



SIXTH SIX-MONTH PROGRESS REPORT FOR PROJECT

REPORT COVER PAGE

Participating UN Organization:

FAO – Food and Agriculture Organization of the UN

Cluster: A

Agriculture, Food, Security, Environment and Natural Resources Management

Project No. and Project Title: A5 – 02

OSRO/IRQ/403/UDG

Improvement of water supply and drainage provisions through the rehabilitation of pumping stations

Report Number:

6

Reporting Period:

1 January to 31 June 2007

Project Budget:

First allocation: US\$13 463 000
Second allocation: US\$ 11,695,544
Total: US\$ 25,158,544

List Implementing Partners:

- Ministry of Water Resources of Iraq

Project Coverage/Scope:

Iraq – Euphrates and Tigris Irrigation and Drainage Systems.

Abbreviations and acronyms:

MoWR – Ministry of Water Resources

Project Duration/Closed Project:

4.5 years



I. Purpose

1.1 Provide the main objectives, outcomes, outputs of the programme/project

1.1.1 Development Goals:

- improve water availability for irrigation and human and animal consumption;
- improve the drainage of agricultural areas;
- eliminate discharge of saline drainage water into fresh water sources.

1.1.2 Immediate Objectives:

- To make a full assessment of the condition of the pumping stations in the country, and to identify and detail the measures to be taken for their repair or rehabilitation.
- Within a priority list, prepared by the MoWR on the needs basis, restore into operational condition pumping stations within the Tigris and/or Euphrates hydraulic systems, contributing to the better water supply to agricultural lands and farming activities within the areas' rural communities.

1.1.3 Outputs:

- A general inventory and condition assessment of the approximately 275 pumping stations under the control of the MoWR, in a GIS-linked database.
- A detailed survey of actions required for the rehabilitation of the approximately 125 pumping stations earmarked as priorities on the basis of their importance for the supply of water for human consumption, as well as for irrigation to strategically important agricultural areas.
- Rehabilitation of pumping stations earmarked as priorities, through the local or international procurement of mechanical and electrical equipment and spare parts and their installation.
- MoWR technical staff trained in condition assessment and repair of pumping stations; and technical and administrative staff trained on contractual matters for major international procurement / service contracts.

1.2 Explain how the programme/project is relevant to the following benchmarks:

- UN Assistance Strategy for Iraq,
- UN Millennium Development Goals,
- Joint Needs Assessment,



- Iraqi National Development Strategy

The project activities are integrated in the overall UN strategy for Iraq, which supports the Iraqi National Development Strategy and contributes to the Millennium Development Goals, designed to achieve the following outcomes:

- enhanced sustainable long-term food production and natural resource management;
- rehabilitation and reconstruction of infrastructure;
- strengthened institutional development and capacity building;
- support to legislation, policy and strategy formulation;
- enhanced employment and income-generation;
- enhanced environmental restoration and conservation..

- 1.3 Indicate the main implementing partners, their roles and responsibilities, and their interaction with the Agency

FAO has set up a good working relationship with the Iraqi Ministry of Water Resources' section responsible for the pumping stations, which carried out the initial in-field surveys to determine the specifications of the equipment currently in place and its state of operation. This section is also closely involved in the technical bid evaluation of the offers received regarding the equipment for the rehabilitation of the pumping stations and will also be involved in monitoring the final evaluation, plus assistance during the installation phase.

II. Resources

Financial Resources:

- 2.1 Provide total funds provided, disbursed and committed

Total funds provided: US\$ 25,158,534

Total commitments: US\$ 20,499,977

Total disbursement: US\$ 9,862,368

- 2.2 Highlight any variation(s) in projected versus actual spending for the reporting period indicating the reason for such variation(s).

None

- 2.3 Explain programme/project expenditures within the 10 budget categories, including security expenditures.



