

PMU

The Hashemite Kingdom of Jordan
Ministry of Water & Irrigation
Performance Management Unit

***THE HASHEMITE KINGDOM OF JORDAN
WATER AUTHORITY OF JORDAN***

***TERMS OF REFERENCE
&
CONDITIONS OF TENDER
FOR
CONSULTING SERVICES***

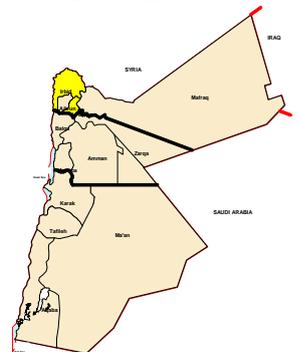
FOR

***PRELIMINARY DESIGN, PREPARATION OF
DESIGN - BUILD TENDER DOCUMENTS &
SUPERVISION OF WORKS***

FOR

***UMM ELULUL–JERASH
HOFA –AJLOUN
TRANSMISSION PIPELINES***

Key Map of Jordan



1 INTRODUCTION

1.1 GENERAL

The objective of these Terms of Reference (ToR) is to provide background information on the project, to define the Scope of Work and the Services to be rendered by the Consultant and to stipulate the tender and contract conditions for the Services.

It has been attempted to outline the Consultant's tasks during execution of his services as detailed as possible. However, the Consultant shall bear in mind that the list of tasks and activities can by no means be considered as the complete and comprehensive description of the Consultant's duties. It is rather the Consultant's responsibility to critically verify the scope of services indicated and to extend, or amend it wherever he deems necessary according to his own professional judgement and the knowledge he will acquire during the preparation of his proposal. It is understood that the Consultant performs all work as necessary to fulfil the objectives of the Project.

All the Services of the consultant described in the following shall be performed in close co-operation with Yarmouk Water Company YWC which will be delegated the authorities of the Employer (WAJ). During the Consultant's assignment other consultants and advisors may provide services to WAJ and/or YWC. It is the duty of the Consultant to meet and co-ordinate his activities with the operations of others relevant to the Project. It is to be ensured that the proposed standards, systems, methods, etc. are compatible as much as possible and duplication of efforts is avoided.

1.2 CHARACTERISTICS OF PROJECT AREA

This project focuses on two governorates of Jordan Ajlun and Jerash which are served by YWC the corporatised Northern Governorates Water Administration.

YWC covers 4 of the 12 governorates of Jordan – Irbid, Ajlun, Jerash and Mafrq. YWC area is bordered to the north by Syria and the Yarmouk River, to the west by the Jordan River, to the south by the Amman- Zarqa metropolitan area, and to the east by Iraq.

The northern governorates contained about 1.59 million people in 2009, or about 26% of the national population on 32% of the national land area. The major city is Irbid with a population of 1.08 Million, placing it as the third largest city in Jordan after Amman and Zarqa. In contrast to Irbid, the Mafrq governorate covers a large sparsely-populated desert area, in which the eastern portion contains only isolated settlements that receive water supply from local YWC wells.

In 2009 the four northern governorates contained about 233,660 YWC subscribers. Water is rationed, with most customers receiving water only one

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or two days each week. Estimating the net water production delivered to the 4 governorates requires a complex set of calculations to account for the import and export of water to/from the YWC transmission mains, and to/from the areas outside the YWC service area (principally to Zarqa and Amman). The net supply of about 67.5 MCM corresponds to 134lcd. The non revenue water (NRW) 40% is high given the scarcity of water in Jordan, but half of the YWC water losses are concentrated in Mafrqa governorate (67% NRW), where the losses are attributable to the relative aridity, lawlessness, and social problems encountered in the eastern portion of Mafrqa. In Jerash, Ajloun and Irbid the NRW is much lower, at 35%, 35% and 30% respectively. In Jordan as a whole, the NRW is about 43%, composed of physical losses and administrative losses. Several programs are underway countrywide (including the YWC system) to reduce the physical losses by rehabilitation and restructuring of the distribution networks.

1.3 EXISTING YWC WATER SYSTEM

YWC faces the daily challenge of operating a large number of local distribution networks that have been built to a low standard, and have inadequate hydraulic capacity to deliver good water service while the existing transmission system is fairly new and in good condition, the local distribution networks were developed under severe time and money constraints. The GIS database provides several indicators of the extent of the deficiencies. of the 6300 km of pipe in the YWC system, almost half of the pipes are 50 mm (2-inch) diameter or less; only 10% of the pipes are 200 mm (8-inch) or larger. As an indication of the contrast with other countries, many USA cities have a minimum pipe size of 200 mm, although this is primarily to provide fire protection rather than normal water service. Almost 80% of the pipe materials in the system are susceptible to rapid corrosion and deterioration, particularly the small galvanized iron pipes and the larger steel pipes. The French-funded studies found that more than half of the pipes are above-ground pipes, exposed to damage from traffic or to tampering.

YWC has installed an extensive system of bulk water meters to measure the flows produced from wells and springs, and the transfers of water between portions of the system. The results have been used to develop a verified hydraulic model of the existing transmission system, which serves the most heavily-urbanized portions of the service area. In addition, under this study, the rehabilitation requirements for improvements at well-heads and pump stations have been identified, and two reports completed: one dealing with electrical and instrumentation requirements; and a second dealing with mechanical requirements.

YWC service area is divided into ten ROUs (Regional Operations Units), the system contains 204 water sources, measured at 148 locations (individual wells, well fields, or springs). During 2009, total water production of 70.7 MCM was obtained from 93 locations, by ROU and by portion of the transmission system (East and West). A portion of the production was exported to Amman and Zarqa, and 67.5 MCM is delivered to the northern

Governorates (this value excludes losses in the East and West transmission systems). Major well fields are those include the Tabaqat Fahel and Wadi Al Arab well fields in the west transmission system, and the Aqeb and Zatory well fields in the East transmission system.

1.4 EXISTING AND POTENTIAL WATER SUPPLY SOURCES IN YWC AREA

An extensive review has been carried out of the aquifer systems and major groundwater basins in northern Jordan and the water uses both for public water supply and private water use (primarily for irrigation). As in many previous studies, it is concluded that groundwater levels are dropping in all the major aquifers and basins, and that groundwater abstractions exceed the safe yield from groundwater recharge.

Reducing the groundwater abstractions to a sustainable level, while meeting the forecast of YWC water demand, will require several measures: re-allocation to YWC of water exports from the Aqeb and Zatory well fields, presently exported to the Amman-Zarqa water systems; reduction of irrigation water demands by several means (water pricing, reduced allocations, efficiency improvements, wastewater reuse, buy-out of wells, transfer of irrigation use from the highlands to the Jordan Valley, control over illegal wells); and possible development of several springs in the Jordan Valley, subject to constraints or mixing with other sources to reduce salinity to useable levels. Water quality has been examined, and it is concluded that all the existing and potential water sources (except the high-salinity springs) can be treated relatively easily to achieve the Jordan drinking water standards.

The key issue, resolved in collaboration with the NWMP (National Water Master Plan), is the allocation of water sources to the northern governorates over the planning horizon extending to year 2030. The phased expansion of the YWC system to year 2030 adopted 9 existing and potential sources of water that include:

1. The YWC net production in 2009 of 70.7 MCM. It is assumed that the production from the existing wells will remain constant, and that some of the wells that were not operated in 2009 could be operated to meet seasonal peak demands, including the maximum daily demand, which is targeted at 120% of the average demand.
2. The small amount of water imported from Balqa and Zarqa governorates in 2009, amounting to 0.179 MCM.
3. An allowance of 500 m³/hour to YWC from the King Abdullah Canal. After treatment, the water can be carried to Irbid by the existing Wadi Al-Arab system, without any expansion required in pumping or pipe capacity.
4. Re-allocation to YWC of the water exported to Amman and Zarqa water supply from the Aqeb-Zatory well fields in 2009, amounting to 2.116 MCM.
5. The Yarmouk River allocation of 30 MCM to YWC under the NWMP, to come from the Al Wehdeh Dam, currently under construction.

