

TERMS OF REFERENCE

**Technical Assistance for Nablus West Treated Wastewater
Conveyance System Reuse Scheme**

Table of Contents

1	BACKGROUND	4
1.1	Water Security Development - Gaza Central Desalination Program: Associated Works Project Phase I (AWP-Phase 1).....	4
1.2	Project Background	4
1.3	Problem Statement.....	4
1.4	Project Description	5
1.5	Project Components.....	5
1.6	Related programmes and other Donor activities.....	6
2	OBJECTIVE, PURPOSE & EXPECTED RESULTS	7
2.1	Overall objective.....	7
2.2	Purpose/Specific objectives	7
2.3	Results to be achieved by the Consultant	8
3	ASSUMPTIONS & RISKS	8
3.1	Assumptions Underlying the Project	8
3.2	Risks	9
4	SCOPE OF THE WORK	9
4.1	General.....	9
4.1.1	Description of the assignment	9
4.1.2	Geographical area to be covered	10
4.1.3	Target groups / Beneficiaries	10
4.2	Specific Work	11
4.2.1	Specific Activities	11
4.2.2	Deliverables	18
4.3	Project management.....	19
4.3.1	Responsible Body	19
4.3.2	Management Structure	20
4.3.3	Support to be provided by the Contracting Authority and/or other parties	20
5	LOGISTICS AND TIMING	20
5.1	Location.....	20
5.2	Start Date and Period of Implementation of Tasks.....	20
6	REQUIREMENTS.....	20
6.1	Consultant Firm Requirements and Qualifications.....	21
6.2	Staff	21
6.2.1	Key experts	21
6.2.2	Non-key experts	23
6.2.3	Other experts, support staff & backstopping	25
6.3	Travel and associated costs.....	25
6.4	Office accommodation.....	25
6.5	Facilities to be provided by the Consultant	25
7	REPORTS.....	26
7.1	Reporting requirements	26
7.2	Submission and approval of reports and deliverables	28

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1 BACKGROUND

1.1 Water Security Development - Gaza Central Desalination Program: Associated Works Project Phase I (AWP-Phase 1)

The Palestinian Liberation Organization (PLO) for the benefit of the Palestinian Authority has received financing from the World Bank for the implementation of the Water Security Development - Gaza Central Desalination Program: Associated Works Project Phase I (AWP-Phase 1) (P168739). The AWP-Phase I is part of a coordinated international effort to address chronic poor water quality in Gaza and the significant increase in domestic demand expected in the medium term. In addition, the project will contribute to enhancing the water sector institutional set up, including the development of priority investment plans for water and wastewater infrastructure in the West Bank.

The project includes three main Components: Component (1) consists of several infrastructure works to implement an integrated system of water carriers and reservoirs to convey and blend water from three different sources to achieve compliance with WHO's drinking water standards; Component (2) aims at building the capacity and improving the performance of the water sector institutions; and Component (3) supports the project management and implementation.

Among the activities envisaged under Component 2, it included the support to the preparation of priority water and wastewater investments in the West Bank. The Palestinian Water Authority has requested the World Bank to utilize funds under this part prepare the detailed engineering designs for the Water Supply and Sanitation infrastructure priority projects.

Accordingly, the project aims to support the Palestinian Water Authority (PWA) in developing a feasibility study and design of a reuse scheme for treated wastewater from the Nablus West Wastewater Treatment Plant (WWTP), to reuse area in the Jordan Valley.

1.2 Project Background

The Nablus West Treated Wastewater Conveyance System is a critical infrastructure project aimed at addressing the growing wastewater management challenges in the region starting from the eastern part of Nablus Governorate to the downstream area of the Jordan Valley (east of Al Jiftlik) in Jericho Governorate. This project seeks to enhance the management and reuse of treated wastewater produced from the Nablus West Wastewater Treatment Plant, reaching up 5 MCM/year .

The project will also contribute to improving public health, conserving water resources, and promoting environmental sustainability. The project is aligned with the PWA's strategic goals to enhance water quality, increase water availability, and support the overall water infrastructure development in Palestine. Furthermore, it addresses the critical need for an integrated wastewater management approach that supports both urban and rural development while minimizing environmental impacts.

1.3 Problem Statement

The Nablus West WWTP has been commissioned in July 2013. The WWTP currently treats between 10,000 and 12,000 m³/day (average 4 MCM). The quality of the treated wastewater

falls under grade A as per the technical regulations TR34/20 and Palestinian Standard PS 734/2003, whereas BOD is around 7 mg/l and TSS is about 7 mg/l as per the 2025 First quarter report issued by Nablus Municipality. Also, these qualities align with the Israeli standards.

A reuse project was initiated to provide treated wastewater for irrigating the nearby agricultural lands in Ramin. As part of the project, tertiary treatment unit, a main trunk line and a 3,000-cubic-meter reservoir were constructed. However, due to political and security challenges, the system has not been effectively utilized. Consequently, the treated wastewater is currently discharged into Wadi Al Zomer, where it becomes contaminated by industrial effluents from nearby factories. The polluted treated wastewater crosses boundaries to the Israeli side, where it is retreated in Yad Hanna WWTP. The Israeli side charges around 3.5 NIS/ m³ from the Palestinian Taxpayers money. The yearly deductions could reach more than 14 million NIS.

The successful implementation of this project will alleviate the financial burden on the Palestinian Authority and secure an additional water resource for irrigation in the Jordan Valley, significantly contributing to increased food production and the availability of freshwater.

1.4 Project Description

The objective of the project is to secure additional irrigation water in the Jordan Valley and reduce pressure on freshwater resources. Moreover, the project aims to minimize deductions by the Israeli side on transboundary wastewater flows by utilizing the treated wastewater from the Nablus West Wastewater Treatment Plant.

Targeted Group: The project will benefit more than 140,000 residents in the Nablus and Jericho governorates. In particular, it will support farmers in the Jordan Valley by enabling the irrigation of over 2,000 donums of agricultural land, contributing to increased agricultural productivity and livelihood resilience.

Expected Outcomes: The project will deliver a reliable source of additional irrigation water, beginning with an estimated 12,000-15,000 cubic meters per day by 2025. This will directly contribute to improved water availability, enhanced food production, and better management of wastewater resources.