PERSONNEL	\$227,200
CONTRACTS	\$204,910
TRAINING OF COUNTERPART	\$338
TRANSPORT	\$0
SUPPLIES AND COMMODITIES	\$88
EQUIPMENT +TRANSPORT	\$776
TRAVEL	\$13,060
SECURITY	\$0
MISCELLANEOUS	\$40,260
INDIRECT SUPPORT COST	\$144,636
TOTAL EXPENDITURES	\$631,268

2.4 Indicate other funding sources, if applicable.

None

2.5 Provide details on any budget revisions approved by the UNDG ITF Steering Committee, if applicable.

Two budget revisions/request for extension were submitted to the UNDG ITF Steering Committee support office. The first one in end 2005 when the project was being implemented in line with approved project document, as revised at the 1st and 2nd Project Implementation Meetings between MoWR and FAO, US\$11.6 million were transferred to FAO to rehabilitate four additional pumping stations (Al Sijilla, Salaman Pak, Al Hussainiyah and Hutaman). In line with this, a budget revision/increase and a project extension up to 31 December 2007 was requested. Furthermore, it has been found that the manufacture, supply and installation of pumping stations takes 18 months from the placement of the order, with suppliers not being prepared or able to perform the task in a shorter period. In addition, FAO was requested late 2006 to rehabilitate a thirteenth pumping station (at Al-Shomally). An extension of the project duration was therefore required up to 31 December 2008.

2.6 Project expenditures for the 1 July to 31 December 2007 period.

US\$500,000

Human Resources:

2.7 National Staff: Provide details on the number and type (operation/programme)

One NPO and one technical assistant



- 2.8 International Staff: Provide details on the number and type (operation/programme)

One project manager, short term technical and other managerial and administrative staff co-shared with other UNDG ITF projects.

III. Methods of Operating

- 3.1 Implementation was undertaken by inviting the original equipment manufacturers (OEM) to submit a rehabilitation proposal for supply and installation of the equipment and civil works. The installation works would be sub contracted to a local Iraqi Civil Contractor who was familiar with the local authorities and who could work successfully under the current security situation.
- 3.2 The procurement of the mechanical and electrical equipment for the rehabilitation of the pumping stations was undertaken by direct procurement to the OEM to reduce the need to modify the foundations of the pumping station and to simplify/accelerate the installation process by just unbolting and bolting on the new pump to the existing mounts.
- 3.3 Monitoring of the project was undertaken by the Resident Engineer at each pumping station who provided monthly reports and updates in conjunction with MoWR personnel.
- 3.4 Monthly reports with photos and video evidence formed the basis for progress evaluations, along with an update of the work effected according to the BoQ which formed the basis for payment advices.

IV. Results

- 4.1 Provide a summary of programme/project progress in relation to planned outcomes and outputs; explain any variance in achieved versus planned outputs during the six month reporting period.

Output 1:

“A general inventory and condition assessment of the approximately 275 pumping stations under the control of the MoWR, in a GIS-linked database.”

During the last 6 months a pumping station asset database was prepared, covering all 305 pumping stations under MoWR. A tender has been let for the programme design for a menu driven data base programme specifically designed for this purpose.



Output 2:

“A detailed survey of actions required for the rehabilitation of the approximately 125 pumping stations earmarked as priorities on the basis of their importance for the supply of water for human consumption, as well as for irrigation to strategically important agricultural areas”.

At the First WRI Project Implementation Meeting held in Amman on 14 to 18 August 2004, the MoWR and FAO agreed to restrict the number of pumping stations to be rehabilitated to a prioritised list of 12 and this was later reduced to 8 due to funding constraints. A detailed condition assessment survey of 8 pumping stations has been completed. A budget was approved for the detailed condition assessment survey of the remaining four pumping stations plus that of Al Shomally which have been completed.

Output 3:

“Rehabilitation of pumping stations earmarked as priorities, through the local or international procurement of mechanical and electrical equipments and spare parts and their installation”.

Up to November 2005, funds were available for the procurement and rehabilitation of only four pumping stations. An estimated amount of US\$ 25.7 million was required (against a budget availability of US\$ 13.5 million) for the rehabilitation of all eight pumping stations. However, additional funds of US\$11.65 million were made available to complete this work.