6. The Corridor wells currently supply about 10 MCM to the Amman-Zarqa water system, and have required a significant investment in large long pipelines. The MWI has indicated recently that the Corridor wells would be made available to YWC late in the planning period, when Amman and Zarqa have water available from the Disi project.
7. Local wells serving small local systems. Under the WLRP, a number of local water systems have been identified that serve villages and rural areas, which cannot be supplied conveniently or economically from the transmission system. These local systems are (and will continue to be) supplied by local groundwater wells. Additional wells, or wells of increased capacity, will be required to meet the localized growth in water demand, which is estimated at 5 MCM in 2025 by the WLRP. The timing for expansion in local well capacity will be spread over the planning period, from 2005 to 2030, depending upon local circumstances.
8. Several springs are investigated as potential new sources of water for YWC. Two of the springs have relatively low salinity, and could be blended with the remaining sources of water for the West transmission system, to increase the supply by about 2 MCM For Jarash
9. Two of the springs have relatively large flows, but are too salty for direct potable use expensive desalination of brackish water will be required, to obtain an estimated additional supply of about 2 MCM.

the production and supply sources of Ajloun and Jarash are shown on the overview map of the YWC water supply system,.

1.5 ALTERNATIVE TRANSMISSION SYSTEMS

The Feasibility Study for the Water Transmission Mains has identified the preferred future transmission system for the northern governorates by comparison of three different alternative systems. The basic rationale for each alternative has been as follows:

- Alternative 1: incorporates the best judgment of the investigators, and the results from detailed field investigations and cooperation with YWC senior staff. The general objective has been to minimize total pipe length and capital cost, and to achieve near-minimal power cost for pumping.
- Alternative 2: incorporates certain alternative pipeline routings for the flow, where it seemed possible that the number of pump stations might be reduced, or the total pumping costs might be reduced, but the most economical solution could only be determined by a detailed cost comparison.
- Alternative 3: incorporates the basic layout from previous studies, primarily those of SAFEGE and SOGREAH; the planning and design criteria have been updated to provide a consistent basis of comparison with Alternatives 1 and 2.

Of these alternatives, Alternative 1 was found to have the lowest capital cost, the lowest annual power cost for pumping, and the fewest number of pump

stations (to minimize labor costs). As a result, Alternative 1 is the preferred alternative for development of the transmission system through the year 2035.

One major project out of the study Alternative 1 is the construction of the Zatory – Hofa Transmission pipeline of (48km) of DI (Ø 500 & Ø 700), new pump stations at Zatory of estimated cost of (33) million dollar. This pipeline which has the capacity to convey 33 MCM/year from Mafraq to Irbid will convey 12MCM/year from the east well fields (Aqeb wells) to Hofa PS near Irbid. This water will be available to YWC service area due to the completion of Zara-Ma'en Project which will reflect benefits to Amman and other Governorates in terms of additional water supply.

The other Major required transmission mains out of the study Alternative 1 which serves to complete the above pipeline in order to increase the water supply to Jerash and Ajloun Governorates which suffers severe water shortages and has the lowest l/c/d in the region are:

- Um Lulu – Jerash water transmission pipeline
- Hofa _ Ajloun water transmission pipeline.

1.6 PROPOSED PROJECTS

The phased development of the transmission system to year 2035 has been divided into ten proposed projects, of which four projects relate to the primary transmission system and six projects relate to geographic subsystems containing both transmission and local distribution facilities.

Project Background

The Water Authority of Jordan (WAJ) awarded two contracts in 2004 and 2005 to carry out the feasibility study and conceptual design for the Northern Governorates.

Water Loss Reduction Programme (WLRP) Project and Water Transmission Mains Project. These two studies have been completed in 2005 and have identified all components required to achieve the objective of the feasibility which could be summarized as follows:

Water Loss Reduction Programme (WLRP) Feasibility Study:

As defined by the Terms of Reference (ToR) and as extended by WAJ in their Variation Order No. 1 signed on April 2004, the study area is Jerash , Irbid , Ajloun and Mafraq Governorates, located in the northern part of Jordan and cover an area of in excess of 5.000 km². The population has been estimated at over 1.5 million with the majority of inhabitants getting piped water through a network of approximately 5.500 k of mains. Parts of the Project Area are mountainous with substantial elevation differences ranging from 300m in the Jordan Valley to above 1100m in Ajloun and Jerash while some areas, for example, Mafraq is flat in the desert areas.

Due to the scarce water resources in Jordan, and in the project area in particular, reduction of physical losses in of vital importance for the Water Authority of Jordan (WAJ)

The introduction of discrete distribution zones, with reliable flow and pressure measurements and improved management of the water network, will allow Non Revenue Water to be QUANTIFIED, QUALIFIED, PRIORITISED and REDUCED

The Project Goals can be summarized as:

- Reduce network pressure.
- Increase pump efficiency and reduce pumping costs.
- Establish distribution zones.
- Reliable flow & pressure measurement system.
- Rehabilitation the most deteriorated parts of the system.

The Northern Governorates Water Transmission Feasibility Study

The desired output from the Feasibility Study is a prioritized list of projects that are required through year 2030, consisting of municipal water supply facilities needed within the service area of the Northern Governorates Water Administration (NGWA). These facilities will comprise water transmission mains and associated components distribution storage reservoirs, pump station, water treatment plants, groundwater wells, water resources facilities and a centralized monitoring and control system

Work on the feasibility study began in April 2004, and ended in 2007.

This feasibility study is being coordinated with three on-going programs. the GTZ- funded OMS program (Operations Management Support) , which has assisted in the development of a GIS mapping and database system within NGWA , the KFW – funded Water Loss Reduction Program (WLRP) , which is developing designs for rehabilitation , restructuring and expansion of local distribution networks to reduce physical water losses and support continuous rather than intermittent supplies , and the GTZ funded National Water Master Plan (NWMP) of the Water Master Planning Directorate within the Ministry of Water and Irrigation (MWI) .

For each Governorate in the project area also the required sub-system transmission pipes to insure that sufficient water is reached to all zones identified in the WLRP Project.

The total construction cost of these components is about 100 million JD.

The population of Jerash and Ajloun in 2005 were about 300.000 people which will increase to about 500.000 in 2030.

The water demand is respectively about 12MCM/yr. and 24 MCM/yr., The total available supply to both governorates are 6 MCM/yr. which shows the large deficit adding to that the physical losses problem in the existing distribution networks and the lack of sufficient hydraulic capacity in the existing transmission pipes , it is very essential to support the existing system with new transmission mains to increase the supply since new allocation of water from the Aqeb wells in the east of about 12MCM / yr. has been

available to increase the supply to Irbid , Jerash and Ajloun and help in solving the problem of demand deficit in the Northern regions of Jordan .

The Project Goals can be summarized as:

The Water Transmission Feasibility Study identified all major transmission mains as mentioned earlier, but needs to be updated to reflect the changes since 2005.

Work on the east transmission main (48km) started in 2006, the detailed design and tender documents has been completed and the implementation of the project is started on October 8, 2009 the project is expected to be completed in May, 2012.

This pipeline has a capacity to convey about 33 MCM/yr. from Mafraq to Irbid The other major required transmission mains out of the study Alternative 1 serving to complete the above pipeline system in order to increase the water supply to Jerash and Ajloun Governorates which suffers severe water shortages and has the lowest lcd in the region are:

Um Lulu – Jerash water transmission pipeline.

Hofa Ajloun water transmission pipeline.

2 PROJECT OBJECTIVE

The objective of the project is to ensure a cost efficient and secure supply of drinking water in the governorates Jarash and Ajloun with the overall objective to contribute to an efficient and demand driven sustainable management of the existing water resources.

The Northern Governorates Water Transmission Feasibility Study had identified all major needed transmission mains as mentioned earlier.

In order to increase the water supply to Jerash and Ajloun Governorates which suffers severe water shortages, and having the works on the east transmission main Zatory-Hofa and new pumping stations at Zatory already started in 2009.

The other major identified transmission mains to complete Zatory-Hofa pipeline are needed as follows:

1. The construction of a new transmission pipeline from **Um Lulu to Jarash** and partly restructuring and rehabilitating the water reservoirs and the main distribution networks in Jarash that are directly linked to the transmission pipeline.
2. The construction of a new transmission pipeline from **Hofa to Ajlun**, and construction of Ishtafena reservoir which is directly linked and necessary for the transmission pipeline.
3. Rehabilitation / extension of Um Lulu, Hofa, and Samad pumping stations.