1.5 Project Components

The reuse scheme represents the second component of the Nablus-West Treated Wastewater Conveyance System (the "Project"). The overall project is structured into three (3) main components:

Component 1: Nablus-West Treated Wastewater Conveyance System (Under Design): This component involves the construction of infrastructure to convey treated wastewater and includes the following:

- Pumping main line from Ramin Reservoir to Yasid Reservoir (approximately 11 km)
- Gravity transmission main from Yasid Reservoir to the reuse areas in the Jordan Valley (approximately 30 km)
- Storage reservoir with an estimated capacity of 4,000 m³

- Pumping stations, including the design of a pump station between Ramin and Yasid reservoirs
- Renewable energy system to support the operation of the conveyance and reuse systems

Component 2: Nablus-West Treated Wastewater Reuse Scheme (This Project): This component focuses on the construction of reuse facilities to utilize the treated effluent from the Nablus West WWTP for agricultural and potentially other purposes. It includes the construction of infrastructure for the reuse of treated wastewater

Component 3: Construction of a New Dam: This component involves the construction of a new dam at Al Malaqy Bridge in the Al Fara'a area. The dam is currently under design.

Figure 1 below shows the target and potential reuse areas.

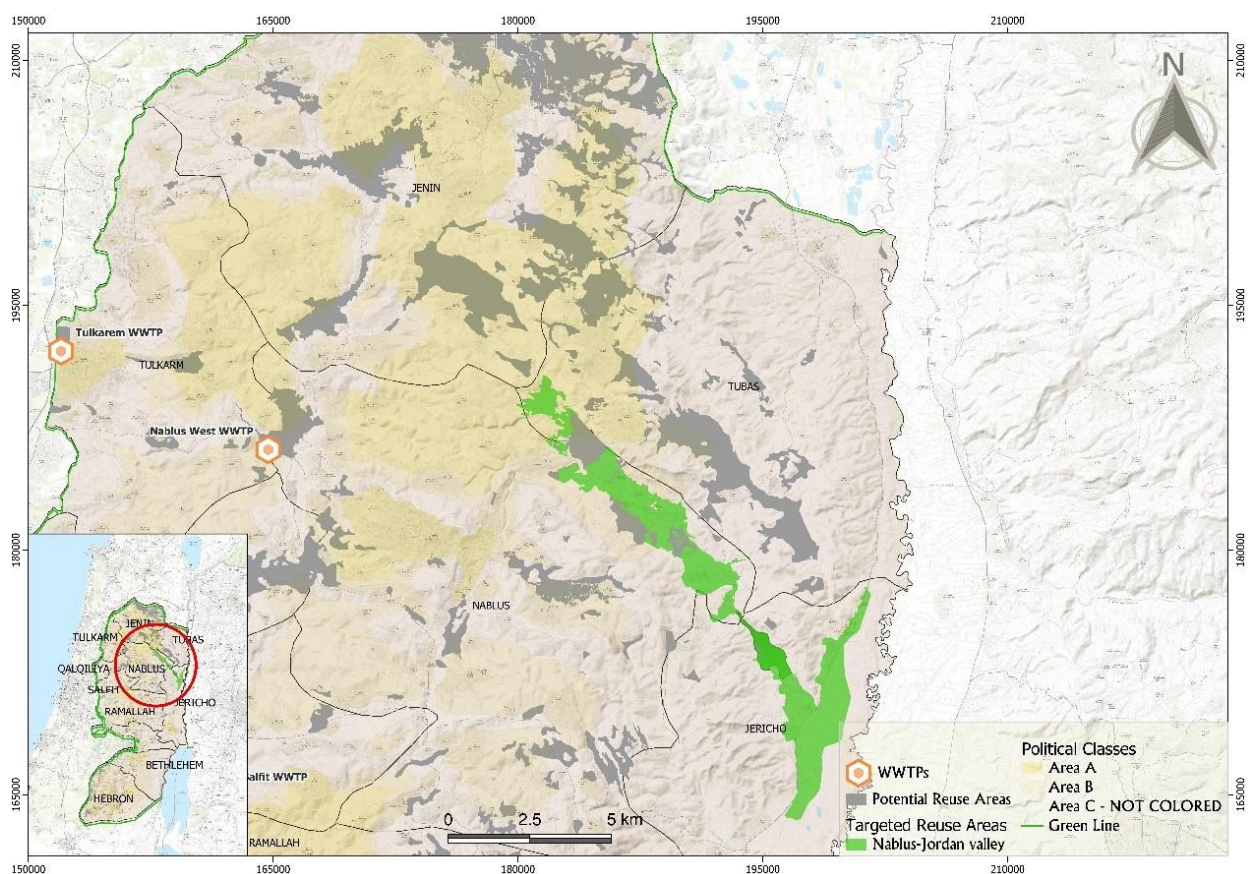


Fig. 1: Target and Potential Reuse Area

1.6 Related programmes and other Donor activities

The following assignments related to the context shall be considered, particularly during the implementation phase of the TA Assignment:

- Feasibility Study for KfW: Potential for Wastewater Reuse West Bank, Nablus East Wastewater Reuse Downstream Area Feasibility Study;
- Reuse Scheme for Hebron Regional Wastewater Treatment Plant – Feasibly Study and Detailed Design
- Detail Design of Reuse scheme for Tubas WWTP

- Preparation of a Treated Reuse Strategy for The West Bank)– Feasibility Report (Office of the Quartet)
- AFD Sanitation and Reuse comprehensive Sectorial and Institutional Assessment and Wadis Design Study
- Inception report for developing Reuse trunk line from Nablus West WWTP to Al Jeftlik (Khateb & Alami)
- Wastewater Reuse Project Nablus – Irrigation Management and Operation Plan - KfW

2 OBJECTIVE, PURPOSE & EXPECTED RESULTS

2.1 Overall objective

The Nablus West Treated Wastewater Conveyance System will significantly enhance the transport and reuse of treated wastewater, ensuring its safe application for agricultural purposes. This will reduce dependence on freshwater sources and offer a sustainable, alternative supply for irrigation, thereby supporting the conservation of natural water bodies.

Furthermore, the availability of treated wastewater will stimulate local agricultural development by providing a consistent and reliable water source—particularly in areas facing high demand and limited freshwater access. This can lead to improved crop yields, strengthened food security, and economic growth in rural communities. As the treated wastewater will be used for irrigation and other non-potable purposes, the system will also reduce risks associated with exposure to untreated wastewater. As a result, the project is expected to improve public health by lowering the incidence of waterborne diseases and enhancing hygiene conditions. The project presents a cost-effective alternative to freshwater use, offering a long-term, reliable irrigation solution in water-scarce regions. Its infrastructure is intended to be durable and low-maintenance, minimizing operational and maintenance costs over time.

By establishing a robust conveyance and reuse system, the project is expected to enhance the quality of life for local populations, boost agricultural productivity—particularly in the Jordan Valley, which contains extensive palm farms—and advance broader goals for sustainable water management in the West Bank.