After contract prices were finalised, the funds remaining were insufficient for all twelve pumping stations and MoWR were requested to effect the installation work for North Suwira, Al-Amiriyah and Al Sijilla pumping stations to allow funding for the rehabilitation of additional pumping stations. This was agreed. With the funds saved, the eight pumping stations were fully funded. MoWR requested that Al Shomally pumping station be rehabilitated as a priority utilising the remaining savings.

Therefore, currently under this project, nine pumping stations are fully funded, and the remaining four surveyed pumping stations are still unfunded.

The current status of procurement and the contracts prepared are listed below:

- Kirkuk pumping station: The following spares, worth US\$1 180 511, were procured: Pump Bearings; Standard Bearings; two sizes of autotransformers; grease pumps; two sizes of Capacitors; two sizes of



Batteries, Dewatering Pumps; Oil Pressure Devices, Silicone Transformer Oil plus Vacuum Contactors.

- Mandali 1 pumping station: A contract worth US\$3 815 836 was awarded in August 2005 for the supply and installation of the replacement pumps and the contractor signed in Nov. 2005. The replacement pumps were delivered to site, and during the last 6 months they were installed and handed over to the MoWR as a fully operational pumping station.
- North Suwira and Al-Amiriyah pumping stations: A Purchase Order for US\$2 360 431 was issued for the supply of pumps and equipment for the North Suwira Pumping Station in September 2005 and a PO for US\$1 688 159 for the Al Alimiriyah Pumping Station in December 2005. Due to the need for detailed and protracted negotiations on contractual terms and conditions, the contractor did not actually sign the contracts until May 2006. MoWR have agreed to undertake the installation of the pumps which have been manufactured during the last 6 months and delivery will take place in September 2007.
- A contract for the supply of pumps and equipment worth US\$7 308 484 for the rehabilitation of Salman Pak, Al Hussainyah and Hutaman pumping stations has also been finalised and the contract for supply and installation was signed on 9 August 2006. Completion of manufacture has taken place in the last 6 months and delivery will take place from September to November 2007.
- A further Purchase Order for the supply of pumps and equipment worth US\$ 588 217.00 for the rehabilitation of Al Sijilla pumping station was issued 25 July 2006, with manufacture taking place in the last 6 months and delivery is scheduled for August 2007. MoWR have agreed to install the pumps and equipment.
- The survey report for Al Shomally was completed and cleared by MoWR. The rehabilitation proposal was received during the last 6 months from the OEM and is currently under review.

Output 4:

“MoWR pump station and technical staff trained in condition assessment and repair of pumping stations; and MOWR Engineers trained on technical matters for major international procurement contracts”.



Both components of this formal training programme were successfully completed. However, during the remainder of the project's life, informal, on-the-job training continues in all areas.

- 4.2 Report on progress made toward the achievement of specific medium-term outcomes of the programme/project as a result of the achieved short-term outputs during this reporting period.

Outputs 1 and 2:

A pumping station asset database is under preparation covering all 305 pumping stations. There is no asset management software that is available "off the shelf" for pumping station management, therefore a contractor has been employed during the last 6 months to design a menu driven programme to simplify the data entry and retrieval for the MoWR data base.

Output 3:

After the condition and name plate data surveys were completed, the "Condition and data survey reports" for the pumping stations were finalized (50 page report each). On the basis of these reports, a rehabilitation proposal was requested from the original equipment manufacturers (OEM). The progress of the various pumping stations is as follows:

Mandali 1 pumping station: all the above studies were completed. Moreover, a comprehensive set of specifications for the replacement pumps and a bill of quantities (BoQ) for the installation were sent to the OEM for a technical proposal. The proposal was duly received and cleared by the MoWR and a contract worth US\$3 815 836 was awarded for the supply and installation of the replacement pumps. The contractor has provided factory training for two MoWR engineer and coordinated the factory inspection and witness testing of all mechanical and electrical equipment. The mechanical and electrical equipment has been delivered to site, and during the last 6 months it has been installed, commissioned and handed over to MoWR

North Suwira and Al-Amiriyah pumping stations: all the above studies were completed. In addition, a comprehensive set of specifications for the replacement pumps and BoQ for the installation were sent to the OEM for a technical proposal. The proposal was duly received and cleared by the MoWR. Final negotiations between FAO and the OEM were held and the POs issued. The contractor has supplied the final drawings which were cleared by all parties, manufacturing and the factory inspection and witness testing of mechanical and electrical equipment has been completed during the last 6 monthys - training and delivery will take place in September 2007. The



Ministry of Water Resources has agreed to undertake the installation of these pumps.