Estimated Transmission Pipeline Routes and upgrading of P.Stations & Reservoirs

1. Um Lulu Jerash System			
From	To	DN(mm)	Length (m)
Um El- Lulu	Abo Ayyat Reservoir	500	12,000
Abo Ayyat	Jerash	400	22,000
2. Hofa Ajloun System			
From	To	DN(mm)	Length (m)
Hofa PS	Samad PS	800	9,400
Smad PS	Ishtafaina	400	18,031
Ishtafaina	Ajloun	300	3,465
Ajloun	Ajloun Reservoir	200	973

3.Pump Station Upgrade
Hofa
Smad
Um ELLulu

Note: These routes and diameters to be assessed studied and evaluated by the Consultant as one option of other alternatives for this study.

The Consultant is requested to verify the most feasible rout from Zaatery – Hofa pipeline to Jarash Reservoir and from Zaatery –Hofa pipeline to Ajloun Reservoir pipeline and to prepare the preliminary design for that track including all the required facilities to ensure the best technical and financial alternative .

3 PROJECT STRATEGY, MEASURES AND RESULTS

The project implementation will be in two stages. Stage I comprises the Engineering Design whereas Stage II covers the Implementation and Site Supervision.

Stage I shall start with reviewing and assessing the feasibility study prepared by CDM international Development on February 2005 and the Conceptual Design Report prepared by the joint venture of MWH in association with

MWH Arabtec Jardaneh and GKW Consultant on January, 2005. During the assessment of the conceptual design the overall scope of rehabilitation and restructuring measures and expected effects have to be reviewed and assessed as detailed as possible.

It is required that all feasibility study shortcomings and limitations are addressed and incorporated in the design. Especially the new water sources developed by YWC over the past 6 years have to be considered and assessed. A close link with WAJ and YWC will ensure that WAJ experiences are considered in the planning and implementation of the project.

The achievement of the project objectives will be measured with the following indicators.

- Security of water supply
- Operation and Maintenance cost coverage
- Sustainable use of the Mafraq wellfields

4 DURATION OF SERVICES

The total implementation period of the capital investment project is estimated to be 20 months. For the design stage 5 months .For pre-contract services (prequalification, tendering, awarding and contract preparation) 3 months Construction works are scheduled to take approximately 12 months.

5 TERMS AND CONDITIONS OF ENGAGEMENT

The “KfW Guidelines for the Assignment of Consultants in Financial Cooperation with Developing Countries” as published on the KfW website (www.kfw.de) are applicable for the engagement of the Consultant as General Conditions of this Terms of Reference.

6 PROJECT FUNDING

The total costs of the projects are estimated to € 23.1 million, the FC contribution of € 15.0 million thus representing approximately two thirds of the total amount. The Jordanian Government confirmed to finance the remaining amount of € 8.1 million out of their own budget. The FC contribution will be primarily used to cover the foreign exchange costs of the project.

7 SCOPE OF SERVICES

7.1 PROPOSED COMPONENTS:

The project is expected to comprise the following components:

- Construction of the transmission pipelines Umm El lulu - Jerash and southern part of the transmission pipeline Hofa – Ajloun (the northern part has an acceptable capacity and is still in good condition).
- Rehabilitation / extension of the pumping stations Um- ELulu, Hofa and Samad
- New reservoirs which are directly linked with the transmission pipeline.
- A partly restructuring and rehabilitation of the water storage and distribution in Jerash which is directly linked to the water transmission pipeline.

The Consultant shall verify, assess, and recommend on the proposed project components.

7.2 PROJECT IMPLEMENTATION AND OPERATION:

Following up the implementation and operating the project is the responsibility of YWC , Like in other projects in the Northern Governorates WAJ delegates the role of Employer to YWC and the Managing Contractor (MC) during their contract period who shall be responsible for the overall construction management and supervision and who shall insure caring out the works and procurement in line with KFW "Guidelines for Procurement in Financial Cooperation with Developing Countries " A consultant for the design and supervision will be selected in line with KFW "Guidelines for the Assignment of Consultants ".

On the basis of these Guidelines the consulting services will be tendered among associations of international and local consultant firms. The construction works will be awarded to international and /or local companies after preceding prequalification of bidders.

The period for the program implementation will 20 months starting from the contract award for the consulting services.

In the feasibility study the whole water network was surveyed and updated on GIS base maps. The GIS is using ArcInfo and ArcView software and the data is available as Arc Info Coverage or Shape files. During the design stage the updating of the network maps for Ajloun and Jerash service areas is required.

The Consultant has to obtain all available maps drawings, reports and other related documents and data from WAJ/YWC at the start of the project. Any



other needed maps and drawing which are not available at WAJ/ YWC shall be purchased by the Consultant from the relevant Agencies at his own cost, and he shall deliver back all design drawings in digital form as well as hard copies.

All network drawings have to comply with YWC GIS data base structure.

The results of the assessment of the feasibility study (where applicable) shall be included in these files.

Shall the Consultant see any need of additions or changes to this data base structure he needs to get written approval before introducing such changes.

Results of Topographic Surveys have to be submitted in digital form suitable to be added to the GIS.

The Consultant has to review and assess all available data, reports and maps of the feasibility study at WAJ/ YWC offices before the submission of his offer in order that all shortcomings and limitations are addressed and incorporated in the design.

7.3 STAGE I - ENGINEERING DESIGN

7.3.1 Conceptual Design & Prioritisation of Measures

In order to utilise the available funds in the most effective manner the concept envisages to optimise and rationalise the network operations in the most needed areas.

Prioritisation and details regarding the Rehabilitation of the network can only be defined after completion of the Restructuring . The conceptual design needs to define the overall scope of the rehabilitation measures, too.

The works to be performed for the conceptual design and prioritisation of the restructuring measures shall include but not be limited to the following:

Assess the preliminary design, zoning and operations concept/ condition that have been concluded in the feasibility studies related to northern governorates detailed before, and check its adequacy to the time horizon 2035, and investigate possible modifications, revisions and alternatives in close coordination with WAJ and YWC. This step is required to review and assess the feasibility study/ assumptions and results and is to be regarded as a value engineering step. The work will review and assess all information; the guaranteed available water resources, water quality data, hydraulic analysis, design criteria...etc. considering high spots, possible future expansion of communities, operation, topography...etc. All proposed pipes/ facilities shall be designed to the year 2030/2035.

- The Consultant must address more than three possible routs for the transmission pipelines to convey the adequate water quantities from:

Umm Elulu to Jerash

Hofa to Ajloun

and suggest at least three scenarios for all required water facilities (rehabilitation or construction of wells systems ,pump stations reservoirs, PRVs , to find and insure the most feasible option .

- Updating network maps in the GIS
- Establish a reliable flow and pressure measurement system and take regular measurements in close coordination with YWC operations management.. Meaning - identify all required measurement points and install or upgrade existing flow and pressure measurement devices to measure and record the flow of all water sources (incl. imports & export points) and distribution points required. (Differentiate between permanent – to be used also in future system - and temporary points) Points defined as permanent shall be equipped with measurement devices suitable to be incorporated into the future SCADA system whereas measurements at temporary points should be taken with mobile equipment. In close cooperation with WAJ/ YWC define requirements for regular bulk meter maintenance incl. definition of needed meter test bench equipment.
- Get approval of proposed design criteria
- Define scope of SCADA system in coordination with the other parties working for implementation of the SCADA system.
- Get use of the actual flow and pressure measurements (as possible) in the assessment and in the conceptual design.
- Select measures according to priorities up to the maximum amount available for Restructuring and get approval for implementation
- The entire review and assessment of conceptual design shall take place in close co-operation with WAJ and YWC and needs to be agreed on before start of the final engineering design.

7.3.2 Preliminary Design:

Based on the approved concept the Consultant shall carry out the preliminary design of the most feasible scenario, and prepare the tender documents for all works and services needed to be carried out. Tender documents shall be based on FIDIC (Condition for Contract Design–Build, the so called “Yellow Book”) AND/ KfW’s Guidelines for Procurement in Financial Co-operation with Developing countries and submitted with a completed KfW checklist for tender documents.

General Remark regarding the design and the tender documents:

The consultant shall elaborate the design as well as the tender documents in a way and at a level of complexity so that it is appropriate to the Design-Build-Process according to the FIDIC “Yellow Book”.

