



## UNDG Iraq Trust Fund

### ANNUAL PROGRAMME<sup>1</sup> NARRATIVE PROGRESS REPORT REPORTING PERIOD: 1 JANUARY – 31 DECEMBER 2010

#### Programme Title & Number

- Programme Title: “Rehabilitation and Conservation of Kahrez systems in Northern Governorates”
- Programme Number: A5-21
- MDTF Office Atlas Number:  
Project Number: 66925; Award Number: 54925

#### Country, Locality(s), Thematic Area(s)<sup>2</sup>

Iraq: Agriculture and Food Security Sector Outcome Team

#### Participating Organization(s)

UNESCO

#### Implementing Partners

- Ministry of Water Resources of both Central Government and KRG

#### Programme/Project Cost (US\$)

MDTF Fund Contribution:

US\$ 1,600,628

Government Contribution

*(if applicable)*

Other Contribution (donor)

*(if applicable)*

**TOTAL: US\$ 1,600,628**

#### Programme Duration (months)

Duration

Overall 42 months

Start Date

10 April 2007

Original end date

10.07.2008

Revised End Date,

31 March 2011

Operational Closure Date

31 March 2011

Expected Financial Closure Date

30 June 2011

#### Programme Assessments/Mid-Term Evaluation

Assessment Completed - if applicable *please attach*

Yes  No Date: \_\_\_\_\_

Mid-Evaluation Report – if applicable *please attach*

Yes  No Date: \_\_\_\_\_

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<sup>1</sup> The term “programme” is used for programmes, joint programmes and projects.

<sup>2</sup> Priority Area for the Peacebuilding Fund; Sector for the UNDG ITF.

## NARRATIVE REPORT

### **I. Purpose**

The project aims to improve the supply of water for drinking and for irrigation in rural areas of the northern governorates through the rehabilitation and conservation of traditional aqueduct structures, called *karez*. The immediate objectives are to (1) rehabilitate and conserve karez water systems; (2) build technical capacity in the long-term rehabilitation and maintenance of traditional karez systems; and (3) build networking with concerned institutions in the region to share the information and experience in the traditional water systems.

#### **Outcomes of the Programme/Project:**

1. karez water systems rehabilitated and conserved;
2. technical capacity enables long-term rehabilitation and maintenance of traditional karez systems; and
3. information and experience shared in the northern region of Iraq on the rehabilitation, conservation and management of karez systems.

#### **Outputs of the Programme/Project:**

- 1.1. Selected karez systems rehabilitated
- 1.2. Rehabilitation and conservation plan developed for further rehabilitation and long-term conservation
- 1.3. Short-term employment created
- 2.1. Selected community members trained to operate and maintain the system
- 2.2. Awareness raised on the proper use of the system
- 2.3. Technical capacity of experts, technicians, enhanced
- 2.4. Operating policies and procedures for managing the rehabilitated sections put in place
- 3.1. A network with regional and international experts established in order to ensure continuous exchange of information and expertise on Karez systems for the long term conservation

### **b. Strategic (UN) Planning Framework guiding the operations of the Fund.**

#### **UN Assistance Strategy for Iraq**

This project's objectives fall within the Water and Sanitation and Agriculture Clusters of the joint UN Assistance Strategy for Iraq by promoting an increased sustainable access to safe water for urban and rural populations, especially for the most vulnerable (Outcome 1); supporting the rehabilitation and extension of water systems (Output 1.1.); enhancing capacities for effective management of WATSAN (Outcome 3); and developing capacities at national and governorate level for planning, implementation, monitoring and evaluation (Outcome 3.2.). In agriculture, the project promotes the enhancement of production and productivity in the agricultural sector (Outcome 1) and the rehabilitation of irrigation and infrastructure in selected areas (Output 1.1.).

## MGDs

This project contributes to MDG Goal 7, “Ensure the environmental sustainability”, by promoting the use of traditional karez systems in the rural areas as a sustainable technology. In particular, the project addresses the loss of environmental resources and promotes the access to sustainable, safe drinking water.

## ICI

The project addresses the following goals within the ICI:

### *4.4.1.5 Environment, Water & Sanitation, Housing:*

Goal: improve access to water and sanitation by one third

2. Undertake specific measures to ensure universal access to services (wat/san, housing, etc.)

### *4.6. Agriculture and Water Management Strategy*

Goal: To support the development of the agriculture sector to achieve food security, generate employment, diversify the economy and preserve the countryside

4. Improve institutional and regulatory underpinnings of public agriculture

## Iraqi National Development Strategy

The project addresses the following goals within the NDS (2007-2010):

(Target) (8): Full access to water and health services for all people

### *Support for future plans in agriculture:*

11. Using renewable underground water in all agricultural and livestock breeding fields without being consumed through digging wells in promising areas.