Hutaman, Al-Hussainiyah and Salman Pak pumping stations: all the above studies were completed. A comprehensive set of specifications for the replacement pumps and a BoQ for the installation were sent to the OEM for a technical proposal. The proposal has been received from the OEM for the supply and installation of the replacement pumps, and cleared by MoWR technical staff. The contract for US\$7 308 484, was signed on 9 August 2006 and represents a negotiated reduction over the previous estimate of US\$7 757 567. Manufacture, witness testing and training has taken place over the last 6 months and will be completed by September 2007, after which delivery and installation will take place by a local contractor.

Al-Sijilah pumping station: all the above studies were completed. A comprehensive set of specifications for the replacement pumps and a BoQ for the installation were sent to the OEM for a technical proposal. The proposal has been received from the OEM for the supply of the replacement pumps and electrical control equipment. The technical clearance of this proposal has been completed and has been technically approved by MoWR technical staff. The Purchase Order for US\$588 217 has been issued now that the additional funding has been received. This final contract sum is substantially less than the original, turnkey based estimate, due to the removal from the contract of installation services, as MoWR opted to perform this work with their own resources. Manufacture and witness testing has been completed during the last 6 months and delivery will take place during August 2007. Training is still being negotiated with SPP to take place in England, as visas are not available for Iraqis to travel to the UAE.

Kirkuk Pumping stations: the following spares, worth US\$1 180 511, were procured: Pump Bearings; Standard Bearings; two sizes of autotransformers; grease pumps; Two sizes of Capacitor; Dewatering Pumps; Oil Pressure Devices, Batteries and Silicon Transformer Oil plus Vacuum Contactors – all have been delivered and are under distribution by MoWR. Training has been requested in connection with some items.

Al Shomally pumping station: the survey report has been completed and cleared by MoWR and AGST, Rome. The survey formed the basis of the proposal request that was sent to the OEM who have return their proposal during the last 6 months and is currently under review.



A standard Supervision Contract for the rehabilitation of eight pumping stations has been completed and one contract has already been completed, for the site supervision of Mandeli 1 pump station.

A standard Factory Inspection and Witness Testing Contract for undertaking visits to four manufacturers' sites has been completed and a contract has already been undertaken for the inspection and testing of mechanical and electrical equipment for all pump stations.

Output 4:

On the job training is ongoing.

- 4.3 Report on the key outputs achieved in the six month period including # and nature of the activities (inputs), % of completion and beneficiaries.

Pumping station database: 50% complete

Mandali 1 pumping station:
(Installed) 100% complete

North Suwira and Al-Amiriyah pumping stations: 95% complete (delivery only)

Hutaman, Al-Hussainiyah and Salman Pak pumping stations: 50% complete

Al-Sijilah pumping station: 95% complete (delivery only)

Kirkuk Pumping stations: 100% complete

Al Shomally pumping station: 20% complete

- 4.4 Explain, if relevant, delays in programme/project implementation, the nature of the constraints, lessons learned in the process and actions taken to mitigate future delays.

Security:

The security of installation contractors' staff at the pumping station sites has become a very contentious issue. The installation staff at Mandel 1 pumping station were issued with a threatening letter by the local militia and had to negotiate terms for a return to site and resumption of work – these incidents will add to the cost and duration of all contracts executed in Iraq and a procedure and methodology for resolving this issue needs to be addressed immediately.

Other:

- Information received from the Iraqi MoWR requires cross checking for accuracy by reconciling three sources of information built into the survey reports:



- bill of quantities;
 - electrical layout single line diagrams;
 - equipment name plate data.
- A Shortage of “As built drawings” from Iraq to verify information being received from the field.
 - Delays in receiving information from the field and from original manufacturers.
 - All contract documents had to be developed using FAO and FIDIC procedures in order to meet the requirements and cover the unusual circumstances surrounding project implementation.
 - All pumping equipment has to be manufactured to order, as there are no stock items.
 - Manufacturing lead times are 6 to 9 months before delivery.