The duty of the Engineer will be:

Preparation of all preliminary designs, necessary to tender the proposed conveyance pipeline re-structuring and rehabilitation works. This comprises preparation of preliminary design report and tender drawings, specifications, bill of quantities and contract documents on the basis of Condition of Contract Design-Build as well as a confidential cost estimate. All required restructuring and rehabilitation works shall be designed even if they are not to be executed in the project.

-Note: the consultant may utilize the available surveys from the feasibility study reports or WAJ/YWC archive

-Elaboration and update of all parameters representing the design base in the inception report (in particular the projections of population and water flows under consideration of newly developed resources.)

The works shall include, but not be limited to, the following:

Water transport system

- Field verifications and topographical surveys and preparation of longitudinal profiles of the proposed transmission lines.
- Field verification of locations for manholes and chambers for bulk meters, PRV's, wash-outs, for all pipes constructed to the proposed project.
- Prepare and submit the Hydraulic analysis of the transmission pipeline, network pipe system at the starting of the operation and at the end of the design horizon 2030 to be according the approved design criteria including maintenance and operation.
- Insure the contractor will submit the water hammer analysis with it's detailed calculations.
- preliminary design of pumping stations (whether new or modification of existing ones).

Main water network:

- Field verification of zone boundaries (including topographical survey) in order to allocate plots and their service connections to distinct district zones
- Field verification of works needed for isolation of the individual zones, such as cutting of pipes, relocation of connections etc. taking also into consideration that operation of the water supply system shall be influenced as less as possible
- Hydraulic verification of the defined zones with respect to reinforcement and replacement pipes and defined locations of reservoirs and pumping stations

- Field verification of pipe routes for reinforcement and replacement pipes
- Field verification (incl. topographical survey) of locations for manholes and chambers for air valves, bulk meters, PRV's, wash-outs, etc.
- Field verification (incl. topographical survey) of locations for reservoirs and pumping stations
- Field verifications include topographical surveys and longitudinal profiles for all proposed pipes DN 100 and above (see item 3.11-clarifications)
- Preliminary design of ground reservoirs (whether new or extension of existing ones), elevated reservoirs (water towers) and pumping stations (whether new or modification of existing ones), treatment facilities, well facilities .
- Preliminary Structural calculations and reinforcement drawings for all buildings

Distribution network:

- Preliminary design of pipe work in or outside buildings
- Preliminary design of pipe net work (Attached with detailed calculations)
- Preliminary design of electro-mechanical works, including cabling, control equipment, panels, power supply, etc. and all electrical works.

Reports, Deliverables:

- The Consultant has to prepare a report including all the input data output results of all of his verifications , assessment, analysis and recommendations
- The Consultant has to prepare the Preliminary Design Report including detailed design calculations input, output data, applied theory, discussion ,recommendations
- Prepare and conduct Pre-Qualification of Contractors for implementation programme to be approved by WAJ/YWC and with the non-objections of KfW.
- The Consultant shall define the geotechnical investigation programme
- The Consultant has to prepare the ToR for hiring a local soil investigation company and ask for quotations from the respective firms and award, with the full participation of the WAJ/YWC, to the lowest responsible responsive bid. Transmission Pipeline has to be included.

Upon completion of all the above bullets, the consultant shall prepare the detailed design, drawings, and tender documents for all the needed works.

Pipeline Drawings: Preparing drawings with a scale of 1:10000 and 1:2500 on A1 size paper to show lot number, the route, type and diameter of water lines, including isolating valves, washout valves, air relief valves and pressure reducing valves. All other existing utilities such as electric cables,

telephone cables and sewers shall be shown on separate drawing of the same scale.

System Facilities Drawings : Preparing drawings with a scale of 1:200 (or other appropriate scale to be agreed) for the pumping stations (to show the contents of each pumping units, suction and delivery components , etc.) well fields (to show site plans, piping and fittings ,. . . etc.) reservoirs (to show plans , inlet and outlet water lines , drainage lines , etc.) and other required buildings and facilities (to show architectural , civil , mechanical, electrical details).

Profile Drawings : Preparing profile drawings for each Preliminary design drawing of pipelines (Dia. \geq 4”) at a vertical scale of 1:100 and a horizontal scale of 1:2500 which show clearance(s) between proposed construction and existing utilities including sewers and power lines. The aforementioned drawings and respective scales are considered minimal to adequately show the work. Larger scales may be required by the Employer.

7.3.3 Tendering & Contracting

Study on Contract Packaging

Based on FIDIC (Condition for Contract Design –Build Book) and/ KfW’s Guidelines for Procurement in Financial Co-operation with Developing countries The Consultant should prepare:

- A study on packaging, how the entire works should be split into individual contract lots aiming at an time-optimised implementation schedule and taking guarantee as well as present and future operation and maintenance and financing aspects of the project into consideration.

Tender Documents

The construction works and supplies shall be tendered as follows:

- Lot1 for construction works of restructuring to be tendered internationally, which can be split into two contracts
- Lot 2 for construction works for rehabilitation), or district / distribution works to be tendered locally. Lot2 can also be split into a limited number of single contracts as appropriate with regard to scope and logistical and managerial requirements.
- Preparation / updating of all technical specifications could be applied to the project.
- Preparation of preliminary bills of quantities for supply of material and installation, either combined or separated as the study above recommends
- Preparation of confidential cost estimates
- Preparation / updating of tender documents and tender drawings



- Preparation of implementation and cash flow schedules

Additional to the required number of hard copies, the data files of all the documents and drawings shall be handed over to the Project Manager (PM) WAJ and YWC Technical Affairs Directorate YWC on CD-ROM (5 sets). In case the submitted data files do not comply with the specified formats or data base structure used by YWC, then the specific document shall be regarded as not submitted.

The Consultant shall verify the land to be used for reservoirs, water towers and pumping stations in terms of size, location and any other information and drawings necessary to enable WAJ to proceed with land acquisition procedures.

Typical drawings for manholes and chambers are available as AutoCAD® drawings. These standard designs shall be verified and modified, if necessary.

Preparation of the preliminary design drawings for the network shall be based on YWC GIS drawings and approved database structure.

All drawings shall be produced by using appropriate computer aided design software. Network drawings shall be transferred into shape files strictly following the database structure. Other drawings shall be submitted in AutoCAD® format using a clear and documented layer structure to be approved by the employer prior to the start of works.

Preliminary bills of quantities, the related cost estimates and time schedules shall be computerised and prepared in such a way that tender evaluation and progress monitoring during the supervision phase is eased. In addition to the required number of hard copies, the data files of the Preliminary BoQ's, cost estimates and time schedules shall be handed over to PM of YWC. In case the Consultant intends to utilise specialised computer software (only English language and Windows® based versions is acceptable) others than MS Office (Word, Excel, Access, Project) one original license of it shall be handed over to PM of YWC.

Conduct cost-benefit-analyses for the rehabilitation works (after restructuring and based on flow measurements in the newly established distribution zones) and prioritise measures accordingly. The prioritisation shall also take into account an equal supply of the population with special emphasis on poor population groups.

Prepare the necessary documentation for approval of the different contracts by YWC and KfW.

Assist YWC in Tender announcement and during the tender period of the contracts (e.g. participation in pre-bid meetings, answering questions of bidders etc.)

As tendering of the works and evaluation of tenders will be executed by YWC, assist YWC in tender evaluation as member of the tender evaluation committee.

Prepare tender evaluation reports and award proposals in accordance with KfW's guidelines.

Assist YWC in preparation of the contract documents and participate in contract negotiations

Fill-in and update regularly KfW's "Check-List" concerning tendering and contracting of supplies and works

Note: the consultant is required to review all available data of the feasibility study and archives and WAJ/YWC will not be responsible for any misunderstanding or shortages of data after awarding.

