

UN PARTICIPATING ORGANISATION  
LOGO

United Nations Development Programme  
United Nations Development Group Iraq Trust Fund



COMPLETION REPORT FOR PROJECT: A5 – 01

Summary

**Participating UN Organisation: FAO**

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**Cluster: A5**

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**Project No. and Project Title: A5-01**

Improvement of drainage conditions in major  
agricultural areas: Hilla-Hashimia Drain.

**Project Location/Region/Province:**

Iraq–Centre/South (Babylon Governorate)

**Reporting Period:**

01 July 2004 – 31 December 2007

**Report Number:**

7<sup>th</sup> six month progress report and completion  
report

**Counterpart organisations / implementing  
partners:**

MoA – Ministry of Agriculture  
MoWR – Ministry of Water Resources  
WUAs – Water User Associations

**Project cost:**

- Cost at Approval: US\$5 126 600  
- Cost at Completion: US\$5 099 267  
- Provisional left over resources: US\$27 333

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**UNDG**



**Abbreviations and acronyms:**

MoA: Ministry of Agriculture

MoWR: Ministry of Water Resources

**Project Duration: 3.5 years**

- Original project duration: 2 years

(01 July 2004 to July 2006).

- Project extended up to 31 December 2007.

## I. Purpose

### **Main objectives and outcomes expected as per approved Project/Programme/project document:**

FAO's originally planned project involvement was, at the request of the MoWR, to be the improvement of the drainage systems in the Ramadi and Saqlawiya irrigated areas and their connection to the Main Outfall Drain (MOD). The location of the project was changed at the request of the Ministry of Water Resources (MoWR) in March 2005 and works diverted to improving the drainage canals within the Hilla-Hashimia Land Reclamation Project in Babil province.

Nevertheless, the *overall development objectives* have remained the same as the original Ramadi Drain Project, i.e:

- Improved food security (by increased agricultural production);
- Improved livelihoods (through increased income and improved living conditions);
- Essential infrastructure restored (by rebuilding of the community irrigation/drainage facilities);
- Capacity building of the MoWR.

The *expected outcomes* are:

- Improve the drainage conditions of major agricultural irrigation areas to avoid water logging, salinisation and as such to allow presently unproductive lands to be cultivated again and to improve crop yields in areas currently under cultivation.
- Ensure proper drainage of polluted waters to avoid/reduce contamination of the lower reaches and prevent the introduction of pollutants in the water supply systems for both human consumption and irrigated agriculture.
- Build institutional capacities and provide means to enable sustainable operation and maintenance of created infrastructures, involving both the beneficiaries and the government institutions.

### **Reference to how the programme/project related to the UN Assistance Strategy to Iraq and how it aimed to support Iraq national development goals and the Millennium Development Goals:**

FAO ensured project activities were integrated into the overall UN strategy for Iraq. This supported the Iraqi National Development Strategy while contributing to the Millennium Development Goals. The project was designed to achieve:

- Enhanced and sustainable long-term food production and natural resource management;
- Rehabilitation and reconstruction of infrastructure;
- Strengthened institutional development and capacity building;
- Enhanced employment and income-generation;
- Enhanced environmental restoration and conservation.

## **Project Management arrangements**

*- Programme/project implementation and supervision arrangements; in-country and region based capacity of organisation utilised:*

There are a number of mechanisms used in implementation of projects by FAO. Special operating mechanisms have been developed for remote management of the projects under the Iraq Program given the high risk security context.

The project was implemented from the FAO Project Management Unit for Iraq, relocated in Amman where the Chief Technical Adviser is based and from Baghdad with assistance of National Project Coordinators (NPCs) and Resident Engineers. At the headquarters, the project has been assisted by a manager and technical experts assigned to coordinate the overall planning and implementation of the project.

