



## UNDG Iraq Trust Fund

### FINAL PROGRAMME<sup>1</sup> NARRATIVE REPORT

Programme Title & Number
<ul style="list-style-type: none"> <li>Programme Title: “Advanced Hydrogeological Survey for Sustainable Groundwater Development in Iraq (Phase I)”</li> <li>Programme Number: E3-19</li> <li>MDTF Office Atlas Number: Project Number: 66925; Award Number: 54925</li> </ul>

Country, Locality(s), Thematic Area(s) <sup>2</sup>
Country: Iraq, Water and Sanitation

Participating Organization(s)
UNESCO

Implementing Partners
<ul style="list-style-type: none"> <li>Ministry of Water Resources</li> </ul>

Programme/Project Cost (US\$)
MDTF Fund Contribution:  US\$ 675,000
Government Contribution <i>(if applicable)</i>
Other Contribution (donor)

Programme Duration (months)	
Overall Duration	12 month
Start Date <sup>3</sup>	24 August 2010
End Date or Revised	31 December 2011
End Date, <i>(if applicable)</i>	
Operational Closure	31 December 2011

<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.

<sup>3</sup> The start date is the date of the first transfer of the funds from the MDTF Office as Administrative Agent. Transfer date is available on the [MDTF Office GATEWAY](http://mdtf.undp.org) (<http://mdtf.undp.org>).

*(if applicable)*

**TOTAL: US\$ 675,000**

Date<sup>4</sup>

Expected Financial March 2012

Closure Date

### Programme Assessments/Mid-Term Evaluation

Assessment Completed - if applicable *please attach*

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

Mid-Evaluation Report – if applicable *please attach*

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

### Submitted By

- Name:
- Title:
- Participating Organization (Lead): UNESCO
- Email address:

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<sup>4</sup> All activities for which a Participating Organization is responsible under an approved MDTF programme have been completed. Agencies to advise the MDTF Office.

## **FINAL PROGRAMME REPORT**

### **I. PURPOSE**

#### **Main outputs and outcomes of the programme as per the approved programmatic document:**

The overall goal of the project is to collect, collate and interpret available in-country data on the physical groundwater occurrence and related hydrogeological regimes and dynamics, which are currently dispersed throughout government institutions. The immediate objectives are to ensure that: (1) GoI has an inventory of hydrogeological resources in Iraq; and (2) GoI has improved capacities for hydrogeological data collection, processing and management.

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

1. Creation of an inventory of hydrogeological resources in Iraq for the GoI; and
2. Improvement of the capacities of the GoI for hydrogeological data collection, processing and management

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

- 1.1 Extraction of existing hydrogeological data from relevant sources including government and academic institutions, research centers, relevant studies, and the private sector
- 1.2 Creation of a centralised database containing existing hydrogeological data in Iraq
- 1.3 Establishment of a preliminary report featuring collected data
- 1.4 Analysis of current hydrogeological conditions in Iraq
- 1.5 Plan of implementation created for the advanced hydrogeological survey (Phase II)
- 2.1 Establishment of a team of hydrogeological experts
- 2.2 Enhanced capacity for the Government of Iraq to effectively monitor and manage national water resources
- 2.3 Generate connections between universities, researchers, KRG, and the Central Government of Iraq
- 2.4 Enhanced coordination between ministries and private sector partners

**b. Explain how the Programme relates to the 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 Cluster of the joint UN Assistance Strategy for Iraq by enhancing capacities for effective management of WATSAN (Outcome 1 and 2); and developing capacities at national and governorate level for planning, implementation, monitoring and evaluation (Output 2.2.).

*MDGs*

This project contributes to MDG Goal 1, "End poverty and hunger", by delivering crucial improvements in agricultural efficiency through improved understanding of aquifer levels and identification of areas appropriate for agricultural development. It also contributes to MDG Goal 7, "Ensure the environmental sustainability", particularly addressing target 1 and 7c by improving data and enhanced data management capacities, allow the government Iraq to develop an integrated groundwater management strategy.

