Hashemite Kingdom of Jordan

Groundwater Treatment and Desalination in the South East Jordanian Badia Project
Agreement of Third Year
November, 2013

Improving water quality for Livestock watering in the Jordanian Badia Project

November, 2013

Progress Report

December, 2014

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Submitted to:

Ministry of Environment

Badia Restoration Program (BRP)

1. Introduction

Improving water quality for ranchers and livestock watering in the Badia is a fundamental element of Community Action Plan (CAP) adopted by the Ministry of Environment /Badia Restoration Program. This can be done by two ways; firstly, utilization of polluted ground water wells by installation of treatment units and distribution system in the areas that do not have drinking water supply system. Secondly, rehabilitation of old distribution networks to prevent contamination through corroded leaking pipes and to increase supplied water quantities. For ranchers communities, the availability of clean and safe water is important for human health and well-being, economic production, and sustainable development. Failure to ensure the safety of drinking water may expose the community to the risk of outbreaks of waterborne and infectious diseases. In addition, the availability of water is expected to reduce the cost of raising livestock because the livestock owners will stop driving long distance costing them a lot of money to bring water to their animals. Reducing the traffic movements, in turn, will have indirect influence on the rangeland areas. As a result, the Ministry of Environment /Badia Restoration Program signed an agreement in November 18, 2013 with the Ministry of Water and Irrigation/ Water Authority of Jordan (WAJ) to improve water quality and quantity in two locations. The first one is Furaifra village where treatment units for Furaifra well will be installed and all relevant infrastructures to transport treated water to the consumers including storage units, pumps, buildings, network and transport pipelines. The second location is Hashmya and Husaynia villages in Husaynia area where some modifications on the existing water supply system will be performed. The duration of the agreement is one year starting from the date of signing.

2. Location and coordinates of the projects

Both projects are located within the Badia area

First Furaifra project

- Easting (243.945)
- Northing (1033.775)

Second Hashmya project

- Easting (227.785)
- Northing (1000.680)

3. Project Scope of Work

This agreement includes two projects located in the southern Governorate. Scope of work of each project can be seen in tables (1) and (2). Both projects would be implemented by private sector. The awarded contractors would be selected through competitive tendering procedures.

Table 1 Scope of work for Furaifra Project*

Contract no.	Scope of the work
1	- Construction of the pumping station and treatment plant including all required civil, mechanical and electrical works - Water network -Providing electrical transformer and cables to connect the plant with the national electrical network
2	-Providing and installation of the well pump and Hanging pipes

*****Note**:** Furaifra village is now supplied with water by mobile tankers. It doesn't have any water supply system. Therefore, the residence of the area asked WAJ to provide them with water from Furaifra well which is about 1Km far from this community. This project will provide water to about 300including the residences and Nomads.

Table 2 Scope of work for is Hashmya and Husaynia project*

Contract no.	Scope of the work
1	- Construction pump station including all required civil, mechanical and electrical works
	-Construction of a water tank of 1000 m^3 capacity
	-Providing and installation water pipeline of (6") diameter and 5.5 Km length
2	-Replacement of existing submersible pump and hanging pipes for Husaynia (1a) well

*Notes:

1. Hashmya village is mainly supplied by drinking water from Unaiza well. This well has an old treatment plant to remove sulfur and Ammonia. This plant is not efficient. The consumers always complain from sulfur odor. Therefore, WAJ decided to close this treatment plant and supply Hashmya with water from Husynia well (1a) which is 5.5 Km far. About 13000 habitants will benefit from this project in Hashmeya and Husaynia villages.
2. The scope of work of this project has been changed. It was proposed in the inception report that two existing pipe lines would be replaced while Unaiza well would be kept as the main water supply source for Hashmeya. However, a report from the WAJ central labs recommended that Unaiza well should be replaced by Husaynia well (1). As a result scope of work of this has been changed.

4. Project Progress

The implementation stages of this agreement and the progress of each stage can be seen in tables (3) and (4)

Table 3 Progress percentage of each stage for Furaifra project (contract no. 1)

Stage no.	Contract no.	% Progress	Notes
(I) Preliminary studies	N/A	100	Performed by WAJ staff
(II) Preparation of tender documents	N/A	100	Performed by WAJ staff
(III) Tendering process	N/ A	100	Performed by WAJ staff
(IV) Implementation	M/12/2014/Works	Financially 10 Technically 30	

Table 4 Progress percentage of each stage for Hashmya and Husaynia project (contract no. 1)

Stage no.	Contract no.	% Progress	Notes
(I) Preliminary studies	N/A	100	Performed by WAJ staff
(II) Preparation of tender documents	N/A	100	Performed by WAJ staff
(III) Tendering process	N/A	100	Performed by WAJ staff
(IV) Implementation	M/16/2014/ Works	Financially 0 Technically 25	

5. Modified time schedule of the project

Modified time schedule for this project can be seen in tables (5) and (6).