The primary implementing mechanism utilized for this specific project has been the Technical Implementation meetings held in Amman throughout the life of the project. The meetings served to enable face to face encounters between the representatives of FAO and the government counterparts for this project (MoWR and MoA). Given the complex operating context and challenges posed by security situation in Iraq, the meetings were opportunities used to discuss the problems as well as the achievements of the project while ensuring full transparency and accountability of activities throughout the project implementation.

The project implementation was also supported by a number of independent consulting companies and individual consultants selected through highly competitive process arranged by FAO to provide supervisory services on site and to advise on technical issues in impartial manner.

In order to ensure full transparency and accountability, already established and recognized FAO rules and procedures for procurement and recruitment of the project personnel has been followed. The endorsement of the Government of Iraq was obtained prior to initiation of any these actions during the project.

Furthermore, numerous ad-hoc meetings of technical and management nature were held in order to respond to unpredictability of the security and political situation which had a great impact on the project implementation. Challenges were met by bringing interested parties to the negotiating table regarding all the components of the project on regularly basis.

FAO Iraq Management Unit relocated in Amman has played a major role in implementation and supervisory arrangements. Availing itself of the existing administrative and fully operational management structure in Amman, FAO was able to respond to the arising demands throughout the project implementation in prompt and efficient manner.

*- Main international and national implementing partners involved, their specific roles and responsibilities in project implementation and their interaction with the agency:*

The main national implementing partners for this project were Iraqi Ministry of Water resources (MoWR) and the Ministry of Agriculture (MoA). The MoWR shared with FAO the full responsibility for the implementation of the project having decided on the location, on the

equipment needed to be procured, nominated experts for international trainings and liaised on daily basis with FAO regarding the problems of water tables and works being performed by the contractors.

As stated elsewhere in this report, one international well recognised training institution has also contributed to this project by developing and conducting a complex training program enabling Iraqi experts to get trained on the latest techniques and become familiar with the main technical issues in operations and maintenance of the irrigation and drainage systems.

*- Intra cluster cooperation and goods/services other agencies supplied/common services utilised:*

Not applicable.

*- Details on arrangements for procuring and transporting programme/project inputs (to ensure local appropriateness and acceptability, as well as security and value-for-money under the circumstances):*

All procurement of equipment and services has been undertaken in accordance with standard FAO rules and regulations, and in line with other FAO-implemented projects under the UNDG ITF. International procurement for both goods and services has been conducted in order to enable full transparency of the project implementation while ensuring that the latest technology available on the market is considered. Local and regional suppliers and contractors were invited to submit their proposals but technical competency was the main selection criteria. FAO, in a written agreement with its key counterpart ministries, opted for strong involvement of the ministries in the procurement process. This involvement includes the following elements which are being applied to date:

- Identification of inputs or services required undertaken jointly by FAO/Iraqi Line Ministry;
- Preparation of detailed specifications, BoQ, drawings, delivery time and destination undertaken by FAO and the Iraqi Line Ministry and endorsed by the latter;
- List of local potential suppliers provided by the Iraqi Line Ministry to be included by FAO in its invitations to bid;
- Tenders launched by FAO inviting local and international potential suppliers;
- Technical review of the offers received and preparation of recommendation carried out jointly by FAO/Iraqi Line Ministry and endorsed by the latter; and
- Purchase Orders or Contracts issued by FAO.

Arrangements made for international trainings followed the same criteria and only institutions with the proven expertise were asked to provide proposals.

Local appropriateness and acceptability of inputs have been ensured through regular endorsements received by Iraqi counterparts.

*- Systems for programme/project monitoring, quality control (including lesson learning and corrections) and impact assessment; methods for data collection and monitoring:*

Bill of quantities of executed works or goods prepared by the contractor are verified and confirmed jointly by the FAO Site Engineer/national project Manager and Representative of

the line Ministry. An international independent inspection/supervision company contracted by FAO provides a separate report to FAO confirming conformity with contracts including Weekly and Monthly reports with photos and video evidence which formed the basis for progress evaluations. It also included an update of the work completed according to the BoQ which formed the basis for payment advices.