### *Main priorities in agriculture:*

b. Restoration of irrigation infrastructure

f. Rehabilitating irrigation, drainage and soil maintenance projects as a base for production increase in one hectare

i. Organizing irrigation projects in a way securing agriculture requirements and achieving sound irrigation system

### *Main priorities in water and sanitation:*

d. Improve water quality and upgrade the water distribution networks.

f. Provide adequate crude water resources for all regions of Iraq.

## II. Resources

### *(a) Financial Resources:*

#### **Other funding resources available to the project.**

N/A

#### **Budget revisions approved by the appropriate decision-making body**

The project's original timeframe envisaged an implementation period of 22 months (1 April 2007 until 31 January 2009) and has subsequently been extended 5 times: first extension (6 months) to 31 January 2009; second extension (11 months) to 31 December 2009; third extension (9 months) to 30 September 2010; fourth extension (3 months) to 31 December 2010; and final extension (3 months) to 31 March 2011.

The training budget component has been decreased from US \$114,600 to US \$63,811 (44%) since only one major capacity-building activity remained to be implemented (by an implementing partner). No revision for equipment or miscellaneous were needed. The funds were reallocated to the following budget components for the following reasons:

**Contracts:** The cost of restoring karez targeted by the survey is less than originally planned, and savings are expected.

**Personnel:** US \$93,518 has been allocated to cover the funds to cover costs associated with project management, support and consultants until Sept 2010.

**Travel:** Close supervision and restoration monitoring, as well as training activities required an increase of US \$15,584 for staff travel.

**Security:** An increase of US\$ 3,056 was needed to cover the cost of life support and hazard needed for the increased presence in Iraq for project supervision during the extended period.

### *(b) Human Resources:*

National Staff: 1-National Staff GS level full time Other National Staff working on Operations Support Functions co-shared on pro-rated partial basis.

International Staff: 1- International Programme Manager

### **III. Implementation and Monitoring Arrangements**

UNESCO has been implementing project activities in close collaboration with the KRG Ministry of Ministry's Directorate of Irrigation and Surface Water are the key recipients of technical training, and have been instrumental in implementation.

The project has relied on the training services and technical advisory capacities of UNESCO's Institute for Qanats and Historical Hydraulic Structures (ICQHS) in Yazd, Iran. Furthermore, training of local community members takes place on site and through the recruitment of labour.

**b. Provide details on the procurement procedures utilized and explain variances in standard procedures.**

Surveying equipment has been procured by the project for the purpose of pre- and post-renovation testing of the water quality and quantity (to determine the project's impact on water supply). The supplier of the equipment was chosen on the basis of international bidding process, and the equipment was delivered using logistical assistance on the ground by staff of UNESCO and MoWR. (See below a description of problems incurred for this process).

**c. Provide details on the monitoring system(s) that are being used and how you identify and incorporate lessons learned into the ongoing project.**

Monitoring of the project is being done through close collaboration with the implementing partners (KRG MoWR). Technical advice is provided by both experienced engineers in the MoWR and by experts in the UNESCO ICQHS in Yazd, Iran. Trips to the northern governorates to monitor project implementation are taken by the project manager when necessary. In addition, UNESCO maintains separate M&E plans for each project which are to be updated monthly.

**d. Report on any assessments, evaluations or studies undertaken.**

The project undertook a comprehensive scientific survey of the location, state and condition of karez in the region from July to September 2009. The significant results of the survey not only provide a baseline for both the project and government programs, but also provide a new impetus for the project to target karez on the basis of urgency, need and feasibility.

## **IV. Results**

### **Output 1.1:**

#### **Selected karez systems rehabilitated**

Building on restoration efforts which began 2 November 2009, the project continued targeting vulnerable karez communities in Erbil and Sulaymaniyah governorates. By 31 December 2010, some 16 karez were completed, bringing the total to 17 karez in the overall project. Restoration of remaining 3 karez is expected to be completed by February 2011.

### **Output 1.2:**

#### **Rehabilitation and conservation plan developed for further rehabilitation and long-term conservation**

Due to the urgent need to update the understanding of karez in the region and to address the limited capacity and understanding held by the KRG, a comprehensive “Survey of Infiltration Karez of Northern Iraq” was undertaken from June to August 2009. The survey found that Iraq’s karez are far more numerous than previously expected (683 in total), most (85%) are located in the Sulaymaniyah Governorate, and most lie in disrepair (only 115 karez are still flowing in August 2009). Furthermore, it was revealed that a loss of 70% of the active karez have dried up since the onset of drought in 2005, causing the displacement of an estimated 100,000 people. The survey also estimates that 36,000 people still depending on karez are on the verge of being forced to evacuate if conditions do not urgently improve. The survey identified 50 communities that meet the criteria for immediate restoration, which can help alleviate the insecurity and pressure to evacuate. The urgent situation was confirmed by the project manager through several visits to some of the villages. For example, the isolated village of Kuna Flusa was observed to have an output of 60L/day, or about 4L per family per day. The survey findings and conclusions help reorient the project to target karez most in need of intervention. The survey provides a basis for government restoration projects in the future and a baseline for the restoration plan. The plan was delivered to KRG MoAWR on 15 Sept 2009.