The project’s main objective aligns with the Palestinian Water Authority’s strategy to optimize the use of available water resources by promoting non-conventional sources, especially treated wastewater.

In parallel, a key objective is to reduce financial deductions imposed by the Israeli side on Palestinian tax revenues. These deductions are often justified by the transboundary flow of untreated or partially treated wastewater, particularly through the Wadi Al-Zomar stream, which crosses into Israeli-controlled areas.

2.2 Purpose/Specific objectives

The specific objective of the TA operation is for a consultant (hereafter, the “Consultant”) to support the Client (PWA) in carrying out a feasibility study, outline designs, detailed engineering designs and tender documents, further detailed in section 4.2 below aiming at assessing the feasibility of the project’s reuse scheme (Component 2) and to prepare the necessary documents for the procurement process of this component (the “TA Assignment”).

Specifically, the main objectives of the TA Assignment are as follows:

- To contribute to the improvement of the water security in one of the scarcest regions in the world by investing in wastewater reuse and circular economy;
- To contribute to climate change adaptation and increasing the resilience of local farmers and industries to climate shocks and droughts by investing in wastewater reuse and circular economy;
- To contribute to a timely project preparation by conducting the necessary studies and preparing the related detailed engineering designs and bidding documents;

2.3 Results to be achieved by the Consultant

The TA Assignment is foreseen to have a positive, long-term impact in a number of fields and to achieve the following results:

- Result 1: Assessment of existing documents and studies, the regulatory environment and other project examples related to wastewater reuse in the country;
- Result 2: Prepare a comprehensive feasibility study incl. relevant linked documents (, social, economic, etc.) of the reuse scheme from Nablus West WWTP (Component 2), including outline designs, detailed engineering designs and bidding documents;
- Result 3: Increase procurement readiness for the reuse component and accelerate project implementation progress;
- Results 4: Raise awareness about the opportunities of treated wastewater reuse among a wide audience of stakeholders in Palestine, through public awareness campaign and contribute to the establishment of water users associations, etc.
- Result 5: Strengthen institutional and technical capacity of local stakeholders in the project area involved in the treated wastewater reuse planning, operation, and regulation.
- Result 6: Develop Needs Assessment and Capacity-Building plan for the relevant staff and provide targeted training to stakeholders on best practices for the safe and effective use of the treated wastewater; This includes guidance on suitable crop selection, safe handling procedures, and protocols for blending treated wastewater with clean water when necessary.

3 ASSUMPTIONS & RISKS

3.1 Assumptions Underlying the Project

The assignment shall be implemented under the following assumptions:

- The Consultant has access to the Project sites
- Project information is available and accessible.
- Full support and cooperation of the Client and key stakeholders during the implementation of the assignment.
- Good cooperation between the consultant and the various project stakeholders (Client, Ministries, local authorities...)
- The security situation in the country allows the consultant to implement the project as required (field trips, etc.).

- Effective communication and collaboration between all project stakeholders and other parties involved.

3.2 Risks

Possible risks include:

- The security situation in the country makes it impossible for the consultant to carry out the necessary tasks under this assignment.
- Ineffective collaboration between the stakeholders and other institutions involved in providing data for the successful implementation of the assignment.
- Relevant information (documents, data, other relevant studies, etc.) is not easily available.
- Lack of continuity of stakeholders, due to changes in key staff or sector organizations.

4 SCOPE OF THE WORK

4.1 General

4.1.1 Description of the assignment

This Technical Assistance (TA) assignment will assess various wastewater reuse options—primarily in the agricultural sector, while also exploring potential opportunities for industrial reuse. The assessment will include identification of suitable reuse areas, evaluation of required water quality standards in accordance with national and local regulations, and an analysis of the reuse potential in terms of both quantity and quality of treated wastewater. The process will be carried out in close collaboration with key local stakeholders, including municipalities, farmers, agricultural associations, industries, the Ministry of Agriculture, etc.

The TA assignment will also assess the institutional and legal framework for wastewater reuse. The findings from the demand and options analyses will directly inform the detailed engineering designs for the reuse scheme of the Nablus West WWTP and the main conveyance system, including the preparation of the corresponding tender documents

The key tasks for the TA Assignment include the following:

- TASK 1: Collect, review and synthesize relevant documentation and develop design criteria;
- TASK 2: Determine most feasible areas, crops and irrigation schemes for a possible wastewater reuse;
- TASK 3: Evaluate feasibility and potential for non-agricultural wastewater reuses in the project area;
- TASK 4: Stakeholders analyses and consultation;
- TASK 5: Permitting requirements for treated wastewater reuse;
- TASK 6: Conceptual design of the reuse option;
- TASK 7: Financial and economic analysis of the reuse option;

- #### 4.1.2 Geographical area to be covered

The target group are the Farmers in the Jordan valley, who will be able to irrigate more than 4,000 donums tentatively. It is the consultant's responsibility to determinant the exact potential area. It is envisaged that more than 140,000 capita will benefit from the project mainly in Nablus and Jericho governorates.



The target groups for this study are:

- PWA, as the Client and main beneficiary of the study;
- Relevant Ministries and Government Agencies working in the water sector covering water supply, sanitation, irrigation, drainage, among others including the MoA.
- The West Bank Water Department / future National Water Company who will be responsible for the transfer of the Bulk treated wastewater for reuse to the Water User Association(s)
- Farmers, farmers associations, NGOs, and interest groups working in the farming sector in the project area who could benefit from reused water.
- Private sector companies and industries, chamber of Commerce in the project area that could benefit from the reused water.
- A particular focus shall be on possible vulnerable or marginalized groups in the project area (woman, children, disabled persons, etc.).

4.2 Specific Work

4.2.1 Specific Activities

The TA Assignment is composed of the following activities:

TASK 1: COLLECT, REVIEW AND SYNTHESIZE RELEVANT DOCUMENTATION AND DEVELOP DESIGN CRITERIA

The Consultant shall collect, review and synthesise all relevant documentation related to treated wastewater reuse including inter alia:

- Standards on agriculture and treated wastewater reuse, mainly the standard of PS 742, and TR34-2012.
- National and Local Development Plans concerning land and agriculture in project area;
- Treated wastewater reuse experiences in the West Bank;
- Land classifications in the area according to suitability for agriculture, current uses, political (A, B and C) and administrative classifications;
- Topographic and aerial maps for the project area;
- Meetings with main stakeholders: PWA, Ministry of Agriculture (MoA), Environment Quality Authority (EQA), and other stakeholders, particularly local NGOs and universities;
- Based on the above collected data, the consultant is to develop design criteria for the project considering Palestinian relevant national policies, strategies and regulations. The design criteria shall take into consideration integrating the entire water cycle and integrate physical factors (land, water, climate), socio-economic components (labour force, land tenure, institutions, rural communities) into project development.