Banking and insurance services are still not available in Iraq and FAO financial transactions inside Iraq must be made in cash, with its inherent control risk. Cash needed to run projects operation in Iraq or for payment of Iraqi contractors is transferred from FAO relocated office in Amman to the contactors using the services of two brokers. FAO pays the required cash to the brokers only after receiving written notification from the contractors in Iraq certifying that they received the required cash from the brokers. By so doing, the brokers assume full responsibility in case of loss of cash during the transfer process into Iraq.

An independent final project evaluation as per FAO rules and procedures is taking place and should be fully completed in the second half of 2008.

## II. Resources

**Total approved budget and summary of resources used for the programme/project from the UNDG Iraq Trust Fund (and non-Trust Fund resources where applicable):**

*UNDG ITF funds received:* US\$5 126 600

*Project expenditure:* US\$5 099 267

*Provisional Amount still available to date to the project at completion of activities:*

US\$27 333

*Provisional Use of Funds according to the 10 broad categories:*

Description	Budgets	Expenses	Balance
Salaries Professional + G.S	280 442	280 442	0
Locally Contracted Labour	221 148	221 148	0
Consultant	167 909	167 909	0
Contracts	2 595 521	2 595 213	308
Travel	179 189	179 189	0
Training	262 541	249 769	12 772
Expendable Procurement	27 119	27 119	0
Non Expendable Procurement	730 366	723 367	6 999
General Operating expenses	228 580	250 372	-21 792
Security	98 400	71 143	27 257
Support Cost Account	335 385	333 597	1 788
<b>Total</b>	<b>5 126 600</b>	<b>5 099 267</b>	<b>27 333</b>

Explanation of deviations of project expenditure versus original budget:

The variation in the budget line of the project must be viewed in light of decisions taken by the Ministry of water resources for relocation of the project. The key aspects of the decision were:

- Initially for FAO to take over the contract of Ramadi Drain;
- Subsequently in March 2005, MoWR retracted its decision. FAO's involvement in the Ramadi and Saqlawiya irrigated areas were therefore abandoned.
- Project location was shifted to Hilla-Hashimia

Eight month's costs of FAO technical input in preparation of feasibility report, design report, bill of quantities, drawings and contract documents for the Ramadi drain project required to be absorbed within the overall project budget of US\$5.4 million.

This resulted in costs within the budget lines to be altered so as to accommodate the Hilla-Hashimia project.

Budget line variance in the personnel costs is resultant from:

- Additional national and international personnel technical inputs were required to be provided for Ramadi Drain which was subsequently shifted to Hilla-Hishimia. Eight month's costs of FAO technical personnel inputs for Ramadi drain required to be absorbed in the project costs. The cost of international staff has decreased thanks to cost sharing arrangements with other irrigation projects.

Budget line variance in contract, equipment and supplies is resultant from:

- Utilization of partial funds earmarked for equipment for contracting, due to increase in cost of construction relating to the Hilla-Hishimia location rather than Ramadi drain;

Budget line variance in the training is resultant from:

- An extensive human resource capacity development programme was drawn up in January 2005. This was partially approved by the MoWR on 20 February 2005 with a request for cost reduction. The variance in training costs reflects the said reduction.

Budget line variance in the travel is resultant from:

- Increase in travel has risen as explained earlier from the shift in project site after first feasibility study was completed.

Budget line variance in the miscellaneous is attributed to:

- Project delay consequent upon the shift, leading to time overrun along with its co-related cost.

Approved budget revision:

Two budget revisions/extensions have been submitted.