The survey’s results generated a significant amount of interest in the Iraqi and international press, including the New York Times, the Toronto Star, Al Jazeera, BBC, ABC, Reuters and AFP.

### **Output 1.3:**

#### **Short term employment created**

Employment of 25 (skilled) and 85 (unskilled) local persons created so far.

### **Output 2.1:**

#### **Selected community members trained to operate and maintain the system and awareness raised on the proper use of the system**

630 community members trained so far. By February 2011, an additional 80 community members are expected to be trained on karez operation and maintenance.

### **Output 2.2:**

#### **Technical capacity of experts, technicians, enhanced**

Team of 25 Iraqi experts have received training on basic and advanced karez restoration techniques and database management. Training took place in July 2008 and December 2009 at ICQHS (Yazd, Iran). Restoration manual planned for publication in 2010.

### **Output 2.3:**

#### **Operating policies and procedures for managing the rehabilitated sections put in place**

Training on database and karez registry completed in 2008. Survey report (delivered to KRG MoAWR in September 2009) provides a comprehensive database of karez and their attributes, as well as guidelines for policies and management. Guidelines have been adopted by team of karez engineers of the General Directorate for Irrigation.

### **Output 3.1:**

#### **A network with regional and international experts established in order to ensure continuous exchange of information and expertise on Karez systems for the long term conservation**

KRG MoAWR now represents Iraq on the technical board of the UNESCO International Center on Qanats and Historical Hydraulic Structures (Iran), ensuring a network and exchange of practices and expertise. Training, karez survey and the preparations for Karez Phase II project (2010-2012) have allowed for knowledge and experience to be exchanged among KRG experts and international counterparts. Further exchange of experience and expertise expected throughout 2010.

**Key outputs achieved in the reporting period including # and nature of the activities (inputs), % of completion and beneficiaries.**

Outputs expected as per approved project document	Status of Achievement		
	Fully achieved	Partially achieved	Explanation
1.1. Selected karez systems rehabilitated		85%	Restorations suspended from 5-10/2009 to complete karez survey and plan. Restoration of model karez began 2 Nov 2009, expected completion in February 2011.
1.2. Rehabilitation and conservation plan developed for further rehabilitation and long-term conservation.	100%		Survey of karez in the region (their location and condition were studied) completed, identifying karez for long-term plan. Plan delivered to KRG MoWR on 15 Sept 2009.
1.3. Short-term employment created for rehabilitation.		90%	Employment of 25 local persons created so far. 5 short-term labour jobs expected to be created by Feb 2011 for the maintenance of 3 karez.
2.1. Selected community members trained to operate and maintain the system, and their awareness raised on the proper use of the system		85%	630 community members trained so far. By Feb 2011, an additional 120 community members are expected to be trained on karez operation and maintenance.
2.2. Technical capacity of experts, technicians, promoted by training programs and workshops	100%		A team of 25 Iraqi experts have received training on basic karez restoration and functionality, and database management. Advanced training postponed until March 2010 (July course was delayed due to recent instability in Iran and availability of trainers).
2.3. Operating policies and procedures for managing the rehabilitated sections put in place	100%		Training on database and karez registry completed in 2008. Survey report (delivered to KRG MoWR in September 2009) provides a comprehensive database of karez and their attributes, as well as guidelines for policies and management. Guidelines have been adopted by team of karez engineers of the General Directorate for Irrigation.
3.1. Network with regional and international experts established in order to ensure continuous exchange of information and expertise on Karez systems for the long term conservation	100%		KRG MoWR now represents Iraq on the technical board of the UNESCO International Center on Qanats and Historical Hydraulic Structures (Iran), ensuring a network and exchange of practices and expertise. Training, karez survey and the preparations for Karez Phase II project (2010-2012) have allowed for knowledge and experience to be exchanged among KRG experts and international counterparts. Further exchange of experience and expertise expected throughout 2010.

## **Delays in programme implementation, the nature of the constraints, actions taken to mitigate future delays and lessons learned in the process.**

The main challenges to the project thus far have been related to severe drought which caused the project's main partners (KRG MoWR engineers) to be occupied with other more important tasks; planning for quality control of the renovation works, and procurement (the Ministry misplaced part of the equipment procured by the project). Other factors include untimely response and difficult communication with the MoWR. The absence of a sitting KRG Minister of Water Resources from June to October 2009 has contributed to some delays in getting some feedback and collaboration. In the fourth quarter of 2009, the return of the rains slowed restoration of the Shekh Mamudian karez only slightly.

