin bulk Water Supply subcomponent.

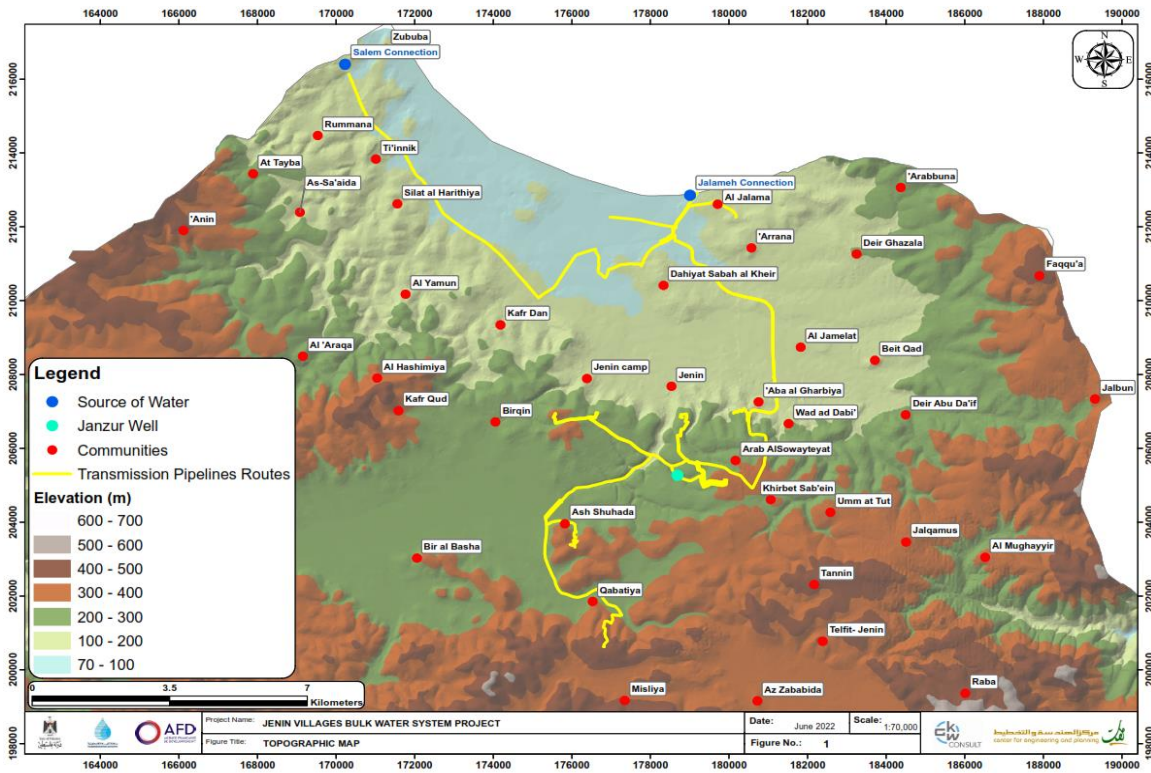


Figure 2.2. Overview map for the served communities by the Jenin bulk Water Supply Project

Source: Preliminary Design, Detailed Design, Preparation of Tender Documents, and Construction Supervision Services for Connection Points Ramallah and Jenin Water Supply Project. Financed by AFD

The Jenin water supply project consists of the following:

12. Bulk Water Transmission Pipeline: The length of transmission pipelines is around 47.0 km for the new alternative route for alignment #3 suggested by PWA and 43.7 km for the original routes (alignment #3) presented in the inception report. The nominal pipeline diameters range from 150mm to 500mm, and pressure rating are PN 16, 25 and 40. Table 4 1 and Table 4 2 summarize the sizes, lengths, pressures, ratings, grades and/or wall thicknesses of transmission pipelines.

13. All pipelines are located along roads. The pipes are selected/sized for the best hydraulic performance with existing pressures from resources and the transmitted flows. As recommended by the consultant Part of alignment No. 1 is located along an agricultural road and in parallel to a main wadi to avoid elevated parts in the segment near Al Sa’ada Well and as such will have enough pressure along the whole profile of the transmission pipeline. After the approval of the inception report and during the preparation of the preliminary design services, PWA requested the Consultant to change the route of the pipeline alignment conveying water from the main booster station to the regional tank (Alignment #3) to be located along the bypass road of Al Jalameh cross border (Road No. 6010-located in Area C) instead of the old route inside Jenin City (Road No.60). This route is favored by PWA; however, it is 4 km longer and will have higher cost (refer to Section 5).