Other funding sources available to the project: None

Human Resources:

- International: 1 Project/Programme Manager,
- National: 1 Project/Programme, Resident Engineer

Project Assets

- 1 x hydraulic excavator (US\$134 509)
- 4 x tipper trucks (US\$203 562.92)
- 2 x water tankers (16 000 litres) (US\$242 812)
- 1 x fuel tank (16 000 litres) (US\$123 041.31)

### III. Results

#### **An assessment of the extent to which the programme/project component / programme /project has achieved the outcomes and outputs expected**

*Output 1: The different Ramadi irrigated perimeters connected to the main drainage canal through operational field drains and entrance canals.*

*Output 2: The main Ramadi drainage canal improved and reconstructed to sufficient capacity, allowing the discharge of the drainage waters into the Main Outfall Drain, without over spilling in the Thartar outlet canal or other river or canal systems used for drinking water supply.*

As stated above, the location of the project has been changed at the request of MoWR in March 2005 (eighth months after the start of the project). The main objective of the Hilla-Hashimia Land Reclamation Project, in Babil province (Euphrates watershed), is to improve the drainage system and enable water to be drained away from the project specific area, thus reducing the water tables and salinity to acceptable levels. The total area to be reclaimed is 62 000 hectares and more than 50 000 farming families are expected to benefit from this project. The project area includes a rather large network of canals including the Babylon canal, Al-Shomally canal, Al-Thalmiyah canal and Awadel canal, in addition to a number of irregular canals that have been excavated randomly. The high areas and orchards within the project area are irrigated by the use of private pumps installed on the left bank of the Hilla river. The rest of the project's lands are irrigated by gravity, through a number of smaller streams branching from the left bank of the Hilla and Babylon rivers and its extension.

The main problem addressed within this project is the high water tables, the reason why agricultural lands suffer from the water logging and salinity. Due to silting within the existing hydraulic cross-section which requires both widening and deepening, as well as due to the growth of weeds, the main drain cannot accommodate sufficient discharge flows. Therefore, the main Hilla-Hashimia drain had to be excavated to its original depth and enlarge to enable full and unimpeded flow of drained water.

When FAO agreed to change the location of the project to Hilla-Hashimia it has also agreed to update the technical documentation related to the new project site as the existing ones were over thirty years old. This required new feasibility study to be conducted which later on formed the basis for a tender for works to be performed at the new project location.

*Output 3: Water User Associations created and trained to contribute to the improved operation, maintenance and management of their field irrigation and drainage networks, in collaboration with the technical institutions.*

The type of technical assistance required at the Hilla-Hashimia location differed from that planned under the Ramadi drain as it dealt exclusively with the main drain and indirectly with the farmers and Water User Associations. Even if the latter were to be formed under this project, they involvement would be limited to the management of secondary, tertiary and field canals and drains. In line with this and considering the poor security situation in the Hilla-Hashimia region, it was decided jointly by FAO and MoWR to remove this component from the project objectives. However a training on the Water User Associations organized by



FAO and MoWR and planned to take place from 16 to 29 March in Irbid, Jordan for other UNDG ITF irrigation funded projects and implemented by FAO will include participants from Hilla-Hashimia project.

*Output 4: Local technical institutions strengthened through training and through provision of essential requirement for the operations and maintenance of the rehabilitated infrastructures (main drains), as well as for the proper monitoring of both the water table and soil/water salinity issues.*

Notwithstanding great difficulties presented, partially due to the security situation and difficult mobility in and out of Iraq, significant progress has been made in building human capacities needed for the future operations and maintenance of the works completed. Ten engineers selected by the MoWR have been trained on various related topics. (See details below)

In addition to the excavations works completed, please refer to the list of the equipment provided under this project:

- 1 x hydraulic excavator (US\$134 509)
- 4 x tipper trucks (US\$203 562.92)
- 2 x water tankers (16 000 litres) (US\$242 812)
- 1 x fuel tank (16 000 litres) (US\$123 041.31)

*Output 5: Local technician trained for weed control in drainage canals.*

As mentioned above, 10 engineers have been trained in operation and maintenance of irrigation and drainage schemes (Cranfield, UK) which included topic such as weed control in drainage canals. This is in addition to operators which were trained by the supplier directly when equipment was supplied.

*Output 6: Network of piezometers installed for monitoring of water table and salinity.*

It has been agreed that MoWR will take over responsibility for installation of piezometers by extending the contract for civil works after the project handover by FAO.