STAGE II - SITE SUPERVISION

The Consultant shall provide quality control for final design, construction supervision and project administration, following conclusion of contracts and monitor the execution of these contracts. This stage of the engineering works begins on the date set in the Notice to Proceed (NtP) / Letter of Commencement (LoC) to the contractors which will be issued by YWC. This stage ends with the submission of the project completion report (maximum 1 month after completion of the project)

In General the duties of the Engineer will be:

- (1) Review, comment, and approve detailed design and costs of the Project prepared and submitted by the contractor,
- (2) Collect baseline data and information for benefit monitoring during implementation and after project completion as required in the project documents;
- (3) Update land acquisition and resettlements plans and follow up timely implementation with the YWC and other agencies as required.
- (4) Procurement and Construction Supervision Activities
- (5) Administer contract (including management of performance securities, return of bid bonds, advance payments);
- (6) Monitor materials and equipment delivery program and schedules;
- (7) Inspect goods, materials, equipment, and machinery upon delivery to ensure compliance with specifications and issue immediate notices of any deficiencies found or non-compliance and certify completeness;
- (8) At all stages, ensure compliance of KfW's Procurement Guidelines for procurement of works, materials, and services by the contractor. Also ensure that the national regulations, specifications, relevant international engineering standards are fully followed as applicable;
- (9) Review, recommend, and approve all equipment, material, goods needed for implementation.
- (10) Review and approve unit rates where required to implement the works at the required quality control standards;

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- (11) Review the contractor's quality control program;
- (12) Develop guidelines for the project performance and monitoring system and implement it after KfW's approval;
- (13) Supervise the contractor's manpower, plant and equipment availability schedule;
- (14) Monitor timely delivery of materials at the site, as scheduled;
- (15) Ensure supply of spare parts, equipment warranties and supply of user's manuals by the suppliers/manufacturers;
- (16) Advise necessary changes in the plans or specifications;
- (17) Assist the PEA to review and justify extra work and time extension claims of the contractor and submit to ADB with recommendations and documentation;
- (18) Assisting the PEA to scrutinize withdrawal applications of the contractor and recommend to provisional payments;
- (19) Liaison with KfW and other relevant bodies;
- (20) Prepare project accounts and financial statements in accordance with the Grant Agreement and Project documents; and
- (21) Prepare monthly and quarterly progress reports;
- (22) After project completion, collect data and information and prepare project completion report;
- (23) Inspect the works completed and certify for payment
- (24) Participate in the sample collection and laboratory testing along with the contractor and check it's compliance with slandered and requested criteria.

Consultant Tasks in Details:

- Verify shop drawings of the contractor(s) for supply of material, comment on the submittals and make respective recommendations to YWC;
- Participate in YWC's material acceptance committee for approval of deliveries;
- Keep actual records of delivery of material and handing over to installation Contractors;
- Perform all pressure and flow measurements and analyse the measurements with respect to recommended further rehabilitation measures
- Obtain Maintenance data and evaluate on regular basis
- It is generally envisaged that YWC conducts leakage control measurements, if required. In cases the YWC leak detection division cannot perform this task the Consultant should execute these works. For this purpose the Consultant shall quote the



execution of these works under the respective section of the Financial Offer.

- Establish NRW figures based on actual supplied and consumed / billed quantities and differentiate between physical and administrative losses.
- Perform leak detection and night flow measurement campaigns
- Verify technical proposals and final design work prepared by the contractors, comment to the Contractors thereon and make recommendations to YWC;
- Co-ordinate the final revision and completion of implementation/cash flow schedules
- Be responsible for site supervision including financial control;
- Be responsible for preliminary and final acceptance of executed works;
- Supervise commissioning of the executed works;
- Establish records and submit certified as-built drawings (based on Contractor's drawings) as hard copies and data files;
- Examine and approve all planning and programming details proposed by the Contractors;
- Provide assistance to YWC in dealing with the settlement of all disputes or differences that may arise between YWC and the Contractors;
- Provide services during construction of the works so as to ensure, within the limits of this agreement and as defined in the construction contracts, that the works are executed in accordance with the contracts between WAJ and the Contractors;
- Provide the site staff necessary for administering the construction of works for such periods as may be required;
- If implementation works will have to be executed during night time. Also for these times the site staff must be provided;
- Give all necessary instructions to the Contractors, providing that the Consultant shall not, without the prior approval of YWC, give any instructions which are likely to increase the contract amounts, prices or change the conditions of contract;
- If it is necessary for the Consultant to issue urgent instructions without such approval in the case where, in his opinion, lives, property or the works itself are in danger, or where further delay would result in additional cost. He shall inform PM of YWC of his action as soon as possible;
- YWC's instructions to the Contractors shall be exclusively given through the Consultant;



- Perform any services which may be required to be carried out under the contract for execution of the works, including, where appropriate, witnessing of tests and commissioning of the works;
- Advise YWC as to the need for inspection during manufacturing and prior to the shipment of various materials to be supplied in accordance with the contracts and, if so required by YWC, obtain tenders for such inspection from qualified agents and make such recommendations thereon as may be appropriate;
- During construction, and upon completion of the projects, with the assistance of his site staff, arrange for and carry out a proper, faithful and detailed measurement, determination and survey of quantities of works completed and calculate the value of such works;
- The Consultant shall certify that the works have been carried out in accordance with the requirements of the contracts or indicate any work that has not been so carried out and recommend on actions to be taken regarding these works;
- Promptly examine and prepare recommendations on claims from the Contractors for- extension of times, payment for extra work, and other similar matters and negotiate with the Contractors on the rates for any unscheduled items or work which arise and submit recommendations on these to PM of YWC;
- Carry out the necessary inspections, shortly before the end of the construction period, determine the remaining works to be completed and, when these are satisfactorily completed, issue the Certificate of Substantial Completion and/or Certificate of Final Completion to PM of YWC;
- Verify the Contractor's invoices and issue interim and final certificates for payment and submit these to the YWC
- Verify the validity of the Contractor's advance payment and performance guarantees in accordance with the models required by KfW, the insurance policies and transport documents. The Consultant will keep the relevant documents ready for inspection by the YWC/ KfW;
- Verify the adherence to the regulations concerning the disbursement procedure agreed between the Employer and KfW and made available to the Consultant
- Certify the disbursement request to be addressed to KfW by the YWC accordingly
- Verify Contractor's as-built documents and coordinate submittal to YWC in the requested number of hard copies and as data files in the required format (four sets on CD ROM);
- Submit the required reports within the periods as detailed under Section 2.5 herein.

- Study and assist YWC in issuing variation orders

8 COORDINATION OF ACTIVITIES

The contract for the Preliminary Design and Supervision works will be concluded between the winning consultant and WAJ. WAJ will delegate the Employer authority for this project to YWC. Hence YWC's Technical Affairs Directorate will assign a project coordination officer for general contractual and coordination matters.

9 REPORTING

According to the services described in this Section of the Terms of Reference the Consultant shall submit the following reports in 5 copies (4 for YWC/WAJ and 1 for KfW) until specified otherwise.

Stage I: Engineering Design

An inception report not exceeding 30 pages shall be submitted not later than 1 month after commencement of services

- A comprehensive report on conceptual design including assessment of the feasibility study and Contract Packaging, and prioritisation of measures to be submitted not later than 2 months after commencement of services. This Report is to be submitted as final and draft final report. The final report is due not later than 2 weeks after receiving comments from YWC and KfW.
- Report on Pre-Qualification of Contractors not later than 3 months after commencement of services.
- Preliminary Design Report to be submitted not later than 3.5 month after commencement of services
- Final preliminary Design Report to be submitted not later than two weeks after receiving comments from YWC and KfW.
- Draft Tender Documents for each identified contract(three contracts) including Preliminary design drawings in the appropriate scale as agreed upon and based on FIDIC (Condition for Contract Design –Build, the so called “Yellow Book”) and/ KfW’s Guidelines for Procurement in Financial Co-operation not later than 4.5 months after commencement of services
- Final Tender Documents for each identified contract including preliminary detailed design drawings in the appropriate scale as agreed upon and the Preliminary structural calculations (Design drawings and structural calculations are not required to be submitted to KfW) not later than two weeks after receiving comments from YWC and KfW. (To be submitted in 15 Copies)



- Quarterly Progress Reports in which the Consultant's work plan and the progress of works and staff assignment are indicated. Throughout his services, the Consultant shall upon request assist the PEA in the preparation of quarterly progress reports in accordance with the provisions of the Separate Agreement to be concluded by KfW and PEA. The quarterly progress reports shall be compiled in English. The Reports shall be presented not later than three weeks after the end of the reporting period under consideration.
- Monthly brief summary of main activities and special events to be transmitted to KfW and YWC in form of an e-mail (maximum two pages).