14. **Water Tanks and Booster Pump Stations:** The new tanks including the balancing tank at the main booster station and the regional tank are sized to provide the buffer volume required for the daily and/or weekly equalization based on

the diurnal demand pattern and adopted peak daily factors. The regional tank will equalize the weekly pattern of the demand (+ daily related to inflow at 20hr/day and outflow of 24hrs/day) while the distribution tanks are supposed to perform the diurnal balancing along the day (24 hrs. period). The majority of the served communities have existing tank/s. The volumes of these tanks are appropriate and sufficient for storage and balancing of daily and/or weekly water demand variations as described below.

15. **Booster stations:** Main BPS, Qabatiya BPS and Janzzur Well BPS and the regional tank will have all needed facilities, devices, equipment, and appurtenances needed for the optimal operation of the water supply system. The rated hourly flow for the main booster station is assigned at 20 (1.2) Hourly Peak Factor (20 hour/day). The rated flow for other pumps is based on a 1.5 daily peak factor and 24 (1) hourly peak factor (24 hour/day). The duty hourly flow for all booster stations is assigned against the average hourly flow (daily flow divided by 24 hours of operation per day). The pump-rated flow shall be selected within 85% to 110% of the pump’s BEP flow. Table **Table 2.3** summarizes the essential information and characteristics of the booster stations:

Table 2.3. Schedule of Booster Stations

BPS Name	Each Pump Flow (m ³ /hr)					Pumps Configuration		Rated Head ²⁷	Motor Rated Power ²⁸		Nominal Size of Pump Components (mm)			
	Min. 2020	Min. 2040	Duty 2020	Duty 2040	Rated ²⁹	2020	2040	(m)	KW	hp	Column	Can	Can Inlet	Discharge Head
Main Booster Station MBPS	231	229	231	229	278	3+1	3+1	285	335	450	250	600	300	250
Janzzur Well BPS	75	75	75	75	75	2+1	2+1	140	45	60	150	400	150	100
Al Jabriyat BPS	20	29	20	29	44	1+1	2+1	77	15	20	100	350	150	100
Qabatiya BPS	75	110	75	110	164	2+1	2+1	235	150	200	200	500	250	200

16. Service Connection and Flow Monitoring Chambers SCADA Pressure Monitoring. power supply etc. For Service Connection, the design strategy for operating the system is to install main connection chamber for each served community and for the proposed BPS and Regional Tank. The main service connection chambers along the main transmission pipelines and the control chamber at BPS and Regional Tank primarily include the pressure/flow control valves and flow meters. They have been designed in terms of pressure rating, sizing, and arrangement. The sizing was designed according to the operating pressures and set flows generated from the steady state hydraulic simulation.

b) Sub-component 1.2 – Northeast Villages Water Distribution System in the Jenin area (US\$ 11.3 million):

17. **The Northeast Jenin Water Supply system** include two service areas the first area is located 8 km east of Jenin city and include Beit Qad, Jalboun, Deir Abu Daief. The Villages population of around 16,400 and an area of approximately 3304 ha.

18. Currently Water is provided through an existing connection point chambers owned and operated by the WBWD, the main source of water is Araba Well located at the main road of Nablus-Jenin, currently the citizen of the three villages (Beit Qad, Jalboun and Deir Abu Daief) obtained water through a filling point located at the main existing Chamber of the WBWD. The water is pumped from the well to the existing tank located near the boy’s school, and from a filling point constructed near the tank, and the water is transferred by tankers.

19. The proposed water supply systems for the east villages of Jenin city are as follow:

²⁷ Shut-off head of offered pumps shall be between 125% to 150% of Rated Head

²⁸ Motors of 4 pole type (1500 rpm)- IE3 premium efficiency.

²⁹ Hydraulic bowl efficiency at rated flow shall be ≥75%.



- a) **Beit Quad Village Water Supply and Distribution System (estimated cost US\$ 2.6 million):** Beit Quad WSS: main water supply will be the WBWD chamber connection point, balancing water tank capacity of 50m³, supply and installation of two multistage vertical inline booster pumps, booster room and supply and installation of the electrical panel.
- b) **Deir Abu Daeif Village Water Supply and Distribution System (estimated cost US\$ 4.9 million):** Deir Abu Daeif WSS: the water system consists of connection to WBWD chamber, balancing water tank capacity 100m³, supply and installation of two multistage vertical inline booster pumps, booster room, and supply and installation of electrical panel and distribution network.
- c) **Jalboun Village Water Supply and Distribution System (estimated cost US\$ 1.2 million):** Jalboun Village WSS: WBWD Chamber connection point will be the main source of water for Jalboun. The existing system consists of a connection to WBWD chamber, balancing water tank 100m³, multistage vertical inline booster pumps, booster room with electrical panel.
- d) **Arabona Village Water Supply and Distribution System (estimated cost US\$ 2.6 million):** The main source of water for Jalboun will be WBWD Chamber connection point, the current system consists mainly of main existing connection point and existing transmission line. In addition, the new proposed system will include the following distribution pipelines.