There is a substantial element of risk in the implementation of this project. This is due to several reasons:

- Incompatibility between new and existing 30 year old equipment when replacing or repairing pumps, motors, electrical control and auxiliary equipment in an existing pumping system and pump house structure. Such incompatibility could lead to the procurement of equipment that cannot be fitted into the existing structure or system, or will not work once it has been installed.
- Poor installation of new equipment or sub-assemblies and inadequate care taken during the rehabilitation of pumping stations, as a result of using unknown and untried contractors because the poor security situation in the country has prevented known contractors from tendering;
- The high cost of procurement and rehabilitation;
- The changes that have taken place in electrical control technology over the last 30 years;
- Having to rely on third hand information provided by the MOWR staff, as FAO cannot field international technical staff to pump station sites.

In view of the above, a full risk assessment analysis for the rehabilitation of the pumping stations was undertaken and procedures for requesting proposals



from suppliers was amended in order to minimize the risks. These procedures, which are time consuming, were not foreseen during project formulation.

- 4.5 List the key partnerships and collaborations, and explain how such relationships impact on the achievement of results.

The project is implemented with the cooperation of the Iraqi Ministry of Water Resources.

- 4.6 Summarize achievements against planned results for cross cutting issues: security, gender, human rights, employment (including # of short and/or long-term jobs created), and environment.

The replacement pumps and electrical equipment for Mandali pumping station have been manufactured, inspected, delivered to site, installed and handed over to MoWR.

The final technical specification details for the pumping equipment to be manufactured and supplied (only) to North Suwira and Al-Amiriyah pumping stations have been finalised, manufacture is complete and delivery is about to start.

A contract for the supply and installation of pumping equipment at Salman Pak, Al Hussainiyah and Hutaman pumping stations has been signed and manufacture is nearing completion.

A purchase order has been placed for the manufacture and supply (only) of the pumping equipment for Al-Sijilah pumping station and is scheduled for delivery August 2007.

Al-Shomally pumping station was designated as a priority for rehabilitation; the OEM has supplied a proposal which is currently under review.

Several of the pumping stations are used for pumping drinking water for human consumption and are a central component of the urban infrastructure and of direct concern in health issues. The water is also used in many areas for livestock watering and hence covers this aspect of agricultural production as well.

Environmental considerations are an important element of this project with a reduction of water logging and salinisation of agricultural lands in the region being one of the main objectives. Due to the low-lying nature of much of the country, drainage in many areas is dependent on pumping water from tertiary and secondary drains into the large main drainage canals. Improving the drainage networks will avoid saline water charged with residues from upstream agricultural areas overflowing and contaminating downstream lands, and discharging into the rivers and water supply canals, causing environmental and health risks for the population.



Regarding participation of the public, where feasible, contracts have been opened up to national private companies and have specifically not been limited to parastatal organizations. No attempts have been made within the project to address gender issues or policy engagement.

V. Future Work Plan

5.1 Summarize the projected activities up to the end of December 2007.

- North Suwira and Al-Amiriyah: Finalise delivery to site and handover of equipment to MoWR
- Hutaman, Al-Hussainiyah and Salman Pak pumping stations: Track the manufacture of the contract equipment, plus organize factory inspection, witness testing and training of MoWR engineers, plus delivery and handover of the site for installation.
- Al-Sijilah pumping station: Finalise delivery to site and handover of equipment to MoWR.
- Al-Shomally pumping station: Finalise the review of the quote from the OEM for supply only of the mechanical and electrical equipment required for the rehabilitation of the pumping station. Review funding availability.
- Award the supervision contracts for the installation of the remaining three pumps stations that include installation (Hutaman, Al-Hussainiyah and Salman Pak).
- Investigate funding availability for the 4 outstanding pump stations.
- Finalise the pumping stations asset database programme and train the MoWR staff in data collection, operation and use of the database.