*ICI*

The project addresses the following goals within the ICI:

*4.4.1.5 Environment, Water & Sanitation, Housing:*

Goal: Preserve Iraq's environment and ensure careful exploitation of its natural resources for the benefit of all citizens; Improve access to water and sanitation by one third

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

*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):

7.1 Improving the Quality of Life (Goal 1: Mitigation of poverty and hunger; Goal 6: Providing full access to water)

**Primary implementing partners and stakeholders including key beneficiaries:**

Ministry of Water Resources (MoWR), experts from nine ministries across Iraq (MoWR, MoA, MoI, MoHESR, MoPDC, MoOil, KRG MoAWR, KRG MoP and KRG MoHESR) are the key recipients of technical training, and have been instrumental in implementation

**II. ASSESSMENT OF PROGRAMME/ PROJECT RESULTS****Key outputs achieved and explain any variance in achieved versus planned results:****Output 1.1:****Extraction of existing hydrogeological data from relevant sources including government and academic institutions, research centers, relevant studies, and the private sector**

The collection of data began in October, and was concluded March 2011. Through its data collectors in Erbil and Baghdad, UNESCO has obtained data from 9 government ministries (MoWR, MoA, MoIM, MoHESR, MoPDC, MoOil, KRG MoAWR, KRG MoP and KRG MoHESR), covering all 18 governorates and several fields of hydrogeology, including hydrology, geology, land use, geophysics, climate. Data sets were provided electronically and hardcopy. The US Government (PRTs), and some UN agencies have provided some data. Major datasets include the location and attributes of over 15,000 water wells nationwide, a hydrologic atlas of Iraq, US Government constructed GIS database indicating all villages, major water infrastructure and other points of interest, and nationwide surface monitoring data from government. Initial analysis indicates a number of gaps and issues with the well database, including inconsistency and lack of accuracy.

**Output 1.2:****Creation of a centralised database containing existing hydrogeological data in Iraq**

UNESCO has transferred data that is collected to the UNESCO Contractor (RTI) for processing and integration. RTI finalized the analysis and integration of Iraqi well data into the national database. A national, integrated, mosaic of hydrologic maps has been constructed by RTI in order to provide a comprehensive view of Iraq's water resources and identify data collection gaps and quality concerns.

Approximately 30,000 files across 18,000 folders from 12 ministries were collected. Data collection was completed by the 1<sup>st</sup> quarter of 2011. Data was processed, restructured and uploaded to an online database at [www.geo-fia.org](http://www.geo-fia.org). The web-portal allows the government to access all data collected by the government in a collaborative platform. An assessment of the type and quality of a data, including a geoFIA user guide, were delivered to the government by the end of the 2<sup>nd</sup> quarter. A National Validation Seminar will be held on 3 July 2011 in Baghdad to hand over the results of the project and the database.

A geoFIA Technical Report, detailing the contents and an analysis of the database, was developed and delivered to the government in December 2011.

**Output 1.3:**

**Establishment of a preliminary report featuring collected data**

UNESCO and RTI were in the process of developing a Gap Analysis report as of December 2010. The report, which includes an inventory and mapping of all data collected thus far, will provide a comprehensive assessment of Iraq's hydrogeological knowledge.

A National Validation Seminar was held 3 July 2011 in Baghdad. The main database and its results, findings and analysis were delivered at the National Validation Seminar. The GOI endorsed the findings and adopted the database as a national tool. A National Validation Seminar that was held on 3 July 2011 in Baghdad. The main database and its results, findings and analysis were delivered at the National Validation Seminar. The GOI endorsed the findings and adopted the database as a national tool.

**Output 1.4:**

**Analysis of current hydrogeological conditions in Iraq**

A full analysis of the compiled database will be undertaken in the 1<sup>st</sup> quarter of 2011.

**Output 1.5:**

**Plan of implementation created for the advanced hydrogeological survey (Phase II)**

UNESCO has integrated preliminary results of the data into a developed project document for Phase II. The Phase II document has been submitted to the European Union, the main donor.

**Output 2.1:**

**Establishment of a team of hydrogeological experts**

The team will be established and trained in GIS systems, as well as data collection and management in February 2011. An inter-ministerial team of experts, known as the geoFIA team of experts, was equipped with mobile computer technology, trained in GIS software, gap analysis technique and the use of the geoFIA web-portal

**Output 2.2:**

**Enhanced capacity for the Government of Iraq to effectively monitor and manage national water resources**

The government received training in utilizing GIS systems for data management in February 2011. The training, combined with an integrated, web-based database, which will enhance the Government's capacity to monitor and manage water resources.

**Output 2.3:**

**Generate connections between universities, researchers, KRG, and the Central Government of Iraq**

The inter-ministerial team of experts, which will bring together experts from the central government, the KRG and universities, will be established in February 2011. The Ministry of Higher Education in Baghdad and Erbil will nominate at least two experts from Universities to participate in the team. Additionally, the University of Kurdistan was added to the project steering committee to ensure input from the academic community. Universities will be invited to partake in the GIS Training session as well as the UNESCO Gap Analysis and National Validation Seminar in 2011.