c) Sub-Component 1.3 – Hebron Wastewater Operation and maintenance (US\$ 5.6 million):

20. This subcomponent will finance the required services operation and maintenance of the Hebron wastewater treatment plant, which is expected to be commissioned and put into operation by June 2023, for five years (project duration) on a gradually decreasing basis.

21. Below is the implementation schedule for component 1 activities.

Component 1 – Improvement of Water and Wastewater Infrastructure and Management services

Component / Subcomponents	Year 1				Year 2				Year 3				Year 4				Year 5				Implementation Period (Months)
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Subcomponent 1.1 Jemim Bulk Water Supply Transmission Pipeline																					60
1.1A: Bulk Main from Salem connection to main PS	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	24
1.1B: Bulk Water from main PS to the regional reservoir	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	24
Subcomponent 1.2: Northeast Villages Water Supply Distribution System																					
1.2A: Water Distribution Network Development in (XXX)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	15
1.2B: Water Distribution Network Development in (XXX)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	15
1.2C: Water Distribution Network Development in (XXX)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Subcomponent 1.3: Hebron Wastewater Treatment Plant Operation and Maintenance																					

■ Pre-contract award (tender documents and procurement)

■ Construction period

■ System Operation / Defects Liability Period

Figure 2.3. Component 1 - Implementation Schedule

Component 2. Improve Performance of Water Sector Service Providers:

22. This component will finance goods, works and services to enhance and strengthen the water institutions and the SPs’ 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 will support improved social accountability of service providers. This component will build on the technical assistance provided under the ongoing



water sector projects supported by the World Bank, AFD and other donors and will include the following three subcomponents:

- d) **Subcomponent 2.1: Strategic planning and sector reform (US\$ 5.0 million).** this subcomponent will support the national efforts that aim to accelerate the implementation of sector reform related to the clustering of SPs for the establishment of RWUs. This subcomponent will also include interventions to enhance the PWA's capacity to develop and implement water sector policies, strategies, and sector development plans relevant to the establishment of sustainable and effective utilities. In support of the PWA, the subcomponent will finance the implementation of the required activities toward clustering SPs and creating RWUs with a focus on the 11 SPs that will benefit from the investments under component 1 in Northeast Jenin and will aim to create a Regional Water Utility in Jenin. This subcomponent will also support required institutional capacity building for PWA to manage the RWUs establishment including coordinating with the on-going efforts to establish a unit³⁰ within PWA to lead the reform agenda efforts. In addition, support will be extended to the WSRC to ensure that tariffs that are set are economic (from the providers' perspective) and fair (from the users' perspective). In parallel, the National Service Improvement Program (NSPIP) under AWP will identify pilot areas that can be clustered into utilities in both West Bank and Gaza taking into account the level of services, population number, need for intervention and investments in water infrastructure and willingness of the SPs.

- e) **Subcomponent 2.2: Improve Financial and Operational Performance of the Service Providers (US\$ 2.0 million):** this sub-component will design a national systematic approach to improving the SPs operational and managerial performance. This will include capacity building and training in financial management and reporting practices, optimization of tariff setting, and improvement of billing and collection. This subcomponent will finance technical assistance to support the preparation of a detailed methodology for the implementation of improvement programs at the clustered service provider level, incentives to merge with each other and create larger utilities according to the roadmap for establishing Regional Water Utilities. The subcomponent will also provide support to the two identified RWUs under the DPG once they are established.

The technical assistance will include the preparation and implementation of a NRW reduction plan and an energy efficiency improvement plan. The NRW reduction plan will include: (a) an assessment of the strengths and weaknesses of PWA's NRW information systems and management plan and proposed improvements; (b) the characterization and quantification of investment needs to set up District Meter Areas (DMAs) in pilot basis within the project area, and (c) an assessment of the viability and interest in entering into PPPs through performance-based contracts for the management of NRW. Under this activity, the project will also support the monitoring, assessing, and promoting initiatives aimed at improving the energy efficiency of its operations. The project will support the definition of a methodology to formulate energy efficiency improvement projects and the development of energy efficiency audits of key infrastructure. These activities will contribute to reducing GHG emissions at the service provider level and therefore will contribute to climate change mitigation.