Deliverables Task 1:

- ✓ Inception report
- ✓ Assessment as part of the Inception Report

TASK 2: DETERMINE MOST FEASIBLE AREAS, CROPS AND IRRIGATION SCHEMES FOR A POSSIBLE WASTEWATER REUSE

- The Consultant will evaluate and analyse existing topographic maps, aerial photos and agricultural data and information for the communities in the project area. Based on this

information, the Consultant will identify agricultural areas, existing agricultural practices and types of crops cultivated in the area. The Consultant will evaluate economic returns of these agricultural practices to establish baseline conditions in the project area.

- Based on available information, topographic and aerial maps supplemented by field visits, the Consultant shall identify potential areas that could be irrigated with treated wastewater.
- Considering climate conditions, existing soil types and topography of lands, the Consultant will identify in coordination with the Ministry of Agriculture types of crops that could be cultivated and irrigated with treated wastewater considering Palestinian regulations, quality of treated wastewater and socio-economic conditions in the project area.
- The Consultant will identify feasible methods to irrigate these crops and feasible options to convey water to these areas.
- The Consultant shall assess the existing tertiary treatment and its lability, and identify if additional tertiary treatment is needed for these crops and irrigation methods .
- The Consultant will identify, through a participatory process with the Client and farmers (1)The main carrier required to transfer treated wastewater from the end of the conveyance line (under Component 1) to the reuse scheme, taking into account existing infrastructure and additional facilities that may be needed; and (2) The specific plots of land that could be irrigated with the treated wastewater. The Consultant will produce detailed maps to illustrate these areas and provide an options analysis.
- The Consultant shall assess the existing irrigation systems both inside and outside the farms, and propose remedial activities to ensure compliance with Palestinian regulations and enable their integration into the proposed scheme, where applicable, feasible, and practical. In all cases, remedial actions for in-farm irrigation systems must be clearly detailed and included as a separate line item in the overall project budget and financial analysis
- The Consultant will illustrate the land areas on maps at an appropriate scale ensuring that maps are readable and usable. This investigation should include all areas which could potentially be irrigated from the WWTP, considering proximity, accessibility, topography, water availability, recommendations of the farmers, etc.
- The Consultant will identify whether the plots fall into land areas A, B or C, and will indicate the resulting consequences for the setting up of irrigation works, including any approvals required, and threats to the sustainability of the activity;
- The Consultant will identify the risks associated with utilizing the proposed areas, crops and irrigation techniques into the proposed project and should identify measures to mitigate these risks.

Deliverables Task 2:

- ✓ Maps
- ✓ Analysis as part of the feasibility study

TASK 3: EVALUATE FEASIBILITY AND POTENTIAL FOR NON-AGRICULTURAL WASTEWATER REUSES IN THE PROJECT AREA

The objective of Task 3 is to determine the potentiality of reusing treated wastewater in non-agricultural uses within the project area including:

- Irrigation of public landscape areas and forestry.
- Recharge of aquifer with the related constraints.
- Industrial reuse.
- Other types of reuse

Deliverables Task 3:

- ✓ Inputs to the relevant sections of the feasibility study

TASK 4: STAKEHOLDERS ANALYSES AND CONSULTATION

The Consultant should meet and interview the relevant stakeholders:

- To ensure stakeholders participation in selecting the most feasible areas and crops to be irrigated by treated wastewater.
- To perform comprehensive consultations with all farmers in the area that can benefit from the reuse scheme and reflect their willingness or unwillingness to reuse treated wastewater for irrigation.
- To develop a set of feasible options for treated wastewater reuse in the area. These options to be analysed, developed and ranked in coordination with stakeholders.
- To develop a multi-criteria analysis and to apply it in ranking the proposed options.
- To identify and assess the technical, social and financial possibilities for the development of agriculture using the treated wastewater and also the potential for non-agricultural use.
- To assess if one water users' association or more will be needed to manage and operate this project.
- To assess if any existing WUA in the region has the willingness and the capacity to manage and operate the proposed scheme. If any, measures to enhance its capacity and resources shall be explored.
- To select the most feasible option to utilize treated wastewater in the area.
- To develop cost benefit analyses of the selected option.

To carry out the services required in Task 4, the Consultant will need to coordinate with all relevant stakeholders, but more particularly coordination will be required at least with:

- Governmental institutions (Ministry of Agriculture, Environment Quality Authority, National Water Company, and other relevant Government bodies, etc.);
- Farmers in the area, including farmers' associations and cooperatives.
- Local and international NGOs with knowledge and interest in the area.
- Local media and people of influence on encouraging reuse of treated wastewater.
- Relevant industries in the project area.

Deliverables Task 4:

- ✓ Minutes of Meetings and attendance lists of stakeholder engagement workshops
- ✓ Inputs to the relevant sections of the feasibility study

TASK 5: PERMITTING REQUIREMENTS FOR TREATED WASTEWATER REUSE

- In Task 5, the Consultant shall, in close coordination with the relevant authorities (primarily PWA, MoA, and EQA), identify the main permitting requirements and procedures for the reuse of treated wastewater in agriculture, industry, and other sectors, as well as for the establishment of Water User Associations (WUAs). The Consultant shall provide technical support to PWA in acquiring the necessary permits by supplying drawings and any other required documents.
- Regarding permits for works in Area C, the Consultant shall identify the proposed works and facilities located in Area C and outline the procedures for obtaining permits from the Israeli side. While the Consultant will not be responsible for securing the permits directly, they are responsible for providing the necessary technical support to PWA to facilitate the permitting process

Deliverables Task 5:

- ✓ Inputs to the relevant sections of the feasibility study

TASK 6: CONCEPTUAL DESIGN OF REUSE OPTION

For the option considered as the most feasible and acceptable, the Consultant shall prepare conceptual design for:

- Additional treatment required for West Nablus WWTP (if needed) in addition to the existing tertiary treatment for the purpose of reuse, which shall be in line with the requirements of the reuse applications;
- Relevant process technology and storage structures (seasonal and/or regulation) including their suggested location. This will include assessing existing infrastructure and the possibility to utilize them and proposals for remedial works (outside and inside the farms)
- Main conveyance and distribution lines to irrigated plots to be provided on georeferenced files and printouts (from the end of the conveyance main under component 1 to the inlet of each farm/ plot) ;
- Measurement and regulation structures (water meters, control valves, pressure reducing valves, blow offs, etc.);
- Provide required arrangement at the inlet of each farm/ plot (e.g., one connection for each farm/ plot, use of manifold to irrigation more than one farm/ plot from the same connection) and required fittings for each option. A typical detail should be provided.
- Develop a hydraulic model for the reuse scheme considering at a conceptual design level. The model shall be elevated to detail design level under the detailed design task.
- Access roads;
- Estimated costs for the wastewater conveyance, distribution system and any other required interventions and remedial works for the existing systems with 10-15% margin of error;

Deliverables Task 6:

- ✓ Outline design drawings

- ✓ Process description as required
- ✓ Conceptual Design Report

TASK 7: FINANCIAL AND ECONOMIC ANALYSIS OF THE REUSE OPTION

In Task 7, the Consultant will need to carry out but not limited to the following activities:

- Considering the structures and facilities required to distribute treated wastewater to irrigation plots, the Consultant should estimate capital cost required to construct these facilities. The capital cost should include the remedial works of the existing systems (if to be used). Also, cost of new in-farm system and the remedial works for the existing in-farm systems (separate line item)
- To estimate the operation and maintenance costs for the system.
- To develop an operation and maintenance plan for proposed system;
- Conduct a willingness-to-pay study for the treated wastewater, including exploration of the preferred unit cost (NIS/m³) as expressed by farmers and stakeholders.
- Assess the current prices of irrigated water sources (e.g., from existing wells), and analyze whether the current cost of this water creates an opportunity to promote the adoption of treated wastewater for irrigation. This assessment shall also examine the potential implications of reduced groundwater abstraction (including the closure of wells) .
- To calculate the unit cost and possible tariffs of treated wastewater when delivered to the farmer based on CAPEX and OPEX. The calculated unit rate shall be compared with the preferred rate by the farmers. Potential measures to meet their preferred rate shall be also presented, if less than the calculated unit rate.
- To perform financial and economic analyses for crops cultivated using treated wastewater to confirm the financial and economic feasibility of selected crops for irrigation with treated wastewater considering farmers' willingness to grow these crops.
- To perform Socio-economic analyses for treated wastewater to validate the benefits and economical values of reuse in development and creating jobs.
- To develop economic and financial benefits for moving from current agricultural practices to irrigated agriculture using treated wastewater, in close coordination with the Ministry of Agriculture. The consultant to develop financial plans for typical plots of land with 10 donums each showing the benefits of moving from existing agriculture to the proposed crops selected in the project utilizing treated wastewater considering the costs of treated wastewater developed in this study. The financial benefit model to include at least two model plots with fodder crops and two models with fruits trees.
- Preparation of a proposed tariff system for the reused wastewater.

Deliverables Task 7:

- ✓ Economic and Financial analysis incl. comprehensive description of the approach selected

TASK 8: DEVELOP AN INSTITUTIONAL STRUCTURE TO MANAGE THE PROPOSED WASTEWATER REUSE SYSTEM

The Consultant shall

- Develop a framework model and proposed structure to manage and operate proposed system
- Prepare draft agreements between the operator and the WUA, and contract between WUA and the farmers, determining roles, responsibilities and duties, rights, possible participation.

Deliverables Task 8:

- ✓ Inputs to the relevant sections of the Feasibility Study

TASK 9: DEVELOP DETAILED ENGINEERING DESIGNS, TENDER DOCUMENTS AND RELATED DOCUMENTS

Based on the conceptual design of the selected option, the Consultant should prepare detailed engineering designs and full package of tender documents and associated contract conditions, specifications and bills of quantities and price schedules for the most feasible reuse option. All documents shall include all relevant project components (pipelines, tanks, reservoirs, pumps, etc.), shall be ready for the PWA to start the tendering process and are all required to be prepared to comply with local Palestine conditions and procedures, and in accordance with the World Bank procurement requirements.

The following tasks shall be included:

- Detailed topographical survey and geotechnical study
- Preparation of detailed description and technical specifications of project items
- Development of detailed hydraulic model
- Preparation of all structural, electrical, mechanical, instrumentation, etc. designs for the system and its facilities.
- Preparation of detailed drawings
- Preparation of a schedule for construction works
- Preparation of priced Bills of Quantities (BOQ)
- Works package
- Preparation of tender documents
- Assistance to PWA for tendering process

Deliverables Task 9:

- ✓ Detailed engineering design drawings
- ✓ BOQ documents
- ✓ Tender documents

TASK 10: Communication and dissemination activities, including public awareness campaigns

In Task 10, the Consultant shall:

- Organise, prepare and manage 3 stakeholder consultation workshops with the key stakeholders in the project area in order to explain the advantages and disadvantages of wastewater reuse. This includes the preparation of relevant materials (slide deck, flyer, information material), organization of the venue, moderating and facilitation the

workshop including discussions, preparation of the participants lists and feedback survey, preparation of a summary report, among others.

- Prepare brochures and information materials about the scope and the progress of the project that can be disseminated to key stakeholders in the project area.
- Prepare a tailored public awareness campaign for the reuse of treated wastewater;
- Before submitting the final report, the Consultant shall prepare information material that can be disseminated at the PWA website and other key stakeholders. This can be a booklet, brochure or other relevant format highlighting the relevant findings of this consultancy.

Deliverables Task 10:

- ✓ Stakeholder consultation workshops incl. meeting minutes and attendance lists (gender separated)
- ✓ Brochures, information materials
- ✓ Inputs to relevant sections of the Feasibility Study

TASK 11: Develop Needs Assessment and Capacity-Building Plan for the Proposed Institutional Structure to Manage the Wastewater Reuse System

The consultant is expected to develop a comprehensive strategy that assesses current institutional capacities, identifies gaps and barriers, and outlines capacity-building activities and a training plan. This strategy will support the proposed institutions in effectively managing, operating, and regulating the wastewater reuse system in the project area.