Table 5 Modified time schedule for Furaifra project

Stage no.	Start date	End Date	Notes
I	8/11/2013	17/3/2014	There is a delay in this stage for Hashmeya and Husaynia project because the scope of work have been changed after the central labs recommendation for Unaiza well
II	17/3/2014	29/5/2014	The end date might be changed due to the delay occurred in stage no. I
III	29/5/2014	4/11/2014	The contract was ready in 4/9/2014 but the letter of authorization to supervise the project was delayed. And as a result letter of authorization to start work in the project was delayed to 4/11/2014. This is because supervisory engineers are limited in WAJ.
IV	4/11/2014	3/5/2015 End date of implementation 3/7/2015 date of source approval by WAJ central LABs	End date might be delayed if variation order is recommended by the technical committee

Table 6 Modified time schedule for Hashmeya project

Stage no.	Start date	End Date	Notes
I	8/11/2013	17/3/2014	There is a delay in this stage for Hashmeya and Husaynia project because the scope of work have been changed after the central labs recommendation for Unaiza well
II	17/3/2014	18/6/2014	The end date of this stage has been changed due to the delay occurred in stage no. I
III	18/6/2014	9/11/2014	There is a delay in the end date of this stage due to negotiation process with the awarded contract about his prices
IV	9/11/2014	8/4/2015 end date of implementation 8/6/2015 end date of source approval by WAJ central LABs	End date might be delayed if variation order is recommended by the technical committee

6. Cost of the projects:

As mentioned in table No. (1) the project would be implemented in two contracts. The real cost of contract no. (1) can be seen in tables no. (7) and (8). Please see a summary of the bill of quantity and the name of the awarded contractor in attachments no. (1) and (2).

Table 7 Cost Furaifra project*

Contract #	#	Item	Total price (JD)
Contract No. 1	**1**	**Network**	74370
	2	**Well works includes** well arrangement and Drain and washout pipelines and manhole	4450
	3	**Pump station**	
	3.1	Concrete tank (200m^3)	49110
	3.2	Operators and pumps building	57465
	3.3	Inside Electrical works inside well location (control panels+ cables)	
	3.4	Inside mechanical works inside well location (connection pipes+ fittings pumps+ chlorinator)	
	3.5	Feed pipe for filling mobile tanks+ fittings	
	4	**Treatment unit**	
	4.1	Aeration tower	6000
	4.2	Sand filter+ piping	11000
	4.3	Filter Feed pumps + control panel+ electrical works	7000
	4.4	Concrete slab for filters+ shade	4400
	5	**Infrastructure**	
	5.1	Amount reserved for any additional extra works and for the Electrical connection (100KVA Transformer + 400m cables	40000
	5.2	Fence & gate	20170
	5.3	Pavement works+ lights+ outside electrical and mechanical works + septic tank for pump station building	49550
		Total	**323515**
Contract no. 2	N/A	Providing and installation of the well pump and Hanging pipes	**Funded by WAJ**

*Note: BRP would contribute in this project by (128,316 JOD) and the rest would by funded by Water Sector.

Table 8 Cost of Hashmya and Husaynia project

Contract **No.**	#	**Item**	**Total price (JD)**
Contract No. 1	**1**	**Reservoir**	127470
	2	**Pump station**	
	2.1	Pumps Building include Chlorination, Storage, Control Rooms	86912
	2.2	Electro-mechanical works for 2 pumps (Pumps, chlorination system, control panels and cables)	29330
	3	**Network**	
		Installation of main transport pipelines without procurement HDPE [6 in]	87785
	4	**Well works**	
		Well arrangement	2675
	5	**Miscellaneous**: Outside works for the well location and office for supervisor	6410 +2100=8510
		Total	**342682**
Contract No. 2		Submersible pump, hanging pipe and control panel	Not yet known, Estimated by 25000

*Notes:

- The whole project would be funded by BRP
- The cost might be changed if variation orders are recommended during implementation.