Document of
The World Bank

Report No: ICR2808

IMPLEMENTATION COMPLETION AND RESULTS REPORT
(TF-54435)

ON A

GRANT

IN THE AMOUNT OF US$ 65.0 MILLION

TO THE

MAYORALTY OF BAGHDAD OF THE REPUBLIC OF IRAQ

FOR AN

EMERGENCY BAGHDAD WATER SUPPLY AND SANITATION PROJECT

January 3, 2014

Sustainable Development Department
Middle East and North Africa Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective: October 15, 2013)
Currency Unit = Iraqi Dinar
Iraqi Dinar 1,000 = US$ 0.84
US$ 1.00 = Iraqi Dinar 1,143

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

BSA	Baghdad Sewerage Authority
BWA	Baghdad Water Authority
CCDP	Comprehensive City Development Plan
CPA	Coalition Provisional Authority
DARM	Diwan Al Rikaba El Malia (Iraqi Supreme Audit Institute)
EIA	Environmental Impact Assessment
ECOP	Environmental Code of Practice
EMP	Environmental Management Plan
ERL	Emergency Recovery Loan
ESSAF	Environmental and Social Screening Assessment Framework
FMR	Financial Monitoring Report
GCI	Governing Council of Iraq
GDP	Gross Domestic Product
IBRD	International Bank for Reconstruction Development
ICB	International Competitive Bidding
ICR	Implementation Completion Report
IDA	International Development Association
IPDP	Indigenous People Development Plan
ISDS	Integrated Safeguards Data Sheet
ISRB	Iraqi Strategic Review Board
IMF	International Monetary Fund
ITF	Iraq Trust Fund (administered by the World Bank)
I/c/d	Liters per Capita per Day
MIM	Master Implementation Manual
MLD	Million Liters per Day
MMPW	Ministry of Municipalities and Public Works
MOB	Mayoralty of Baghdad
MOF	Ministry of Finance
MOPDC	Ministry of Planning and Development Cooperation
NCB	National Competitive Bidding
OED	Operations Evaluation Department - World Bank
OP	Operational Policy - World Bank

PAC	Project Advisory Committee
PFS	Project Financial Statement
PID	Project Information Document
PIPA	Preliminary Iraqi Procurement Assessment
PMT	Project Management Team
PMU	Project Management Unit
PP	Procurement Plan
PSR	Project Supervision Report
RAP	Resettlement Action Plan
SBD	Standard Bidding Document
SFP	Safeguards Focal Point
SOE	Statement of Expenses
TA	Technical Assistance
TBD	To Be Determined
TOR	Terms of Reference
UN	United Nations
UNDG	United Nations Development Group
US	United States
USAID	United States Agency for International Development
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

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IRAQ

EMERGENCY BAGHDAD WATER SUPPLY AND SANITATION PROJECT

CONTENTS

A. Basic Information

Country:	Iraq	Project Name:	IQ-TF EMERG. BAGHDAD WATER SUPPLY
Project ID:	P087912	L/C/TF Number(s):	TF-54435
ICR Date:	12/30/2013	ICR Type:	Core ICR
Lending Instrument:	ERL	Grantee:	REPUBLIC OF IRAQ
Original Total Commitment:	USD 65.00M	Disbursed Amount:	USD 61.41M
Revised Amount:	USD 63.70M		

Environmental Category: C

Implementing Agencies:
Mayoralty of Baghdad

Cofinanciers and Other External Partners:

B. Key Dates

Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	03/17/2004	Effectiveness:		12/04/2004
Appraisal:	09/30/2004	Restructuring(s):		04/30/2010 12/21/2011 02/20/2013
Approval:	12/03/2004	Mid-term Review:		07/29/2008
		Closing:	08/31/2007	06/30/2013

C. Ratings Summary

C.1 Performance Rating by ICR

Outcomes:	Satisfactory
Risk to Development Outcome:	High
Bank Performance:	Moderately Satisfactory
Grantee Performance:	Moderately Satisfactory

C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)

Bank	Ratings	Borrower	Ratings
Quality at Entry:	Moderately Satisfactory	Government:	Moderately Satisfactory
Quality of Supervision:	Satisfactory	Implementing Agency/Agencies:	Satisfactory
Overall Bank Performance:	Moderately Satisfactory	**Overall Borrower Performance:**	Moderately Satisfactory