- Identify the key institutions and stakeholders involved in the reuse system (e.g., WWTP operator, WUA, PWA, MoA, EQA, or a designated project management unit), and define their proposed roles and responsibilities.
- Evaluate the current capacities of these institutions across functional areas such as planning, operation, maintenance, monitoring, policy enforcement, and public engagement. Assess capacities in terms of human resources, technical expertise, regulatory framework, organizational structure, and financial resources. Use appropriate assessment tools (e.g., surveys, interviews, site visits).
- Identify the gaps and barriers preventing institutions from fulfilling their responsibilities. Compare existing capacities with those required for effective reuse system management. Highlight shortfalls in skills, staffing, coordination, SOPs, and technology. Prioritize gaps based on risk, urgency, and impact.
- Define the specific capacity-building and training needs for each institution involved or project unit. Specify required skills and knowledge (e.g., reuse guidelines, operations, monitoring, enforcement). Identify target groups (e.g., administrators, engineers, operators, lab staff, managers, regulators) and suitable training methods.
- Develop Capacity-Building Strategy and Action Plan that includes Training Modules with topics based on identified needs, implementation timeline (short-, medium-, long-term), Monitoring and Evaluation (M&E) Framework and required resources and budget

Deliverables Task 11:

- ✓ Needs Assessment and Capacity-Building Strategy for Institutions Managing the Wastewater Reuse System

TASK 12: Develop Reuse for Monitoring and Compliance Framework for routine monitoring of water quality, soil, and crops, and ensure compliance with reuse standards.

- The consultant is expected to design a robust monitoring and compliance framework to ensure routine monitoring of water quality, soil, and crops, and compliance with Palestinian and international standards for treated wastewater reuse. The framework should ensure safe, sustainable use of treated wastewater, and mitigate risks to public health, agriculture, and the environment.
- Identify all relevant laws, regulations, PSI standards, and technical instructions governing treated effluent reuse. Review existing monitoring practices and identify gaps in current implementation.
- Define monitoring parameters and indicators for water, soil, and crops. Develop a monitoring schedule and frequency for each parameter.
- Propose sampling points and protocols for water effluent, soil, and crops. Define laboratory methods, quality assurance/quality control (QA/QC) procedures, and data validation processes.
- Clarify the responsibilities of each institution (or designated project unit) for quality monitoring, compliance, and enforcement. Develop protocols for data flow, storage, reporting, decision-making, and non-compliance response.
- Identify training needs for laboratories, farmers, and regulatory staff. Propose training modules and capacity-strengthening measures.
- Develop SOPs for monitoring, violation handling, and emergency response. Prepare a comprehensive framework document with templates, checklists, and reporting tools.

Deliverables Task 12

- ✓ Monitoring and Compliance Framework for routine monitoring of water quality, soil, and crops / Quality control plan for Treated wastewater reuse system.

4.2.2 Deliverables

The following table presents an estimated timetable for the accomplishment of the tasks foreseen in these Terms of reference.

The time indicated below is calculated commencement of the Consultancy Contract (T). The time allocated for the tasks are indicative and may be modified during implementation of the Contract. All deliverables should be delivered in hard copies and digital form (PDF and MS Word, Excel, CAD, GIS, etc.) only.

Number	Component / Task	Months (from -to)	Deliverables
1	Task 1: Collect, review and synthesize relevant documentation and develop design criteria	1-1.5	Inception Report Feasibility Study Report and Presentation
2	Task 2: Determine most feasible areas, crops and irrigation schemes for a possible wastewater reuse	1.5-4	Maps Feasibility Study Report
3	Task 3: Evaluate feasibility and potential for non-agricultural wastewater reuses in the project area	2-4	Feasibility Study Report
4	Task 5: Stakeholders analyses and consultation	3-4	Feasibility Study Report
5	Task 5: Permitting requirements for treated wastewater reuse	2-3	Feasibility Study Report
6	Task 6: Conceptual design of reuse option	6-7	Design drawings Conceptual Design Report
7	Task 7: Financial and economic analysis of the reuse option	5-6	Financial and economic analysis
8	Task 8: Develop an institutional structure to manage the proposed wastewater reuse system;	3-4	Feasibility Study Report
9	Task 9: Develop detailed engineering designs, tender documents and related documents	6-7	Detailed Design drawings, BoQ and Tender documents
10	Task 10: Communication and dissemination activities	4	Feasibility Study Report
11	TASK 11: Develop need assessment plan to build the capacity and training the proposed institutional structure to manage the proposed wastewater reuse system.	3-4	Needs Assessment and Capacity-Building Strategy for Institutions Managing the Wastewater Reuse System as part of the feasibility report
12	TASK 12: Develop Reuse for Monitoring and Compliance Framework for routine monitoring of water quality, soil, and crops, and ensure compliance with reuse standards.	6-7	Quality control plan for NR Treated wastewater reuse system as part of the feasibility report
Reporting requirements	As foreseen in Section 7 – Reporting requirements of these ToR's		

4.3 Project management

4.3.1 Responsible Body

The Palestinian Water Authority (PWA), will act as Contracting Authority and will be responsible for managing this TA.

4.3.2 Management Structure

Client

The Client is the Palestinian Water Authority (PWA), the Authority in charge of both policy and regulation, with regards to water supply and wastewater in Palestine, and will be responsible for the management and technical follow up of the contract.

4.3.3 Support to be provided by the Contracting Authority and/or other parties

Contracting Authority/ Client

The PWA will provide the Consultant, upon request, with all information relevant to the TA which is available to it and will fully cooperate with the Consultant in order to achieve the best results. PWA undertakes to ensure that its employees co-operate and the Consultant in relation to the provision of the Technical Assistance.

The Consultant may request the assistance of the Client in obtaining copies of local laws, regulations and information which may affect the Consultant in the performance of its obligations under the Service Contract in the country where the services are to be provided.

5 LOGISTICS AND TIMING

5.1 Location

Ramallah, Nablus and Jericho will be the operational base for the Project. Frequent travel to the Project area of the Nablus West WWTP, including the served communities, will be required. Short-term travels to other parts of Palestine may also be needed, as necessary.

At a minimum, the Service Provider's Team Leader will spend 75% of his/her time in Palestine, and the other experts a minimum of 25% of their respective time. The remaining time can be worked from the Service Provider's home base. While in Palestine, the Service Provider's shall be based either in Ramallah, Nablus or in Jericho. In its Technical Proposal, the Service Provider shall justify its choice for its base location.

The Consultant should be available for regular meetings with the PWA and/or other key stakeholders in Ramallah.

5.2 Start Date and Period of Implementation of Tasks

The intended start date (T) is April 2026 and the period of implementation of the contract will be 8 months from this date.

6 REQUIREMENTS

6.1 Consultant Firm Requirements and Qualifications

Relevant Experience: The firm must demonstrate proven capability and experience in undertaking consultancy assignments of a similar nature, specifically in the design, planning, and implementation of wastewater reuse schemes.

Past Performance: The firm must provide evidence of the successful execution of at least two consultancy services of similar nature, size, and complexity within the past seven (7) years, particularly in the field of treated wastewater reuse or related infrastructure planning.