For the bulk level, the subcomponent will finance needed goods and services for the WBWD to allow its transition into the future NWC, in coordination with the parallel EU capacity building support.

In addition, this subcomponent will support the design and implementation of training modules for water institutions and service providers' staff that include technical training and assistance on asset management, system operation and maintenance, including the implementation of water system sectorization, installation of districts meters and water leak detection and control, network modeling, SCADA, GIS and digital water

³⁰ PWA, with funds from the Austrian Development Agency, is planning to create a unit within PWA to manage and coordinate on the RWUs efforts



Component 3. Project Management and Monitoring (USD 2.6 million)

23. This component will support the Project Coordination Unit (PCU) hosted within PWA, , that will coordinate, implement, monitor, and report on project implementation progress. To facilitate project implementation and mitigate institutional capacity risks under SOP-1, the Project will support the hiring of experts and specialists on a competitive basis to reinforce the PCU. The Project will minimize reliance on external specialists in favor of building PWA’s own capacity to implement future projects. The Project will also enhance the career prospects of PWA staff, specifically female staff, by supporting their training. In addition, the Project will finance a paid internship program that will facilitate the entry into the utility of water engineers, E&S specialists, and financial and economic specialists studying in local universities. PWA and Joint Service Councils will benefit from the work of young and well-trained interns, while the newly graduates will gain on the job experience that will ease their hiring, thus overcoming the high youth unemployment existing in the WB&G.

24. The Project will support PCU to ensure effective implementation, and will finance salaries, office equipment, training, and consultancy services. The project will support the existing HWWTP PIU until its closing date. Moreover, this component will fund project-related activities including monitoring and evaluation (M&E), project audits, baseline and endline customer satisfaction surveys, training, and operating costs. The project implementation arrangements also foresee a strong role for the Project Steering Committee (PSC). While the PCU will be a PWA internal body to support the field staff in Jenin and Hebron project sites, the PSC will coordinate with external stakeholders (see Annex 1 for details on the implementation arrangements).

Component 4: Contingent Emergency Response Component (USD\$0.0 million)

25. This component will improve the PA’s ability to respond effectively in the event of an emergency in line with World Bank procedures on disaster prevention and preparedness. Following an eligible crisis or emergency, this component with a provisional “zero” allocation allows the authority to request the World Bank to recategorize and reallocate uncommitted financing from other project components to cover emergency response and recovery costs, but also to channel additional funds to fully or partially replenish funds reallocated to the CERC should they become available as a result of an eligible emergency. The CERC will be established and managed in accordance with the provisions of the World Bank Policy and World Bank Directive on Investment Project Financing. The CERC, if activated, will be able to finance eligible activities included in the positive list, stipulated in the POM dedicated CERC annex.

ANNEX 3: Economic and Financial Analysis

COUNTRY: West Bank and Gaza Water Security and Resilience Program

A. Economic Analysis

1. The project aims to improve the reliability and quality of water supply services while strengthen the financial and operational performance of water sector institutions in the Palestinian territories for improved service delivery. In this economic and financial analysis, we focus on analyzing the infrastructure component of the project which makes up about 85 percent of the total project costs³².
2. The major infrastructure component will have three main objectives: (i) to construct a main bulk water system that will supply part of Jenin Governorate with additional water that will be purchased from Mekorot, the Israeli bulk water supply provider and that will enter the Governorate at the Salem and Al Jalameh connection points and the Janzzur well source (inside Jenin City); (ii) to construct distribution networks to four villages that currently have no access to piped water or groundwater and are reliant on tanker trucks for their domestic water supplies; and (iii) to provide adequate reliable and safe water supply with better storage capacity to help overcome the deficit in water supply in existing networks by focusing on a program to amongst others improving collection efficiencies and reducing water losses from the start of the project.
3. The project will also finance the operation and maintenance of the Hebron wastewater treatment plant for five years. The treatment plant is expected to be commissioned and put into operation by June 2023. No economic analysis has been applied to this financing. The current costs of not treating wastewater in Hebron itself amounts to at least almost NIS 7 million (equivalent to almost USD 2 million per year) as the wastewater will be treated in Israel at a cost of at least NIS 1.58 per cubic meter of water disposed. As can be seen in Table 3.1, the wastewater fees charged by Israel depend on the precise location in Hebron but are significant. As these wastewater flows are expected to increase over time, the benefits of this temporary operational support to ensure that the wastewater treatment plant is properly operated and maintained clearly outweighs the costs.