*Output 7: Farmers having received additional training in cropping technology to take maximum advantage of the improved drainage conditions.*

As mentioned under the output 3, this component has been removed from the project's objectives. In addition to the reasons given above, the decision to open the project area to farmers rests with MoWR after the official handover from FAO.

#### **Main activities undertaken and achievements/ impacts:**

##### **Excavation works:**

-36 km (1 850 000m<sup>3</sup>) of excavation work completed. The work included the rehabilitation of the drains to depths below the existing bed level in various types of soils as well as below the groundwater table as indicated in the drawings of cross sections in the preliminary survey report. Furthermore, additional works such as clearing and digging of the adjacent areas, dewatering and levelling and removal of excavated material have been performed.

### **Feasibility studies:**

Two feasibility studies were produced:

The technical dossier for Ramadi Drain, required for the preparation of a Contract for Civil Works, was finalized and ready to be signed in March 2005. This dossier includes the feasibility study, site maps, technical drawings, and Bills of Quantities (BOQ). These documents were used by the MoWR to issue the contract itself.

A pre-feasibility study for the rehabilitation of the Hilla-Hashimia drain was completed by FAO and a complete feasibility study including site maps, technical drawings, and Bills of Quantities (BOQ) was produced by a consulting firm. The contract for the civil works was drawn up and used for the rehabilitation tender by FAO.

### **Procurement of equipment:**

- 1 x hydraulic excavator (US\$134 509)
- 4 x tipper trucks (US\$203 562.92)
- 2 x water tankers (16 000 litres) (US\$242 812)
- 1 x fuel tank (16 000 litres) (US\$123 041.31)

### **Procurement of services:**

- Contract for the services for preparation preliminary survey including design report, Bill of Quantities and drawings for Ramadi Drain;
- Contract for the services for the rehabilitation of the Ramadi drain (not issued by FAO but handed over to the MoWR);
- Contract for the services for preparation preliminary survey including design report, Bill of Quantities and drawings for Hilla-Hashimia;
- Contract for the services for rehabilitation of the Hilla-Hashimiya drain;
- Contract for supervision services.

### **Trainings:**

The following international training course has been delivered under this project to strengthen the technical capacities of the MoWR:

- Ten engineers, eight weeks training in Operation and maintenance of irrigation and drainage systems including P&M of pumping stations”, Cranfield University, UK. (16 October – 09 December 2005)

### **Impacts**

- The equipment supplied under this project has enhanced operational capacity of the MoWR in this sector.
- The technical assistance provided by FAO has enabled the MoWR and MoA to rehabilitate designated areas under the project by availing themselves of the latest technologies available on the market and receiving impartial advice on various technical issues which under alternative operational arrangements would not be available.
- Survey and assessment studies conducted by independent expert consultancy company, under the sponsorship of FAO, for two locations (Ramadi Drain and Hilla-Hashimia) have greatly contributed to gaining of technical knowledge on behalf of Iraqi experts and MoWR on critical issues related to this sector.

- Comprehensive training program delivered under this project has strengthened technical capacities of the MoWR in operational and maintenance issues and enhanced their ability to support irrigation sector in Iraq regarding other irrigation schemes.

As mentioned above, more details on impact will be made available after the independent final project evaluation as per FAO rules and procedures will have taken place. It should be fully completed in the second half of 2008.

**Implementation constraints, lessons learned from addressing these and knowledge gained from assessments, evaluations and studies that have taken place during the project:**

- As stated above, FAO has put in eight months' worth of work in preparing technical documentation for rehabilitation of the Ramadi Drain as originally envisaged under this project. This is because a local contractor for the civil works for the Ramadi Drain project had already been appointed by the MoWR by the time funds were allocated to FAO in July 2004. The MoWR has tendered locally for a contract for civil works for this project in February 2004, three months prior to the date on which the project was approved by Cluster Review Committee. At the first Project Implementation meeting held in Amman in August 2004 between representatives of MoA, MoWR and FAO, a number of other potential locations have been considered for rehabilitation purposes. However, at the request of the MoWR in September 2004 it was mutually agreed that FAO would take over the contract at Ramadi Drain. Following a substantial amount of work by FAO including the production of a technical dossier, the contract was revised. The MoWR requested FAO to channel funds to MoWR so that they can continue and finalise works with the contractor. Given that such procedure was unacceptable for FAO from a legal point of view, negotiations took place settling finally on Hilla-Hashimia Land Reclamation Project.