6.2 Staff

The Consultant shall provide the adequate staff (in terms of expertise and time allocation), in order to complete efficiently all the activities required under the scope of the TA operation and to finally achieve the specific and the overall objectives of his contract in terms of time, costs and quality.

The Consultant is free to propose whatever team he may consider appropriate for the provision of the required services, in addition to the “key” positions presented below. The level of effort of the Consultant’s key team shall not be less than 420 working-days (around 19 man month) . This estimate is provided as a guideline only.

6.2.1 Key experts

Key experts have a crucial role in implementing the contract. These terms of reference contain the required key experts’ profiles. The tenderer shall submit CVs and Statements of Exclusivity and Availability for the following key experts:

Key Expert 1: Team Leader

Qualification and skills:

- University degree in civil engineering, environmental engineering, water resources management or related fields;
- Professional experience with MS-Office;
- Excellent knowledge of oral and written English;
- Knowledge of Arabic would be considered as an asset;

General Professional Experience

- Minimum 15 years professional experience in the water and wastewater sector of which preferably 5 years or more spent on international projects.

Specific professional experience

- At least 10 years’ experience in a team leading role;
- At least 10 years’ experience in the implementation of water, sanitation, wastewater and/or wastewater reuse projects;

- Proven experience of contract management and managing diverse teams;
- Proven experience in the management of international water and wastewater programmes
- Relevant work experience in the water sector in MENA countries will be required;

Key Expert 2: Wastewater Treatment and Wastewater Reuse Specialist

Qualifications and skills

- University degree in civil engineering, environmental engineering, environmental process engineering, water resource management or related fields;

General professional experience:

- Minimum 10 years professional experience in the water and wastewater sector with preferably 5 years spent on international projects;

Specific professional experience

- At least 3 assignments in the field of wastewater reuse;
- At least 10 years' experience in the implementation of water, reuse, sanitation and wastewater projects;
-

Key Expert 3: Agricultural/ Irrigation Expert

Qualifications and skills

- Minimum Bachelor degree in agriculture, irrigation management, water resource management, environmental engineering or related fields;

General professional experience:

- Minimum 10 years professional experience in the water and wastewater sector with preferably 5 years spent on international projects;

Specific professional experience

- at least 3 similar assignments in irrigation, wastewater reuse, design of irrigation and /or water infrastructure;
- At least 10 years' experience in the implementation of agriculture, water resource management or irrigation projects;
- Relevant work experience in MENA countries would be an asset;
- Experience in local agricultural practices and methods would be an asset;
- Experience in agricultural extension services and working directly with farmers would be an asset;

Key Expert 4: Economist / Financial Analyst

Qualifications and skills

- University degree in economics, public finance, or business administration or related fields;

General professional experience

- Minimum 7 years professional experience preferably in the water and wastewater sector with 5 years spent on international projects;

Specific professional experience

- Experience in working as financial analyst / economist in the implementation of preferably not less than 3 water and/or wastewater infrastructure projects and/or studies;
- Experience in preferably not less than 3 projects with project-based financial modelling, financial due diligence and/or Cost Benefit Analysis;
- Worked on not less than 2 Feasibility Studies determining NPV, FIRR, EIRR of investment costs and setting tariffs in the water / wastewater sector;
- Worked on not less than 1 feasibility study for future funding by an International Finance Institution (IFI);
- Experience in working with Government officials or another public administration advisory role in his/her capacity as economist is an asset;
- Relevant work experience in MENA countries would be an asset;

6.2.2 Non-key experts

The Consultant should provide the total number of working days and specify the number of experts having national or international experience.

CVs for non-key experts should not be submitted in the tender but the tenderer will have to demonstrate, providing explanations on how these non-key experts can be selected and mobilised, in their offer that they have access to experts with the required profiles.

The Consultant shall select and hire other experts as required according to the profiles identified in the Organisation & Methodology and these Terms of Reference. It must clearly indicate the experts' profile so that the applicable daily fee rate in the budget breakdown is clear.

The profile for each non-key expert (i.e. senior / junior) must be indicated clearly, so as to be able to establish which fee rate in the budget breakdown will apply. For the purposes of this contract, the classification of the experts as senior/junior is entirely the decision of the consultant but should nevertheless be communicated to the Contracting Authority when requesting the approval of the experts, for contract management purposes

Indicative profiles identified of other experts for this contract are as follows:

Profile	Minimum Qualifications and skills	Minimum General & specific professional experience	Indicative number of working days
Water Engineer	University/Bachelor degree in civil	At least 10 years' experience in design of pipe networks	As required

	engineering or water engineering or related field.	and water structures, hydraulic analyses and modelling, designed at least 2 similar assignments.	
Structural engineer	University/Bachelor degree in civil works and storage structures, or related fields	at least 7 years of experience in design, designed at least 2 similar assignments	As required
Electromechanical Engineer	Graduate degree in electromechanical and instrumentation works or equivalent	at least 7 years of experience in design, designed at least 2 similar assignments.	As required
Socio-economic expert	University degree in economics	at least 10 years' experience in rural development, agricultural economics. Local experience with Palestinian rural communities including socio-economic development, experienced in financial analyses of irrigated agriculture. Has performed minimum of 3 assignment for similar projects or water/wastewater related infrastructure. Experience in Excel and in creating financial models. Communication skills in Arabic would be appreciated.	As required
Institutional expert	University degree in management, human resources development	7 years' experience in institutional and organization structure setup, Knowledge of institutional framework of farmers' cooperatives and water user associations. Familiar with local laws, legal frameworks and regulations concerning cooperatives and water users' organization. Communication skills in Arabic would be appreciated.	As required
Social expert	University degree in sociology or anthropology	at least 10 years' experience in rural development. Experienced in West Bank social organization, both formal and informal, and issues at stake. Experience in	As required

		conducting and analysis of social surveys. Communication skills in Arabic are mandatory.	
Procurement expert	University degree in engineering, business administration or related disciplines	7 years' experience in handling procurement of service and works contracts, relevant experience in FIDIC contracts (Yellow, Red, etc.) is mandatory.	As required

The indicative number of working days for the Non-Key experts during the whole TA shall not be less than 400 working days (around man month) .

6.2.3 Other experts, support staff & backstopping

The Consultant shall supply all support staff (administrators, secretaries, interpreters, and head office back-up, drivers, Social Workers, GIS, CAD operators, etc.) as necessary for the proper fulfilment of his obligations. The costs of the support staff must be included in the fee rates of the experts

Backstopping costs for logistical and management support (including the activity of the TA operation director designated by the Consultant) of the team must be included in the fee rates of the experts.