Table 3.1: Hebron Wastewater treatment costs charged by Israel, 2020

Area	Volume Billed ('0a00 cum)	Total Amount Due ('000 NIS)	Cost of wastewater disposed (NIS/cum)
Hebron (catchment facility)	5,881	18,661	3.17
Hebron	4,405	6,981	1.58
Average Hebron	10,286	25,642	2.49

Source: State of Palestine, Water Authority, 2022. *Updating Water Sector Policy and Strategy, draft, prepared by HydroConseil, Enafa Consultants and Jordan River Consultant Services*

4. **Rationale for public sector investment:** At present, only 84 percent of the population in the northeastern part of Jenin Governorate have access to piped water – often of low quantity and quality. The remaining population gets its water either through existing groundwater wells, or tanker trucks. There is a strong rationale for public sector financing for the proposed project due to significant positive externalities, in particular the reduction in the reliance on tanker trucks and the generation of public health benefits. There is a large literature that discusses the cost of coping with inadequate water supplies³³, when piped water is not or insufficiently available. These coping costs can include

³² The technical assistance component is aimed at all of service providers and hence more information is needed to undertake a financial and economic analysis.

³³ Cook, J., Kimuyu, P., and Whittington, D. (2016), The costs of coping with poor water supply in rural Kenya, *Water Resour. Res.*, 52, 841– 859, doi:[10.1002/2015WR017468](https://doi.org/10.1002/2015WR017468)



amongst others capital costs for storage, rainwater collection, payments to water vendors, costs of treating diarrhea cases, and expenditures on drinking water treatment.

5. Given the political risks of investing in the West Bank and the precarious financial situation of the various municipal water departments and village committees, the financing necessary for the proposed bulk water infrastructure and new distribution networks to connect communities outside of the piped water network is unlikely to be available through private sources. The World Bank is particularly well placed to assist the service providers and the PWA through the proposed project due to its long experience with supporting water providers, its global knowledge and strong local presence which will help mitigate risks. The Bank's support in West Bank and Gaza has especially focused on providing emergency infrastructure and on sector reforms and assistance for operational management, and strategic planning. The Bank's global experience will enable it to combine financing with technical assistance to improve the long-term sustainability of PWA's operations.

6. **Methodology:** The cost-benefit analysis (CBA) compares net benefits expected in a scenario with the project to one in which the project will not be realized. Financial cash flows have been translated into economic cash flows by (when available) using shadow prices, while relevant externalities were also included. The flow of costs and benefits was estimated for the lifetime of the project investments, estimated at 25 years. Costs and benefits were expressed in constant prices as of 2022. As per World Bank guidelines a discount rate of 6 percent has been used to determine the project's viability.

7. In the "without project" scenario the water supply services that are provided to consumers in Jenin Governorate will continue to deteriorate. Customers will need more water than the current water sources can provide. Because Israel poses severe constraints to the drilling of groundwater in the West Bank, the option to expand groundwater as a source to supplement piped water is negligible. Hence, the only option available is to increasingly depend on tanker trucks to at least secure a basic supply of water. This scenario thus includes large investments by private firms in tanker trucks. It is assumed that tanker trucks will at least provide 50 lpcd for those that will be unable to access this volume of water through the existing piped water system. This will require the purchase of tanker trucks, and the cost of their operation and maintenance (fuel costs, wage costs, and maintenance costs), and the replacement of these trucks over time.

8. In the "with project scenario", the PWA will undertake the investments described in the project description, notably (i) the construction of a bulk transmission pipeline to transport Mekorot water from the connection points; (ii) construction of booster pump stations and reservoirs; (iii) expansion of the water distribution network, and (iv) a set of measures to improve the capacity of the utility to better manage its piped water services. Because of the conditions in which the PWA operates, the authority will depend on purchasing water from Israel's Mekorot. A more efficient alternative would be to use groundwater. Increasing the number of groundwater wells is, however, severely limited as the PA lacks sovereign control over its water resources and water infrastructure development, and hence access to any new groundwater resources is highly restricted³⁴.

9. **Summary of Benefits considered in the analysis:** The benefits will include (i) an estimate of the revenues of new and existing consumers households' willingness to pay for water services as revealed by water users, (b) additional revenues from non-household users; (c) energy savings from reduced tanker truck use; and (d) other externalities (the cost of carbon emissions). Access will improve, but so will the quality and quantity of the water services have provided. The base case analysis assumes that water consumption would increase to 100 lpcd. This constitutes a significant increase in average water consumption levels in Jenin Governorate, that currently is estimated at around 57 lpcd. Piped water consumption is highly limited due to a lack of production capacity and high technical losses in the distribution network. The project will address both issues – by providing more capacity and reducing technical water losses. The

³⁴ The PWA uses this strategy where possible, including the use water from agricultural wells, but this strategy can be only very limited in scope because it depends on the use of existing wells.



project will also produce environmental benefits in the form of a reduction of the consumption of water provided by tanker trucks.