**Output 2.4:**

**Enhanced coordination between ministries and private sector**

UNESCO has ensured that the Ministry of Industry is a key player in the project steering committee and all project activities. The Ministry will liaise with their private sector counterparts to ensure data and technical inputs from the private sector. In December 2010, an expert team was created by UNESCO and the government tasked with identifying seismic data and other data related to oil production for the purpose of identifying deep aquifers. This will ensure close cooperation with international oil corporations in data sharing.

**Report on how achieved outputs have contributed to the achievement of the outcomes and explain any variance in actual versus planned contributions to the outcomes**

Outputs expected as per approved project document	Status of Achievement				
	Fully achieved	Partially achieved	%	Not achieved	Explanation
1.1 Extraction of existing hydrogeological data from relevant sources including government and academic institutions, research centers, relevant studies, and the private sector		X	100%		Four months of data collection have been completed.
1.2 Creation of a centralised database containing existing hydrogeological data in Iraq		X	100%		All data collected by UNESCO was collated into a central server. Geo-coordinated data was processed and integrated into a GIS database. The final database was completed in June 2011
1.3 Establishment of a preliminary report featuring collected data		X	100%		Metadata sheets of each collected datasets were developed by UNESCO. These sheets were compiled with an extensive review of the data to create an inventory, or directory of collected data.
1.4. Analysis of current hydrogeological conditions in Iraq		X	100%		Initial analysis of collected data was undertaken. Analysis has focused on Iraq's National Inventory of Groundwater wells.
1.5. Plan of implementation created for the advanced hydrogeological survey		X	100%		A draft project document has been delivered to the EU. A

(Phase II)					final document, integrating project analysis and findings, was developed at the end of the project.
2.1. Establishment of a team of hydrogeological experts		X	100%		The team was established and trained at the UNESCO GIS Training session in Erbil, in February 2011.
2.2. Enhanced capacity for the Government of Iraq to effectively monitor and manage national water resources		X	100%		Capacities will be enhanced with subsequent trainings and the delivery of the database.
2.3. Generate connections between universities, researchers, KRG, and the Central Government of Iraq		X	100%		Representatives of universities, the KRG and Baghdad government are all on the project steering committee. Final linkages will be established with the inter-ministerial team.
2.4. Enhanced coordination between ministries and private sector		X	100		The project has incorporated the Ministry of Industry and Oil

**Explain the contribution of key partnerships and collaborations, and explain how such relationships impact on the achievement of results:**

UNESCO has been implementing project activities in close collaboration with the Ministry of Water Resources (MoWR). Experts from nine ministries across Iraq (MoWR, MoA, MoI, MoHESR, MoPDC, MoOil, KRG MoAWR, KRG MoP and KRG MoHESR) are the key recipients of technical training, and have been instrumental in implementation. The project relies on the training services, expertise, and analysis skills of RTI throughout the data collection process and subsequent analysis of the inventory.

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

Inter-Government coordination:

A key element of the project is to enhance coordination and communication between ministries on issues of hydrogeology management. Data thus far is highly fragmented, with little communication and sharing of knowledge. The steering committee, and the soon to be formed inter-ministerial team, will integrate each ministry's available data and future data collection activities into one centralized database.

**Primary beneficiaries and how were they engaged in the programme/ project implementation:**

Ministry of Water Resources (MoWR), experts from nine ministries across Iraq (MoWR, MoA, MoI, MoHESR, MoPDC, MoOil, KRG MoAWR, KRG MoP and KRG MoHESR) are the key recipients of technical training, and have been instrumental in implementation.

An inter-ministerial team of experts, known as the geoFIA team of experts, was equipped with mobile computer technology, trained in GIS software, gap analysis technique and the use of the geoFIA web-portal.

**The contribution of the programme on cross-cutting issues pertinent to the results being reported:**

**Gender issues:** The project does not directly contribute to gender equality. However, improved knowledge of water resources with respect to the proximity of communities should indirectly contribute to the reduction of the burden placed upon women and children in collecting water.

**Environmental impact:** This project will encourage environmental sustainability by enhancing the government's knowledge of, and capacity to manage, Iraq's hydrogeological resources. Current understanding of Iraq's hydrogeological resources is disjointed and incomplete, and Iraq's experts lack a centralized database to produce integrated analyses of Iraq's hydrogeological resources. Data collected and analyzed can be utilized to enact measures to protect groundwater and the associated hydrogeological systems, as well as other sensitive ecological systems, such as the Marshlands.