- Contrary to what has been promised, no focal point was appointed by the MoWR to liaise with FAO on collecting data for the new location as agreed at the second Implementation meeting held in Amman from 23 to 25 September 2005 thus causing serious delays. Documentation received from MoWR for the Hilla-Hashimia project was old and of poor technical quality, as prepared by a consultancy company back in 1991. In order to ensure proper engineering design for needed works, FAO has contracted a professional engineering consultancy company, fully endorsed by the government to conduct the feasibility study on the new location prior to FAO's acceptance of the works. The study was completed in July 2005 and subsequently revised at the request of FAO with additional technical clarifications on cross sections of the main drain. The tender for civil works, as per specifications and quantities defined in the feasibility report, was issued by FAO in November 2005 and awarded in December 2005.

Although the awarded contractor was available to initiate works in early 2006, unfortunately in March 2006 lightning damage occurred to the main electrical transformer for the Al-Shomally pumping station which is responsible for the de-watering of the Hilla-Hashimia drain, and consequently the drainage pumps were inoperable. As a result, the main drain could not be de-watered and the contractor could only perform preliminary works but no actual excavation works. Only after MoWR has installed two generators and repaired the electrical system, completed the testing and supplied fuel, all of which unforeseen in the original Bill of Quantities at the additional cost of US\$237 287.56 and four months later, was the contractor able to mobilise and start the contract in September 2006 – two years after the project inception. For various reasons, the reimbursement of unforeseen additional costs such

as devaluation of Iraqi Dinar or extension of the contractual period to enable the contractor to complete works depending on the water tables, FAO has issued seven amendments to the original contract to enable the contractor to perform works.

- Substantial delays occurred in procurement of equipment (six months) due to the changes made in the type and specifications of the equipment requested by the MoWR.

- Delays have occurred in receiving endorsements by the relevant Ministries for the training program which was formulated by FAO and submitted to MoWR and MoA in January 2005. The partial endorsement was received from the MoA in January and from the MoWR at the end of February 2005 with the request to reduce allocated budget to the training component. This request was partly accommodated by grouping training requirements and arranging for specifically-tailored training courses. The first study tour to Egypt organised under this component was cancelled as the MoWR refused to submit the names of the participants notwithstanding that the MoA had already done so. In fact, the MoWR has then requested FAO to substantially modify the training program previously agreed on. Although the original training program developed by FAO significantly focused on improving training capacities of the MoWR itself and strengthening linkages if the national institutions, the MoWR insisted that training program should focused on the irrigation experts currently employed by the ministry. The new reduced training program was finalised by FAO and approved by MoWR in June 2005.

- Difficult security situation in Iraq, which often exacerbated for long periods of time, delayed the implementation of the project substantially. The Ramadi Drain project is located in Falluja region which was one of the most insecure areas in the country during the project period. The Hilla-Hashimia Land Reclamation is also located in volatile area where access has been severely restricted. All the survey works requiring mapping, design, Bill of Quantities and hence the presence of engineers at the project site were delayed as even the Iraqi nationals from outside immediate neighbourhood were not allowed to enter the area.