10. **There are significant health benefits related to improved water supply. However, quantifying these benefits is complicated, and hence has not been attempted by the appraisal team.** However, it is important to note the dimension of the potential public health benefits involved. Inadequate water supplies not only translate in more diarrhea but also other water-borne diseases (such as typhoid, dysentery, giardiasis, cholera, etc.). Also access to improved water supply in West Bank and Gaza is also directly linked to poverty. In the latest Multiple Indicator Cluster Survey from 2019-2020, UNICEF reported that dependence on tanker trucks is especially prevalent among the two poorest wealth quintiles. About 70 percent of the households in these groups depend on vendor water for their drinking water needs. The high cost of this drinking water is a major challenge for these already poor households.

11. **Detailed Benefits - Willingness to pay for water from households:** There are no direct willingness to pay surveys available, so the analysis has proxied the willingness to pay by estimating the consumer surplus, that is, the difference between what households is willing to pay right now to get water and what they would pay when getting piped water and added these to the payments made by households. In the “with project” scenario, the various water service providers will increase revenues from (i) existing customers benefiting from higher consumption levels (estimated at 100 lcd compared to the current levels of about 57 lcd in the project area) than the current system can provide; (ii) new customers (whose consumption levels are also estimated at 100 lcd); (iii) a water tariff inflation correction which will be implemented in 2026 and from that year onward to ensure that the tariffs keep up with at least the rate of inflation (unlike in the “without project” scenario where the poor quality of the service is assumed to be accompanied by a steady decline in real tariffs); (iv) higher collection efficiency that will reach 80 percent at the end of the project compared to 65 percent in 2021 as a result of the capacity building program³⁵. By contrast, the “without project” revenues will be hampered by production capacity constraints, significant distribution network losses and low collection efficiency (due to poor quality of service delivered).

12. The consumer surplus is calculated for each of the different sources of water. For tanker trucks, the analysis is based on the cost of vendor water – at least NIS 15 per cum (depending on precise location and season the actual price households pay can be a multiple of this), and the cost of storage tanks. For groundwater users, it is the payment to the owners of the groundwater source and the cost of storage tanks.

13. **Detailed Benefits - Revenues from commercial and industrial users:** In the absence of data on non-residential water consumption, it is assumed that revenues from non-residential users will make up 7 percent of household consumption. The real tariff adjustment factor in the “with project scenario” to be implemented from 2026 (when the project is completed) that is proposed for residential consumers will also be applied to non-residential water consumers.

14. **Detailed Benefits - Cost savings from reduced tanker truck use:** The tanker trucks in the “without project” scenario will require the purchase of tanker trucks over time, but also will have high operation and maintenance costs as these trucks require manpower (we assumed two people per tanker truck), diesel fuel, and maintenance costs. We have created an optimistic scenario where a truck can make 8 trips per day to and from the water source. Yet, restrictions on movement of persons and goods can make this a rather optimistic scenario and hence we will test for a situation where the number of trips to be undertaken is lower. In addition, severe movement restrictions may have more spillover effects as it will also result in higher fuel consumption (and subsequently higher carbon emissions) and overtime of staff, and hence higher vendor prices.

³⁵ The current collection efficiencies in the various localities varies widely per location and per year, from 45 to more than 100 percent in smaller localities.



15. **Detailed Benefits – Carbon emissions savings:** To calculate the carbon emissions savings, we used the World Bank’s guidance as laid out in the World Bank Group Green House Gas Accounting tool for water investment and lending projects.

16. **Summary of Costs considered in the analysis:** The analysis considers both investment and O&M costs.

17. **Detailed Costs – Capital Investments:** The investment costs for each subproject were estimated. Financial investment costs include (a) the costs of the investment program; (b) replacement costs of equipment such as electromechanical parts; (c) a positive rest value at the end of the project as most of the infrastructure consists of pipes and civil works that have an economic lifetime that exceeds the project lifetime; (d) engineering costs; and (e) contingencies, due to the security challenges in the West Bank³⁶. Note that the investment costs also include the cost of technical assistance that are directly related to PWA and project management.

18. **Detailed Costs –O&M: The incremental O&M costs include the** incremental costs of water purchases, electricity and maintenance. The raw water originates from Mekorot, which charges NIS 3.607 per cubic meter (cum) of water purchased. It is assumed that the “with project” scenario would benefit from collection efficiency improvements over time because of the capacity building program, while from 2026 a tariff indexation mechanism is included.