The period for approval of reports by YWC and KfW shall be two weeks otherwise it is considered automatically approved.

All reports shall be prepared in DIN A4 format. Drawings shall be submitted in a separate volume in DIN A3 format.

Stage II: Construction Supervision

Monthly Progress Reports (MPR) in which shall be indicated:

- contract details, the progress of works and its estimated value
- financial status
- comments on the progress in relation to the agreed upon work plan
- staff assignments of the Consultant
- any issues which may require the attention of YWC

The MPR shall be submitted to PM of YWC in five copies within two weeks after the end of the reporting period.

Quarterly Summary Progress Reports shall be submitted to YWC in five copies within four weeks after the end of the reporting period plus one copy directly to KfW.

Report on prioritisation of rehabilitation work including cost-benefit analysis submitted to PM of YWC in five copies and one copy to KfW.

Project Completion Report for each implementation contract which contains: the description of measures executed and a detailed listing of activities, such as:

- submittals and approvals,
- tendering and execution of works,
- change orders, if any,
- quantity and cost estimates,
- contract cost,
- original and final time schedule,
- as- built documents (incl. related certificates).

The Project Completion Reports shall be submitted to PM of YWC within one month after issuing the individual Certificates of Final Completion in five copies plus one copy each to be directly submitted to KfW.

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SCHEDULE OF SERVICES

In proposing his working schedule, the Consultant shall allow adequate time for review and decisions to be made by the Employer and to be harmonised with KfW.

Since time is an essential factor in the whole project, the Consultant shall draw his attention towards a minimum mobilisation period and a speedy execution of the works.

It is the responsibility of the Consultant to establish his own detailed work program where he is free to deviate from the aforementioned time estimates as well as from the estimated expert-month input to be provided in accordance with his professional judgement and knowledge of the local conditions.

Any modification of the proposed time schedule due to a substantiated request by either party shall be mutually agreed upon in writing. If the Consultant fails to perform in due time any of the services under this Contract for reasons he must warrant the Employer may inflict a penalty of 0.5% of the contract sum for every week of delay, up to a maximum of 8% of the contract sum. Beyond such penalty the Employer may not raise any further claims arising from the delay in the performance of the services.

11 INSTRUCTIONS TO TENDERERS

11.1 SUBMISSION OF OFFERS

The Consultant shall submit Technical and Financial Proposals in clearly marked separate envelopes.

Envelope 1: Technical Proposal

Envelope 2: Financial Proposal

The offer for services under the present ToR shall be presented in English language. The Financial Proposal shall be sealed and no financial information shall be contained in the Technical Proposal. Only the Technical Proposals will be opened on submission date. Financial Proposals remain sealed until the technical evaluation is completed. Opening of Financial Proposals is governed by KfW's "Guidelines for the Assignment of Consultants in Financial Cooperation with Developing Countries". All correspondence regarding this invitation and proposals shall be addressed to:

WAJ Secretary General

Ministry of Water and Irrigation

6 Jabber Ben Hayyan street

Shnissani

c/o Eng. Raja Ammari

Fax. No. (+) 962-6-5627823

Tel. No. (+) 962- 6- 5652261 ext 1044

Raja-Ammari@pmu.gov.jo

The Technical and Financial Proposals shall be submitted in a single package marked

“Consulting Services for the Northern Governorates Water Transmission pipelines

- **Umm Elulu -Jerash Transmission pipe**
- **Hofa –Ajloun Transmission pipe”**

The package shall contain three sealed envelope (1 original +2 copies) marked “Technical Proposal” and three sealed envelopes (1 original +2 copies) marked “Financial Proposal” to the office of ,WAJ Secretary General/ Ministry of Water and Irrigation ,Amman Jordan not latter than 11:00 hours Jordan local time on the date indicated in the invitation for tenders. One set of the proposals shall be marked "Original" and be signed by the authorised representatives of the tenderer. In case of any differences between original and copies of the documents, only the original shall be considered. The technical proposals will be publicly opened at 12:00 hours on the same day. Late proposals, whether delayed in the mail or for other reasons, will NOT be considered.

On submission date, one additional copy of the proposals shall be dispatched to (not relevant for timely submission):

Kreditanstalt für Wiederaufbau (KfW)

Dr. Stefan Gramel, L2c2

Palmengartenstrasse 5-9
D-60325 Frankfurt am Main, Germany

The technical as well as the financial offer shall also be included as pdf-documents on CD's in the two envelopes (in the original to WAJ as well as in the copy to KfW).

The Proposals shall remain valid and open for acceptance for a period of 120 days after the date of opening. The Financial Proposal shall be accompanied with a Bid Bond in an amount of JD 3,000, issued by a bank or a local financial institution acceptable to the Employer. A sample of such a bid bond is contained in annex 6

The Special Tendering Committee expressly reserves the right to accept or reject any bid without being obliged for any further explanation of such action.

11.2 TECHNICAL PROPOSAL

The Technical Proposal shall contain, but not necessarily be limited to, the following information: brief as possible

Analysis of problems;

A detailed critical analysis and the Consultant's interpretation of the Terms of Reference (ToR). The Consultant is encouraged to present critical comments and suggestions on the ToR (especially if they relate to project outcomes).

Comment on specific issues, like results of feasibility study, conceptual design, packaging and execution of the works, etc.;

Timetable and staffing schedules indicating staff-month input in Jordan, duration and deployment details (field and home office assignment) of Consultant's expatriate and local staff (including bar charts).

For Stage 2 (Supervision), the provided field man months (from leader and partner) shall not be less than:

- 13 man months for PM
- 12 man months for deputy PM (RE)
- 4 man months for electromechanical engineer
- 6 man months for structural engineer
- 36 man months for 3 site engineers
- 36 man months for 3 Inspectors
- 24 man months for 2 surveyors

Curricula vitae of the proposed personnel showing the specific experience in the respective fields

Tasks to be assigned to each member of the team.

Account of envisaged back-up services from the home office.

Minimum expected qualification of key staff to be provided:



Project Manager: BSc. civil engineering, of min 20 years experience, 10 years of which in similar projects, 5 years of which as PM ,

Deputy Project Manager / R.E: BSc. civil engineering, of min. 15 years of experience , 10 years of which in similar projects, 5 years of which as Team Leader

Electromechanical Engineer: BSc electromechanical engineering, with minimum 15 years of experience, of which 7 years in similar projects

Structural Engineer: BSc, with minimum 15 years of experience, of which 7 years in similar projects

Site Engineer: BSc Civil engineering, with minimum 10 years of experience, 5 years of which in similar projects

Key staff presented in the Consultant's proposal may not be replaced without the prior approval of the PEA and KfW. The Consultant shall only replace the same with a staff member with at least equal qualification

Tasks to be performed by the Consultant and those assumed to be assigned to sub-contractors.

Estimate of office space, vehicles, equipment, etc. required to carry out the proposed services. Assessment of the requirements for local facilities and support (office, office equipment, transportation, etc.) to be provided by the Consultant. It is recommended to verify all local physical, technical and logistical conditions which might influence the performance of work.

Association arrangements.

A statement of the Consultant that he strictly abides to the stipulations of the Terms of Reference without any reservations or exceptions, unless otherwise clarified by explanations under above critical analysis of ToR.

References submitted for prequalification do not have to be presented again.

The participation of local personnel is expressly encouraged and should be treated in the Technical Proposal. If local key personnel is proposed to participate, full details related to their assignments and qualification shall be provided.(Please refer to annex 5 of the guidelines for the selection of Consultants) available on KfW Website at (www.kfw.de)

11.3 FINANCIAL PROPOSAL

The Financial Proposal shall be worked out separately for Fixed Fee quotations and those to be remunerated on a Cost plus Fee basis and in compliance with the stages of the Project as presented in these ToR.

Fixed fee quotations shall be given for Stage I (Final Preliminary Design and Tender Documents), Tendering and Award.

Cost plus Fee quotation shall be given for Stage II -the Site Supervision of Works

All unit rates and prices shall be quoted in EUR for foreign exchange costs and for local costs. The total contract price shall be expressed in EUR. The exchange rate for remuneration and evaluation to be applied for converting amounts in international currency to JOD and vice versa will be the rate prevailing on 21 days before the submission date as published by the Central Bank of Jordan. The same exchange rate shall be fixed for the duration of the services.