- The main constraint that the contractor faced in conducting the works on the main canal while under the contractual agreement with FAO is connected to the dewatering pumping station Al-Shomally. This pumping station often works using two out of the three available pumps (there is no standby pump) because one of the pumps is under the maintenance. This level of operation is insufficient to maintain the water levels required to enable the contractor to conduct the excavation works. The design water for the drain at station 0+00 is 16.57 m a.s.l and the maximum water level at this station required during the working phase should be no more than 18.20 m a.s.l. The water level required for works was regularly exceeded partly due to the malfunctioning of the pumps which are twenty-eight years old. Due to this inability of the MoWR to guarantee required water levels, the contractor was reluctant to commit the additional equipment required to accelerate the completion of the contract. All of which adversely affected the implementation of the excavation operations planned under this project.

*Lessons learned:*

- Caution is needed in planning project activities, making financial commitments and raising the expectations of Iraqi counterparts before all relevant information provided by the Iraqi line Ministry are verified by independent firms;

- Identifying training needs and suitable personnel for training requires the coordination of a number of organizations.

- Continued coordination with the counterpart Ministry is fundamental.
- The planning of training activities and the nomination of trainees has to be initiated well in advance of the activity.

**Key partnerships and inter-agency collaboration, impact on results:**

The project was operated in collaboration with the Iraqi Ministry of Water Resources and in some components with the Ministry of Agriculture. No inter-agency arrangements were put in place.

**Highlights and cross cutting issues pertinent to the results e.g. gender disaggregation, policy engagement and participation of the public:**

- The most important element to be considered in this project is the environment and the positive impact that this project will have on farmers. The rehabilitation of drainage networks in Hilla-Hashimia area has become an urgent issue because of the major environmental concerns related to the water logging and salination of agricultural lands in the area. It has also become imperative to avoid saline water charged with residues from upstream agricultural areas to overflow and contaminate downstream lands. The risk of the discharge is great both from environmental point of view as well as a health risk for the population.
- With regards to the participation of the public in this project please note that all procurement actions have been advertised and opened to private companies and attempt has been made to engage technical expertise from various independent sources.

*Were the needs of particularly vulnerable or marginalised groups addressed?*

More than 50 000 farming families are expected to benefit from this project including the most vulnerable ones cultivating land in the total area reclaimed (approximately 62 000 hectares).

*How did the beneficiaries of the programme/project participate in its development and delivery?*

As stated above the component of beneficiary participation in this project has been limited because field work at project site on the Water User Associations could not be performed due to the security situation and has been removed from the project.

*How did men and women benefit from the programme/project? How were gender inequalities handled?*

Both women and men have been selected by the MoWR to attend the training courses that were held under this project.

*Were there any specific issues in relation to the security situation?*

Please see issues related to security situation stated above.

*How did the project contribute to capacity building in ministries and elsewhere?*

*The project contributed to capacity building in the MoWR in three areas:*

- Survey, assessment, formulation of comprehensive technical dossier which led to proper tender documentation and contract.
- The training program delivered under this project has strengthened technical capacities of the MoWR in operational and maintenance issues and enhanced their ability to support irrigation sector in Iraq regarding other irrigation schemes.
- Equipment provided has enhanced the MoWR's capacity to maintain irrigation and drainage networks.

#### **IV. Follow up actions and sustainability**

**Priority actions that should be supported/implemented following completion of project to build on achievements and partnerships rectify shortcomings encountered and use the lessons learned during the project with strong emphasis on achieving sustainability of the outcomes:**

FAO terminated the excavation contract due to persistent high water levels in the drain. The MoWR has agreed to complete the excavation works from KM 36+200 to KM 48+800 (approximately 350 000 m<sup>3</sup>). A follow up action should be implemented to ensure the drain is completed in the upper reaches.

The Al-Shomally pumping station broke down during the project life. As a result the dewatering of the drain is not ensured permanently. Despite the rehabilitation of 36 km of Hilla-Hashimiyah drain by FAO under this project, it does not enable water to be drained properly away from the project specific area, thus not reducing fully the water tables and salinity to acceptable levels. FAO produced a status report on the Al-Shomally pumping station and obtained quotations for its rehabilitation which are under review and consideration by the MoWR.