C.3 Quality at Entry and Implementation Performance Indicators			
Implementation Performance	Indicators	QAG Assessments (if any)	Rating
Potential Problem Project at any time (Yes/No):	Yes	Quality at Entry (QEA):	None
Problem Project at any time (Yes/No):	Yes	Quality of Supervision (QSA):	None
DO rating before Closing/Inactive status:	Satisfactory		

D. Sector and Theme Codes

	Original	Actual
Sector Code (as % of total Bank financing)		
Central government administration	5	8
Flood protection	5	
Roads and highways	23	
Sewerage	9	38
Water supply	58	54
Theme Code (as % of total Bank financing)		
Conflict prevention and post-conflict reconstruction	25	25
Other human development	25	25
Pollution management and environmental health	25	25
Urban services and housing for the poor	25	25

E. Bank Staff

Positions	At ICR	At Approval
Vice President:	Inger Andersen	Christiaan J. Poortman
Country Director:	Ferid Belhaj	Joseph P. Saba
Sector Manager:	Steven N. Schonberger	Tjaarda P. Storm Van Leeuwen
Project Team Leader:	Caroline van den Berg	Suhail J. S. Jme'An
ICR Team Leader:	Caroline van den Berg	
ICR Primary Author:	Roohi Abdullah	

F. Results Framework Analysis

Project Development Objectives (from Project Appraisal Document**)**
The principal objective of the project is to assist in restoring basic water supply and sanitation services for the capital city of Baghdad through (a) the reconstruction and

rehabilitation of existing priority networks and treatment facilities and (b) providing capacity building support through training and technical assistance.

Revised Project Development Objectives (as approved by original approving authority)

(a) PDO Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	Number of direct project beneficiaries			
Value quantitative or Qualitative)	0	NA	590,000.0	590,440
Date achieved	01/01/2006	01/01/2006	04/01/2013	06/30/2013
Comments (incl. % achievement)	Target fully met on the direct beneficiaries from the water supply and sewerage investments in Za'afraniya and Sadr City (100%). Indirect beneficiaries: 1.7 million people (sewer maintenance equipment), and 3.5 million benefiting from emergency works.			
Indicator 2 :	Number of direct project beneficiaries who are female			
Value quantitative or Qualitative)	0	NA	300,000.0	290,496
Date achieved	01/01/2006	01/01/2006	04/01/2013	06/30/2013
Comments (incl. % achievement)	97% of the target value met. Recent data from the Statistical Office mentions the female population to be 49.2 percent of total population in Iraq.			
Indicator 3 :	Number of people benefiting from sewerage extension or rehabilitation works under the project.			
Value quantitative or Qualitative)	0	NA	90,000	115,440
Date achieved	01/01/2006	01/01/2006	04/01/2013	06/30/2013
Comments (incl. % achievement)	Achievement: 128 percent. People benefiting from rehabilitation of sewer networks in Sadr City is likely to be a conservative estimate as multiple families live in one property. In addition, 1.7 million people benefiting from investments in			
Indicator 4 :	Number of households with access to rehabilitated water distribution.			
Value quantitative or Qualitative)	0	NA	100,000.0	95,000
Date achieved	01/01/2006	01/01/2006	04/01/2013	06/30/2013
Comments (incl. % achievement)	Achievement: 95 percent. Assuming 5 people per connection, the number of households with access is 95,000.			
Indicator 5 :	Dropped Indicator 1: Increase in the quantity of water produced in the project cities.			

Value quantitative or Qualitative)	350,000	500,000		Dropped
Date achieved	01/01/2006	01/01/2006		06/30/2013
Comments (incl. % achievement)	This indicator was moved to Intermediate I Outcome Indicator suring 2013 restructuring.			
Indicator 6 :	Dropped Indicator 2: Improvement in the percentage of water samples meeting the WHO biological and chemical standards in the areas affected by the project.			
Value quantitative or Qualitative)	0	100%	NA	Dropped
Date achieved	01/01/2006	08/31/2007	04/01/2013	06/30/2013
Comments (incl. % achievement)				
Indicator 7 :	Dropped Indicator 3: Quantity of sewage collected (cubic meter per day)			
Value quantitative or Qualitative)	0	110,000	Dropped	Dropped
Date achieved	01/01/2006	08/31/2007	04/01/2013	06/30/2013
Comments (incl. % achievement)				