The Financial Proposal shall state clearly separated quotations for stage I and stage II and shall comprise:

- Fixed fees
- Reimbursables
- Personnel costs (shown separately according to expert personnel months¹, foreign allowance and accommodation costs in place of service)
- Transport costs between the home country and the country of service
- Local transport costs
- Office costs in the country of service
- Acquisitions
- Drawing up reports
- A provisional sum of EUR 10,000 has been allocated and shall be added to the cost schedule
- For any other costs, these activities/costs could be carried out upon approval of YWC

The prices offered shall include manpower for the local and home offices as well as all commodities and supplies required for the above mentioned services. The price schedules for professional services shall be worked out according to the man-month schedule presented in the Technical Proposal. (The consultant shall commit to the man- month schedule and shall inform YWC on the start and the end of work of each of his staff) duration in Jordan.

Home office support or back stopping services or general management and administration and all associated cost are regarded as genuine activities of qualified consultants. Respective costs are hence to be included in the overhead costs and will not be remunerated separately.

¹ For example, the rate for a skilled staff member in the home office shall include: basic salary, social insurance, general costs, personnel administration, holidays and sick leave, office services, communications costs for commission, back-up services and monitoring, data processing, insurance taken out by the firm, profit and loss. This covers the general back-up and monitoring by management staff in the home office. The services of management staff from the home office can be charged separately only if they are performing tasks that are distinguished by subject area and in time from the agreed list of individual services.

International Transport contains air fares and complementary travel cost (includes transfers, excess baggage, medical expenses, visas etc.) as a lump sum item.

Office costs (including running) in the country of service, as a lump sum item in stage 1 only, in stage 2 it shall be borne by the contractor.

Cost items for Local Transport (for stage 1 only, for stage 2 it shall be borne by the contractor) are determined by the Consultant's logistical approach to the project as presented in his Technical Proposal which shall include all the required vehicle for the use of the Engineer and shall include one vehicle for the use of the employer representative and include:

- Acquisition, lease or rent of vehicles, as a lump sum item,
- Running cost of vehicles (includes all risks insurance, taxes, fuel and lubricants, maintenance and repair, driver) as a lump sum item²,
- Cost of local air, rail and road transport as a lump sum item.

Procurement (acquisitions) includes all equipment (for office), furniture, appliances and the like the Consultant deems necessary for the execution of the project as lump sum item and which, after termination of his services, will remain with the consultant.

Production of Reports as lump sum item includes cost for report production (including freight and local distribution) as required by these Instructions or as specified in the Technical Proposal and cost for the preparation of additional copies for all types of reports.

The above items will form the lump sum amount for stage 1, this lump sum shall include all project overhead and risk costs.

Other Costs include all expenses that might not be covered by the above categories. These costs should be applied upon approval of YWC from the provisional sum and will be reimbursed upon presentation of documentary evidence (reimbursing the cost with no profit). These activities might be planned and included in the technical offer and their execution requires the approval of YWC. These costs will not be considered in the financial evaluation.

11.4 EVALUATION OF OFFERS

The offers received will be evaluated according to KfW Guidelines for the Assignment of Consultants (see above).

Paying attention to the specific conditions of the Project, only those offers can be accepted which fulfil the following requirements:

- The Consultant forms an international-Jordanian association as pre-qualified in joint venture

² Private use of the official vehicles during off-duty time (if allowed) has to be specified in the Financial Proposal and a deduction of 20% on the running cost has to be accounted for.

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- The consultant with experience in supervision of at least one project of Design Build Contract is a plus.
- The proposed key personnel are ready to start working at site within 1 month after awarding of the consulting contract.
- On principle KfW requires the consultants to be neutral and independent of potential suppliers to the project.
- Members of an association of firms may take part in an FC (Financial Cooperation) project either as consultants or as manufacturers/suppliers/ construction firms, and they must choose between these alternatives.
- When submitting technical proposals consultants must reveal any links with other firms and give a binding declaration that should they be awarded the contract the firms with which they are associated will not intend to take part in the project in any other form. The Jordanian partner additionally has to declare any legal or financial links with Jordanian institutions or staff employed therein. In a joint venture that also applies to participating professionals and consultancy firms.
- Reasons must be given for any amendments to the composition of pre selected joint ventures or mergers and these must be approved by WAJ. Within the evaluation, the technical proposal will get scores in line with the following structure of items, whereas the maximum scores to be awarded are listed thereafter:

CRITERIA FOR TECHNICAL EVALUATION	POINTS		
	PHASE		TOTAL
	I	II	
Concept and Method	27	13	40
Brief Clarity and completeness of the bid	4	1	5
Critical Analysis of the Objectives of the project and the Terms of Reference	5	1	6
Comments on specific issues, like results of feasibility study, conceptual design, packaging and execution of the works, etc.; with the programme of work, <u>the staffing schedule and man-month effort in Jordan</u> and logistical set-up, etc. <u>(will be applied according to the requirements of the stage)</u>	8	1	9
The bidder has experience in at least one project of Design Build Contract	10	10	20
Qualification of definitely assigned personnel	38	22	60
Qualifications of key personnel of the leading consultant to be employed on the project, in particular the project manager (project manager: max 10 points for stage I and 5 points for stage II resp.)	23	12	35
Qualifications of the deputy project manager and <u>key engineers</u>	12	8	20
Qualifications of the personnel in the home office who will monitor and control the team and provide back-up services	3	2	5
Maximum Total	65	35	100

Only the applicants who receive not less than the minimum score of 75% of the points to be awarded for the quality of the bid for services (technical proposal) can be considered in the assessment of the (financial proposal).

Customs and excise duties, taxes and levies in Jordan are not to be included in the assessment of price quotations.

Concerning the tender evaluation it is intended to give the Technical Proposal a weight of 70% and the Financial Proposal a weight of 30% of the Overall Score.

The bidder with the highest Overall Score will be considered the preferred bidder, and will be invited for contract negotiations. Contract negotiations are only for the purpose of clarifying unclear items.

No Consultant shall contact the Employer on any matter relating to its proposal, from the time of the bid opening to the time the contract is awarded.

Any effort by a Consultant to influence the Employer's bid evaluation, bid comparison or contract award decision may result in the rejection of the Consultant's proposal.

11.5 ORGANISATION OF PERFORMANCE OF SERVICES

The Consulting Services are expected to commence within 4 weeks after signature of the contract.

The Consultant is invited to elaborate in his technical offer on the envisaged logistical set-up for the execution of the services and shall commit to it.

It is the responsibility of the Consultant to establish his own detailed work program in accordance with his professional judgement and knowledge of the local conditions.

To familiarise oneself with the services to be provided a visit to the project area as well as reviewing the feasibility study reports and results before presentation of the Proposal is strongly recommended. However, it should be understood that any cost incurred in this regard will not be reimbursed to the Consultant.

11.6 SUPPORT BY THE EMPLOYER

WAJ/ YWC will make available free of charge all existing information, data, reports and maps as far as available and will assist the Consultant in obtaining other relevant information and materials from governmental institutions and state authorities as far as possible. However, it is the duty of the Consultant to check availability, quality and suitability of this information. The information, data, reports etc. as mentioned above will be available for the Consultant's unlimited use during execution of the proposed services.

WAJ/YWC will support the Consultant in obtaining all staff permits, authorisations and licenses required for performance of the Consultant's services in Jordan. It will also assist the consultant in clearing through customs of all equipment, materials and personal effects to be imported (and re-exported upon completion of his assignment) for the purpose of the services.

Office space and transport facilities will not be made available by YWC or WAJ. The Consultant has to arrange at his own cost for the necessary office space, office equipment, communication and transport facilities.(phase 1).

The project manager of YWC will have the authority and responsibility to administer this Agreement on its behalf, including approval of change orders and progress payments. It will be the Consultant's duty to maintain close contact with him on all aspects of work. As a matter of principle all formal communications relating to the work will be directed to the attention of the Project Manager.

11.7 PROPOSED CONTRACT

Basis for the consultancy contract is this ToR and the Model Contract available on KfW Website at (www.kfw.de)

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The contract shall be construed as an agreement made and to be performed in Jordan, according to the laws and regulations in force. The ToR with all annexes and memoranda in addition to the Proposals of the selected firm will form integral parts of the contract. The Contract will be concluded for stage I and stage II.