19. The economic analysis does not use a general conversion factor. But we have adjusted the price of water purchased from Mekorot Water and the price of electricity. Mekorot charges the PWA NIS 3.607 per cum of water purchased. This is significantly higher than the cost of desalination in Israel, which according to the Scientific American³⁷ is only \$0.58 (equivalent to NIS 2.06) and is much higher than the price of groundwater. It also is higher than the price that Mekorot’s website mentions would amount to slightly over \$0.50 per cum of water supplied. Yet, as the PA lacks sovereign controls over its water resources and water infrastructure development, using groundwater resources is highly restricted. In a situation where these restrictions would not apply, the optimal solution is to use groundwater instead of buying water from Mekorot. When groundwater could be used, raw water would likely cost no more than NIS 1 per cum (depending on the depth of the wells). The electricity price is NIS 0.64 (or equivalent to \$0.181) most of that also imported from Israel. Israel’s electricity price stood at \$ 0.136, suggesting a premium to be paid by the PWA of 25 percent. We will correct for this in both electricity and diesel prices. The exchange rate is set at NIS 3.56 per US dollar, and NIS 3.50 per Euro.

20. In the “without project” scenario, the only option for water supply is the use of tanker trucks as is common in other parts of the West Bank. This will require significant investments in tanker trucks, while the maintenance costs, energy and manpower costs will be significant. In addition, the water of the tankers will have to be purchased.

21. **Results:** Table 3.2 shows that the project is expected to generate an EIRR of 6 percent, and a Net Present Value of about NIS 192 million and an EIRR of 16.4 percent.

Table 3.2 Results of the Cost-Benefit Analysis

Project	Results	
	NPV (NIS millions) at discount rate of 6%	EIRR (%)
CBA - Economic benefits under base case carbon price scenario	192	16.4
CBA - Economic benefits not using shadow prices for		
- Energy	182	15.9
- Water purchases from Israel	70	9.9
- Energy and Water purchases from Israel	60	9.4

³⁶ The contingencies are for 60 percent considered price contingencies, which have not been included in the calculation of the economic costs, these contingencies have been excluded as they are already included implicitly as the cost-benefit analysis is undertaken in real prices.

³⁷ Rowan Jacobsen, 2016.” Israel proves the desalination era is here”. *Scientific American*, July 2016. It is also higher than the cost of an arrangement whereby the first 46 million cum of water purchased per year is charged at NIS 2.46 per cum.



22. **Sensitivity analysis:** The economic-financial estimations are robust to changes in key variables, except with one exception, the cost of purchased water. As can be seen in Table 3.2, when no economic prices are used for the water purchased from Israel, the EIRR drops to 9.9 percent. If no economic prices are used at all, the total NPV drops to NIS 51 million, and an EIRR of 9.4 percent. This is mainly because the benefits of the project are highly diverse, while the “without project” situation requires very significant (private) investments in tanker trucks to ensure people will maintain access to a minimum level of water. Increases in the tariff or changes in the collection efficiency are estimated to have limited effects on economic viability as benefits from increased revenue would be offset by a change in the consumer surplus.

23. **Distribution of net benefits.** The analysis shows that different stakeholders will capture different benefits from the project. For PWA and service providers, the benefits come in the form of a much larger flow of revenues and more efficiencies in the management of the water supply systems. For consumers, the benefits are mostly linked to lower prices, increases in water consumption and better water quality. With an increasing population connected to the network, commercial users will also be able to access the water network which may affect economic activity in the city. The project (despite its dependence on pumping water from the connection point to the municipalities and villages where the water will be used) will still generate energy cost savings and hence carbon emissions reductions because the alternative in the “without project” situation is so much worse in terms of energy costs and carbon emissions.

A. Financial Analysis

24. The proposed project will be fully funded by grants. The financial analysis is performed at the service provider level (instead of for each separate service provider as available data is insufficient to undertake such an analysis). The revenues of the service providers (municipal water departments, village councils and the West Bank Water Department) are not ringfenced in most cases. Hence, we assess the project’s financial sustainability using an aggregated financial analysis that investigates the ability and resources required to operate and maintain the newly developed infrastructure while improving the efficiency and quality of services.