## **Key partnerships and collaborations**

UNESCO has been implementing project activities in close collaboration with the KRG Ministry of Agriculture and Water Resources (formerly the Ministry of Water Resources). Engineer staff from the Ministry's Directorate of Irrigation and Surface Water are the key recipients of technical training, and have been instrumental in implementation. The project has relied on the training services and technical advisory capacities of UNESCO's Institute for Qanats and Historical Hydraulic Structures (ICQHS) in Yazd, Iran. ICQHS also provided expert advice and surveying services for the preparation of and supervision of the restoration of the Sheikh Mamudian karez.

- Other highlights and cross-cutting issues pertinent to the results being reported on.

### Employment:

A key element for tackling unemployment is through the development of karez restoration and maintenance skills that should lead to job opportunities. Engineers and hydraulic companies will be skilled to contribute to the budding karez technical workforce.

## **V. Future Work Plan (if applicable)**

Output 1.1-1.3. Restoration of 3 karez will be undertaken and concluded by February 2011. Short-term employment of 20 short-term jobs expected to be created.

Furthermore, the project will undertake an complete evaluation by an external auditor.

## VIII. INDICATOR BASED PERFORMANCE ASSESSMENT

	Performance Indicators	Indicator Baselines	Planned Indicator Targets	Achieved Indicator Targets	Means of Verification	Comments (if any)
<b>IP Outcome 1: Karez water systems rehabilitated and conserved</b>						
<b>IP Output 1.1</b> Selected Karez systems rehabilitated	<b>Indicator 1.1.1</b> Number of Karez rehabilitated	0	20	17	Progress reports, payments, photos, field missions	
	<b>Indicator 1.1.2</b> Change in quality and quantity of native water supply	TBD	TBD	+	Baseline and post-rehabilitation surveys	It must be noted that the correlation between a rehabilitated Karez system and a positive change in water quantity and quality is not 100% established
<b>IP Output 1.2</b> Rehabilitation and conservation plan developed for further rehabilitation and long-term conservation	<b>Indicator 1.2.1</b> Number of Karez identified for further rehabilitation	0	20	20	N/A	Based on Survey results and recommendations
	<b>Indicator 1.2.2</b> Strategy for longer term rehabilitation and conservation	0	1	1	General survey of the existing Karez systems and its situation	Based on Survey results and recommendations
<b>IP Output 1.3</b> Short-term employment created	<b>Indicator 1.3.1</b> Unskilled labour created	0	50 persons x 90 days	85	Progress reports, invoices, contracts	Recruitment of unskilled workers to be undertaken by the contracted party who will implement the works
	<b>Indicator 1.3.2</b> Skilled labour created	0	10-12 persons x 40 days	25	Progress reports	Skilled labour will be provided mostly by the MoWR engineers who will work closely with the contractor. In this case, labour is not necessarily 'created'.

<b>IP Outcome 2: Technical capacity built in the long-term rehabilitation and maintenance of traditional Karez systems</b>						
<b>IP Output 2.1</b> Selected community members trained to operate and maintain the system	<b>Indicator 2.1.1</b> Number of community members trained	0	750	630	Community training participants list, MoWR report	
<b>IP Output 2.2</b> Awareness raised on the proper use of the system	<b>Indicator 2.2.1</b> Number of beneficiaries with improved awareness on the use of the Karez	0	20 communities	17	Community training participants list, MoWR report	MoWR to provide training at handover of karez to community once restoration is complete
<b>IP Output 2.3</b> Technical capacity of experts, technicians, enhanced	<b>Indicator 2.3.1</b> Number of technical workshops	0	2	2	Workshop reports	ICQHS, Oman workshops
	<b>Indicator 2.3.2</b> Number of Ministry staff trained in workshops	0	15	25	Participants list	ICQHS, Oman workshops
	<b>Indicator 2.3.3</b> Number of experts receiving practical experience	0	20	25	Progress reports, records from Ministry and/or contracting party	Selected MoWR experts will be involved in the renovation works with the contracted construction firm and guided by an outside expert. Experts will also receive training on use of surveying equipment
<b>IP Outcome 3: Information and experience shared in the region on the rehabilitation, conservation and management of Karez systems</b>						
<b>IP Output 3.1</b> A network with regional and international experts established in order to ensure continuous exchange of information and expertise on Karez systems for the long term conservation	<b>Indicator 3.1.1</b> Number of regional and international experts connected with MoWR trained staff	0	10	10	Workshop reports, participants list	Cooperation by neighboring countries (Workshop on data management organized by the Omani Government)