**Employment opportunities:** No direct employment will be generated by this project

**Has the funding provided by the MDTF/JP to the programme been catalytic in attracting funding or other resources from other donors?**

Yes potential funding of bridging phase II from US State Department and potential funding of Phase III from EU.

**Provide an assessment of the programme/ project based on performance indicators as per approved project document using the template in Section IV, if applicable.**

### III. EVALUATION & LESSONS LEARNED

**Report on any assessments, evaluations or studies undertaken relating to the programme and how they were used during implementation. Has there been a final project evaluation and what are the key findings?**

- 1- The final report of the hydrogeological database, including gap analysis (geoFIA Technical Report), detailing the contents and an analysis of the database, was developed and delivered to the government in August 2011.
- 2- The geoFIA web portal, [www.geo-fia.org](http://www.geo-fia.org), was developed and finalized by UNESCO and SGI during the 2<sup>nd</sup> quarter. The web portal houses all of the data collected by UNESCO in an accessible and easy to use structure. The web-portal also includes a web-GIS function, which allows the government to quickly visualize its hydrogeological data on a user-friendly system.

**Challenges such as delays in programme implementation, and the nature of the constraints such as management arrangements, human resources, as well as the actions taken to mitigate, and how such challenges and/or actions impacted on the overall achievement of results.**

The main challenge of the project has been access to Government data. A number of participating ministries have expressed their concern with sharing data, requiring extensive procedures to gain access. The Ministry of Industry required payment for the geological data, which the Ministry of Water covered and obtained. Even once the initial obstacle is overcome, UNESCO often does not receive all pertinent data from ministries. UNESCO is taking action to approach key players in the steering committee, including the Ministry of Water, Planning and the Prime Ministry's advisory Council to facilitate access to unwilling ministries. UNESCO is also shifting tactics in the way it approaches ministries in data collection. The Ministry of Water and Planning will now take the lead on any data requests from UNESCO, sending an official letter from the Ministers to the concerned ministries to provide data. UNESCO liaises with the Ministry of Water and Planning to identify data needed, the Ministers then internally request the data, and UNESCO field staff collected the data.

**Key lessons learned that would facilitate future programme design and implementation, including issues related to management arrangements, human resources, resources, etc.,**

- 1- There were many delays in the submission to UNESCO of requested information especially with regards to the nomination of officials for members of the committee working on the datacollection and inter ministerial expert team Accordingly, Agencies need bear in mind the time required to receive nominations and plan accordingly.
- 2- UNESCO faced many difficulties in the coordination with the MoWR in Iraq, so it is very important that the ministries assign a Project Focal point responsible for all project coordination on the Iraqi side.

## 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: GoI is able to manage WATSAN sector in an effective manner</b>						
<b>IP Output 1.1</b> GOI has an inventory of hydrogeological resources in Iraq	<b>Indicator 1.1.1</b> Database for hydrogeological resources in Iraq designed	0	1	1	Delivery of database to the Government	
	<b>Indicator 1.1.2</b> Preliminary data interpretation and gap analysis report prepared	0	1	1	Reports	
	<b>Indicator 1.1.3</b> Number of technical experts from participating ministries and policy makers participating in data analysis workshop	0	20	1	Training reports and field oversight of training session by UNESCO staff	Course held in February 2011
	<b>Indicator 1.1.4.</b> Need based analysis report identifying data gaps and priorities	0	1	1	Reports and verification of receipt by Gov.	

	<p><b>Indicator 1.1.5.</b> Number of technical experts and policy makers, ministries, and academic institutions participating in planning workshop</p>	0	20	20	Training reports and field oversight of training session by UNESCO staff	
	<p><b>Indicator 1.1.6.</b> Plan of implementation drafted</p>	0	1	1	Reports and verification of receipt by Gov.	
<p><b>IP Output 1.2</b> GOI has improved capacities for hydrogeological data collection, processing and management</p>	<p><b>Indicator 1.2.1</b> A team of 20 Iraqi experts as a partner for data collection of phase 1 and 2 is established</p>	0	1	1	Progress reports and deliverables	
	<p><b>Indicator 1.2.2</b> Number of technical experts from participating ministries and academic institutions trained and certified on hydrological data collection, processing and management</p>	0	20	20	Training reports and field oversight by UNESCO staff	
	<p><b>Indicator 1.2.3.</b> Percentage of trainees fully satisfied with the quality of the training in terms of relevance and usefulness</p>	0	80%	90%	Training evaluation	