25. **Current financial situation of water providers in the West Bank.** The lack of sovereign control over its water resource and water infrastructure development have resulted in highly restricted access to water resources, especially in Area C of the West Bank. It has also resulted in uncertainty and delays in infrastructure project approval and implementation and the challenges to undertake strategic planning in the sector. Many of the service providers are not able to cover their costs, due to

- The high cost of purchased water.
- The existing water supply and wastewater and reuse infrastructure has deteriorated due to inadequate operation and maintenance. The deferred maintenance adversely impacts the efficiency of the systems, as is reflected in the high levels of non-revenue water (NRW), which causes inadequate and unreliable access to drinking water.
- This has led to low per capita water availability, inadequate water service in terms of access, reliable quality and water quality, and major seasonal water shortages.
- The low quality of the water supply services also results in low collection efficiencies, which further exacerbate the problems as many water providers.

26. The project’s financial analysis explores the financial effects of the proposed investments. The analysis assumes that government subsidies will continue in view of the critical nature of water supply services, the large externalities associated with the current lack of adequate water services in Jenin Governorate, and the (often) inefficient operations of the services which will take time to turn around. This grant will not result in any debt service obligations to the service providers or PWA.

27. **Methodology:** The financial analysis considers no other capital investments than those that this project will finance. The model is given in real prices and presents data up to 2048. It uses the same assumptions as those used in the cost-benefit analysis. It should be noted that one of the most critical assumptions is that the tariff will remain

constant in real prices in the “with project” situation³⁸ from 2026 onwards, that means that water tariffs are expected to increase in nominal terms in line with inflation.

28. **Financial Results.** The estimated FIRR of the project is 3 percent; the financial NPV is negative at NIS 38 million, assuming a discount rate of 6 percent. This, however, should not discourage project investments given the positive economic rate of return and NPV. The current water shortages have a major impact on short- and long-term economic and public health risks, failure to invest in and reform the service providers is likely to have severely adverse consequences for the population. The major reason for the lack of financial viability is the dependence on purchased water in the absence of being able to use groundwater.

Table 3.3 Results of the Financial Cost-Benefit Analysis

Project	Results	
	NPV (NIS millions) at discount rate of 6%	FIRR (EIRR) (%)
CBA – Financial benefits	(38)	3.0
CBA – Financial benefits with implementation of the unified bylaw that will increase tariffs by 2030 using LRAIC	108	12.7

29. The negative financial NPV reflects the reality of the challenging context in which water service providers in the West Bank and Gaza operate. In the case of Jenin Governorate, the water service providers will have to purchase raw water against very high costs. The long-run average incremental costs (against financial prices) of this project are NIS 10.29 per cum, and NIS 7.11 for operation and maintenance costs. But a reduction of the purchase cost of water of desalinated water would reduce these costs to NIS 7.94 and NIS 4.76 per cum respectively (compared to a current average water tariff in Jenin Governorate of about NIS 5 per cum). When the PWA would be able to use groundwater the long-run average incremental costs would decline even further.

30. **Financial Risks.** The major risks in this project are the high dependency on water purchases, and the need to ensure that sufficient funds can be collected to achieve service sustainability. The dependence on water purchases is a feature of the West Bank that is beyond the direct control of the water service providers. The second challenge is to ensure financial sustainability of services by preventing the erosion of real tariffs, the project is expecting to use an inflation indexation mechanism once the water infrastructure is operating, and service is improving in 2026. Beyond a tariff indexation, the dependence on water purchases will require tariff adjustments to ensure long-term financial sustainability.

31. In 2021, the Council of Ministers endorsed the unified bylaw for water and wastewater, which covers all service providers, including bulk water service providers (such as the West Bank Water Department which provides bulk water to Jenin Governorate). This bylaw aims to achieve financial sustainability for water and wastewater services over time, while ensuring the affordability of the services. The bylaw is expected to result in tariff adjustments that will gradually be implemented. The tariff adjustments will take place in three phases, whereby in the first phase will cover all operation and maintenance costs (including administrative costs) for all water and wastewater service providers. In a second phase, revenues will not only cover the cost of O&M costs, but also the cost of the depreciation of fixed assets. The second phase is planned to be fully implemented by 2030. In a third phase, the revenues are to cover the full cost of the services which is forecasted to be fully implemented by 2042. Assuming the PWA is able to implement Phase 1 and 2 of the bylaw and the subsequent tariff adjustments by 2030, the project’s financial viability will be ensured, as the financial NPV will turn positive, and the financial rate of return will increase significantly (see Table 3.3). To break even and have a FIRR of 6 percent, this project requires a real tariff (in 2022 prices) of NIS 5.41 by 2030. However, to calculate the tariff needed to ensure the service providers can generate enough cash flow (and whatever other objectives the PWA wants to achieve with tariff setting) will require a much more detailed analysis.

³⁸ World Bank’s short-term economic forecasts.



ANNEX 4: Project Map

COUNTRY: West Bank and Gaza
Water Security and Resilience Program