#### **Indication of major adjustments in the strategies, targets or key outcomes and outputs:**

The fundamental change in target occurred when in 2005 MoWR requested FAO to abandon already initiated contractual arrangement for Ramadi and Saqlawiya irrigation areas and move works to that of Hilla-Hashimia Land Reclamation Project. This change has substantially affected the project outcomes and outputs originally approved under the project agreement by the UNDG ITF. Although the overall development goal and type of technical assistance provided by FAO has remained the same, problems have been encountered in the project implementation at the new location as describe above.

#### **Estimated Budget required for follow up actions:**

The costs of the rehabilitation of the Al-Shomally pumping station that would enable dewatering the drain on a permanent basis are estimated at US\$6 million.

## Annex 1 Key Performance Indicators – Log Frame Matrix

Objectives	Measurable indicators	Means of verification	Outcomes
<p>Development Objective</p> <p>Improving the drainage conditions of major agricultural irrigation area by excavating the 50km long main drainage canal.</p>	<p>The excavation quantities – m<sup>3</sup></p>	<p>Detailed surveys of the designated canal profiles</p>	<p>Technical dossier produced. 1 850 000m<sup>3</sup> of excavation work completed – 36 Kms of drain canal cleared to avoid water logging, salinisation, and as such to allow presently unproductive lands to be cultivated again.</p>
<p>Immediate Objectives:</p> <p>To avoid water logging, salinisation, and as such to allow presently unproductive lands to be cultivated again in major agricultural irrigation areas in order to improve crop yields in the already cultivated areas.</p>	<p>The number of Ha of land brought back into production</p>	<p>Satellite imagery surveys</p>	<p>Satellite images are being procured and will be made available to the evaluation team. The information obtained will be cross checked with survey at project site to determine the increase in the number of Ha under production and the subsequent increase in crop yields and overall production. This can only be done during the 2008 agricultural production (March to September)</p>
<p>Outputs :</p> <p><i>The excavation of the Hilla Hashimia drainage canal – 2 023 234 M<sup>3</sup> over 50 Kms</i></p>	<p>No of cubic meters of excavation effected</p>	<p>Detailed profile surveys to determine the excavation quantities</p>	<p>1 850 000m<sup>3</sup> of excavation work completed over 36 kms of restored drainage canal to its original profile to allow the unimpeded flow of drainage water.</p>

## Annex 2 PROJECT COSTS

CATEGORY	UNDG ITF approved budget	Actual COST	Percentage of Approved	Budget Revision submitted*	Percentage of revision
<b>1. Personnel</b>					
including staff and consultants	747,000	669,498	90%	669,498	100%
<b>2. Contracts</b>					
including companies, professional services, grants	2,125,000	2,595,213	122%	2,595,521	100%
<b>3. Training</b>	324,000	249,769	77%	262,541	95%
<b>4. Transport</b>					
<b>5. Supplies and commodities</b>	17,000	27,119	160%	27,119	100%
<b>6. Equipment</b>	1,452,000	723,367	50%	730,366	99%
<b>7. Travel</b>	107,900	179,189	166%	179,189	100%
<b>8. Security</b>	98,400	71,143	72%	98,400	72%
<b>9. Miscellaneous</b>	145,000	250,372	173%	228,580	110%
<b>10. Agency Management Support</b>	351,000	333,597	95%	335,385	99%
<b>Total Expenditure</b>	<b>5,367,300</b>	<b>5,099,267</b>	<b>95%</b>	<b>5,126,600</b>	<b>99%</b>

\*Date last Budget Revision submitted – 5 December, 2007



### **Annex 3 List of contract awards by procurement method**

#### **1. International Competitive Bidding**

- 1 x hydraulic excavator
- 4 x tipper trucks
- 2 x water tankers (16 000 litres)
- 1 x fuel tank (16 000 litres)
- 2 feasibility studies for the preparation of technical dossier for Ramadi and Hilla-Hashimia drains
- 1 x excavation, enlargement and remodelling of Hilla-Hashimia drain
- 1 x training services Cranfield University

#### **2. Others**

None