The Consultant should identify and describe in his offer the arrangements for the provision of the support staff and backstopping facilities.

Note that the support/backstopping staff cannot be assigned as short or long-term experts while still maintaining their original assignment. The two responsibilities must be kept separate and double budgeting under the project should be avoided.

6.3 Travel and associated costs

International (including mobilisation and demobilisation) and local transport and associated costs (vehicles incl. drivers if considered necessary, per diem, etc.) of Key and Non-Keys experts posted on site should be included in the financial offer

6.4 Office accommodation

The costs of the office accommodation are to be covered by tenderer's financial offer.

6.5 Facilities to be provided by the Consultant

The costs of the facilities should be included the in the tenderer's financial offer. The Consultant shall ensure that experts are adequately supported and equipped. The Consultant is required to

provide living accommodation in Palestine, if deemed necessary, international and local travel expenses and vehicles for inspection, supplies, telecom equipment and services and consumables, secretarial services and all other input required for the purpose of the scope's proper delivery. The Consultant should also provide all interpreter and/or translator that might be required to undertake the assignment. All these above costs should be included by the Consultant in its experts' fee rates.

If the Consultant is a consortium, the arrangements should allow for the maximum flexibility in assignment implementation.

International and local transport costs (vehicles incl. drivers if considered necessary, per diem, etc.) are included in the fees of the experts.

7 REPORTS

7.1 Reporting requirements

The Consultant will submit the following complied reports. The below table shall be read in conjunction with Section 4.2.2.

Report	Time Line (month)	Brief Description
Inception Report	T + 1.5	In the report the Consultant shall describe e.g. initial findings, progress in collecting data, any difficulties encountered or expected in addition to the work programme and staff mobilization. It shall confirm the aims of this technical assistance contract. If there are any proposed modifications to the original Terms of Reference due to changed circumstances after arrival on site, these are to be discussed and agreed in principle with the Contracting Authority before the submission of the Report. This Report will describe the Consultant's proposed establishment, personnel, as well as the Consultant's proposed approach to the assignment, taking into consideration the situation at the starting date of the assignment. It will also set out a detailed work plan for completion of the activities in the remaining TA operation period of execution, together with a detailed work plan for interrelated, sequential and complex activities with an agreed project log-frame matrix. The expected achievement of the outputs listed in the Terms of Reference should be clearly identified, with any milestones, and the confirmation of the counterpart staff and other commitments to be made by the recipient counterparts. The inputs to support key activities in each beneficiary should be based on a thorough needs assessment taking account of individual circumstances.
Feasibility Study Report	T+4	The report shall detail the outcomes of Tasks 1 through Task 5 as well as outcomes of Tasks 7 and 8. Task 10, 11 and 12 shall be also included in this report.
Conceptual Design Report	T + 6	The report shall present the conceptual design of the selected and most feasible option as described under Task 6. Initial cost estimate shall be provided
Detail Design Report	T + 7	The report shall detail the outputs of Task 9 and elaborate on the proposed interventions, their detailed description, design criteria, etc. Detailed BoQ and confidential detailed cost estimate shall be submitted as separate documents. Detailed design drawings shall be also provided as a separate document/ annex.
Tender Documents	T + 8	After receiving comments on the detail design report and incorporating them, final design report,

		drawings, BoQs, condition of contract, etc. shall be submitted.
Notes: T = Start Date Review period by PWA is two weeks after the submission date		

- Quarterly interim reports: It shall briefly describe the current status of the project, in relation to technical progress; forecast the expected technical progress of the activities for the next period; itemise any outstanding issues that may result in extension of time or unforeseen costs. These interim reports should provide information on the state of progress of the project over the period, for ease of monitoring activities and outputs and should clearly distinguish between activities/outputs achieved and considered finished, and activities still in progress, so that the evaluation of the project is clear. The report will also include progress on the activities of all short-term consultancy assignments (with technical attachments as applicable).
- Draft final report. This report shall be submitted no later than one month before the end of the period of implementation of tasks. It shall consist of a narrative section. It shall, inter alia:
 - Describe the overall status of the project, including a critical study of any major problems which may have arisen during the performance of the project;
 - Describe the status and results for the assistance given to each project beneficiary;
 - Incorporate as an annex the overall Training Report;
 - Present any recommendations the Consultant wishes to make in view of improving the design and implementation of any future similar activities.

The report shall contain a sufficiently detailed description of the different options to permit an informed decision on any recommendations made. The detailed analyses underpinning these recommendations will be presented in annexes to the main report.

- Final report with the same specifications as the draft final report, incorporating any comments received from the parties on the draft report. The deadline for sending the final report is <number> days after receipt of approval on the draft final report.
- All reports will be written in concise, clear and well-edited Standard English. All reports shall be produced in A4 size and printed on both sides of the paper. Spreadsheets and schedules shall be produced in a maximum of A3 size for reporting purposes and may be printed single-sided. File origins shall be clearly identifiable in a header or footer. A list of essential contact persons is to be included. The reports should have a title page, which should include project name, project code or reference, report title, date issued and period covered, and the name and address of the Consultant. The Consultant shall provide the Contract Authority, after the starting date of the assignment, with a recommended structure of the Reports, which must be agreed with the Contracting Authority in advance.

7.2 Submission and approval of reports and deliverables

Two hard copies of the reports referred to above must be submitted to the Contracting Authority (PWA) plus softcopies of all documents (PDF and Ms Word, Excel, CAD, GIS, etc.).

The Contracting Authority/Client shall be responsible for reviewing and approving the reports and must be kept informed by the Consultant of the dates on which the reports are submitted to other designated recipients. The Client will provide written comments on each (draft) report within two (2) weeks of its submission.

The contact details of the relevant PWA staff members to whom the reports shall be submitted will be communicated to the Consultant during the kick-off meeting. Draft versions of the reports must be submitted electronically to these staff members.

Following the receipt of comments, the Consultant shall submit a revised version of the report, clearly highlighting all changes made, via the same contacts, prior to the formal submission of the final version. Once the report has been approved by PWA, the final version shall be submitted both electronically (PDF and Ms Word, Excel, CAD, GIS, etc.) and in two (2) colored hard copies to the Client (PWA).

8 Payment Schedule

The contract is a lump-sum contract. Payments will be arranged according to the following plan. And subject to the Client approval .

Outputs Delivered and acceptable to PWA	Associated Invoice (% of lump- sum contract)
Inception Report	10%
Feasibility Study Report	15%
Conceptual Design Report	15%
Detailed design report	35%
Final Tender Document	20%
Final Completion Report (English and Arabic Versions)	5%