11.8 REMUNERATION AND PAYMENT

11.8.1 Remuneration

The estimated total amount payable to the Consultant for the services to be provided under this Contract as set out in this ToR shall be an amount quoted in EUR.

The total amount payable to the Consultant for the services to be provided by the Consultant under Stage-I as set out in this ToR shall be a lump sum amount, for the services to be provided by the Consultant under Stage-II as set out in this ToR shall be on man month unit rate basis.

Payments for the purchase and installation of flow and pressure measurement equipment as well as other costs will be dealt with as reimbursable.

The foregoing amounts to be paid to the Consultant are understood to be ceiling amounts and shall not be exceeded without the prior written approval of the Employer and KfW.

The fixed fees and expert month rates shall apply until 3 months after the end of the period stated in the consulting contract. After this date prices for prolonged consulting services may be subject to adjustment in case the official level of prices and salaries has increased. These prolonged consulting services shall be agreed upon between the PEA, KfW and the consultant at least 6 months before the end of the period for which the fixed fees or expert month rates shall apply and must not be due to the Consultant's failure to perform in due time any of the services under the contract for reasons he must warrant. For the adjustment of fixed fees and expert month rates the following formula shall apply:

$$P_n = P_o * (0.15 + 0.85 * I_n / I_o)$$

where

P_n	=	new revised price
P_o	=	original price as indicated in the Consultant contract
I_n	=	new index ³ of the month the respective invoice is issued
I_o	=	original index of the month in which period stated in consulting contract ends.

11.8.2 Payment Schedule

The payment schedule for Stage I will be as follows:

³index of the official level of salaries in the German construction industry (Fachserie 16) as published by the Federal Statistics Office (Statistisches Bundesamt)

Stage I:

Advance payment (15 % of the contract amount for stage I less the provisional sum), due within two weeks upon entry into force of this Contract against invoice and receiving the letter to commence the project. The portion of the advance payment exceeding 150,000 EUR or the equivalent in JOD must be secured by an abstract advance payment bond. The advanced payment bond shall have the form and wording of the KfW model of advance payment bond as contained in Annex 6 .The advance payment will be re-recovered through respective 20% deductions from the subsequent invoices.

10 percent on approval of the Packaging Report

60 percent on submission of the Draft Preliminary Design Report and Preliminary Drawings and Documents including Cost Estimates

15 percent on the approval of the Final preliminary Design Report and preliminary Tender Drawings and Documents incl. Cost Estimates

5 % upon submission of prequalification documents against invoice

5 % upon submission of the final Preliminary Design Drawings and Preliminary Tender Documents and acceptance thereof by the Employer and non objection from KfW and presentation of invoice

5 % upon submission of the tender evaluation report and award contract proposal in accordance with KfW guidelines and presentation of invoice

Stage II:

1. Advance payment (15 % of the contract amount for stage II), due within 30 days against invoice and receiving the letter to commence the project. The portion of the advance payment exceeding 150,000 EUR or the equivalent in JOD must be secured by an abstract advance payment bond. The advanced payment bond shall have the form and wording of the KfW model of advance payment bond as contained in Annex 6. The advance payment will be recovered through respective 15% deductions from the subsequent invoices.
2. Quarterly Payments: in consecutive instalments in accordance with 90% of actual inputs and reimbursable expenses upon presentation of invoices which shall be accompanied by reports on the progress of the services;
3. Final Payment: balance of 10% upon termination of the services and the acceptance thereof by the Employer and KfW.

For both stages:

Reimbursables agreed as total lump-sum between the contract parties on the basis of the financial offer will be paid as portion of the instalments mentioned above.

Consultant's invoices (two originals) shall be addressed to the Employer

After approval, the Employer will send KfW a duly signed Withdrawal Application indicating the Consultant's name and payment instructions (full bank details).and documents supporting the Withdrawal Application, whenever applicable:

- Copy of consultant's invoice
- Evidence of the contractually agreed bases for price computation
- List of expenditure for reimbursable costs showing date, description, price, and exchange rate of the expenditure, duly signed by the consultant stating that the information given is true and correct. (This applies to such reimbursable costs only which are not included in the lump sum amounts agreed upon.)

12 TAXES

The Consultant shall be exempted from all Jordanian fees and taxes including sales taxes (letter of Prime Minister no 56/10/6/16719 dated 30th November, 2006) .

If the execution of the above provision is prohibited by law, all taxes, duties, levies, and other charges as specified above shall be directly incurred by the Consultant and reimbursed by the employer as evidence by receipts and Vouchers.

13 CLARIFICATION REQUESTS:

Enquiries are only permitted in writing and up to three weeks before the deadline for submission. Answers will be published in the form of addenda at PMU/ WAJ official website only.

Annex 1

Declaration of Services Offered

We underscore the importance of a free, fair and competitive procurement process that precludes fraudulent use. In this respect we have neither offered nor granted, directly or indirectly, any inadmissible advantages to any public servants or other persons in connection with our bid, nor will we offer or grant any such incentives or conditions in the present procurement process or, in the event that we are awarded the contract, in the subsequent execution of the contract.

We also underscore the importance of adhering to minimum social standards ("Core Labour Standards") in the implementation of the project. We undertake to comply with the Core Labour Standards ratified by the country of Hashemite Kingdom of Jordan.

We will inform our staff about their respective obligations and about their obligation to fulfil this declaration of undertaking and to obey the laws of the country of Hashemite Kingdom of Jordan.

.....
Place, date Bidder

PMU
The Hashemite Kingdom of Jordan
Ministry of Water & Irrigation
Performance Management Unit

PMU

**The Hashemite Kingdom of Jordan
Ministry of Water & Irrigation
Performance Management Unit**

ANNEX 2

**TIME SCHEDULE
for the Performance of the Services**

PMU

**The Hashemite Kingdom of Jordan
Ministry of Water & Irrigation
Performance Management Unit**

**ANNEX 3
STAFFING SCHEDULE**

PMU

**The Hashemite Kingdom of Jordan
Ministry of Water & Irrigation
Performance Management Unit**

Annex 4

STATEMENT OF COSTS

Annex 5

Model Advance Payment Guarantee

Address of guarantor bank:

.....
.....

Address of beneficiary (contracting agency):

.....
.....

On you concluded with (name and full address)

.....
.....

("Consultant") a Contract for (project, subject of Contract) for the sum of

.....

According to the provisions of the Contract the Consultant receives an advance payment in the amount of

Equaling..... percent of the contract price.

We, the undersigned.....

(bank), waiving all objections and defences under the aforementioned Contract, hereby irrevocably and independently guarantee to pay on your first written

demand any amount advanced to the Consultant up to a total of

(in words:)

against your written declaration that the Consultant has failed to perform as stipulated in the aforementioned Contract.

This Guarantee shall enter into force as soon as the advance payment has been credited to the account of the Consultant.

This Guarantee shall be automatically reduced pro rata in accordance with the payments performed.

In the event of any claim under this Guarantee, payment shall be effected to KfW, Frankfurt am Main (S.W.I.F.T.:

KFWIDEFF, BLZ 500 204 00), account No. 56 000 000 00 for the account of (Purchaser,

project-executing agency).

This guarantee shall expire not later than by which date we must have received any claims by letter or coded telecommunication

It is understood that you will return this Guarantee to us upon expiry thereof or after settlement of the total amount to be claimed hereunder.

.....

.....

Place, date

Guarantor



Annex 6

Standard Form of a Bid Bond

Letter by the Guarantor to the Contracting Agency

We, the undersigned (Guarantor), in order to enable To bid for (Project, object of contract), hereby irrevocably and independently guarantee to pay to you an amount up to a total of Waiving all objections and defences

We shall effect payments under this guarantee on your first written demand , which must be accompanied by your confirmation that you have accepted the above – mentioned bid and that the firm is no longer prepared to abide by this bid .

This guarantee shall expire no later than

By this date we must have received any claims for payment by letter or encoded telecommunication. It is understood that you will return this guarantee to us on expiry or after payment of the total amount to

This guarantee is governed by the laws of the Hashemite Kingdom of Jordan.

Date

Guarantor

PMU
The Hashemite Kingdom of Jordan
Ministry of Water & Irrigation
Performance Management Unit