(b) Intermediate Outcome Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	Water supply production capacity per hour (m3/day)			
Value (quantitative or Qualitative)	350,000	NA	500,000	432,000
Date achieved	01/01/2006	01/01/2006	04/01/2013	06/30/2013
Comments (incl. % achievement)	Achievement: 86 percent			
Indicator 2 :	Length of water supply network rehabilitated (km)			
Value (quantitative or Qualitative)	0	39	46.0	43.5
Date achieved	01/01/2006	01/01/2006	04/01/2013	06/30/2013
Comments (incl. % achievement)	Achievement: 95 percent			
Indicator 3 :	Number of new sewerage connections			

Value (quantitative or Qualitative)	0	NA	TBD	1,800
Date achieved	01/01/2006	01/01/2006	02/20/2013	06/30/2013
Comments (incl. % achievement)	New connections have been made. Anecdotal evidence of a rapid survey in two sectors in Sadr City show the % of households connected increase from 84% before rehabilitation to 100 percent after in Sector 55A, and from 72 to 100% in Sector 38.			
Indicator 4 :	Number of rehabilitated sewerage connections.			
Value (quantitative or Qualitative)	0	N/A	8,000	7,125
Date achieved	01/01/2006	01/01/2006	04/01/2013	06/30/2013
Comments (incl. % achievement)	Achievement: 89%. The number of connections benefiting from rehabilitation of sewer networks is likely to be a conservative estimate (it should be noted that a connection generally serves more than 1 household). Due to regulation, MOB can on			
Indicator 5 :	Length of new sewerage network installed (km)			
Value (quantitative or Qualitative)	0	NA	TBD	0
Date achieved	01/01/2006	01/01/2006	02/20/2013	06/30/2013
Comments (incl. % achievement)				
Indicator 6 :	Length of sewerage network rehabilitated (km)			
Value (quantitative or Qualitative)	0	NA	78.50	87.76
Date achieved	01/01/2006	01/01/2006	04/01/2013	06/30/2013
Comments (incl. % achievement)	Achievement: 112%. The length of the sewer network included also the network for house connections.			
Indicator 7 :	No. of man-month training provided through the project.			
Value (quantitative or Qualitative)	0	300.0	300.0	306
Date achieved	01/01/2006	01/01/2006	04/01/2013	06/30/2013
Comments (incl. % achievement)	Achievement: 102%. Training numbers are based on a combination of formal training (workshops, technical tours) and "on-the-job" training. Target fully met at 102%.			
Indicator 8 :	Dropped Indicator 1: Chlorine and chemical process at Al-Karkh WTP rehabilitated (number of working units)			
Value (quantitative or Qualitative)	0	100%	Dropped	60%
Date achieved	01/01/2006	08/31/2007	04/01/2013	06/30/2013
Comments	Partially completed: 60 percent of chlorinators were installed at time of project			

(incl. % achievement)	closing due to administrative complications in the purchase of equipment			
Indicator 9 :	Dropped Indicator 2: 2B Pumping station rehabilitated (thousand cubic meter of water pumped per day).			
Value (quantitative or Qualitative)	0	100%	Dropped	100%
Date achieved	01/01/2006	08/31/2007	04/01/2013	06/30/2013
Comments (incl. % achievement)	Completion was 100%.			
Indicator 10 :	Dropped Indicator 3: Abu Nuwas raw water pumping station rehabilitated (number of working pumps).			
Value (quantitative or Qualitative)	0	100%	Dropped	100%
Date achieved	01/01/2006	08/31/2007	04/01/2006	06/30/2013
Comments (incl. % achievement)	All pumps are working. Completion was 100%.			
Indicator 11 :	Dropped Indicator 4: Sadr City Sewerage network rehabilitated (number of house connections rehabilitated) (Sectors 10, 55a, 78,79,48 and 38).			
Value (quantitative or Qualitative)	0	100%	Dropped	100%
Date achieved	01/01/2006	08/31/2007	04/01/2013	06/30/2013
Comments (incl. % achievement)				
Indicator 12 :	Dropped Indicator 5: Zaafrania district water network rehabilitated and upgraded with house connections (length of pipes laid in km) (four packages).			
Value (quantitative or Qualitative)	0	100%	Dropped	100%
Date achieved	01/01/2006	08/31/2007	04/01/2013	06/30/2013
Comments (incl. % achievement)	Completion was 100%.			
Indicator 13 :	Dropped Indicator 6: Project implementation is progressing well with minimum deviation of the plan.			
Value (quantitative or Qualitative)	0	100%	Dropped	N/A
Date achieved	01/01/2006	08/31/2007	04/01/2013	06/30/2013
Comments (incl. % achievement)				

G. Ratings of Project Performance in ISRs

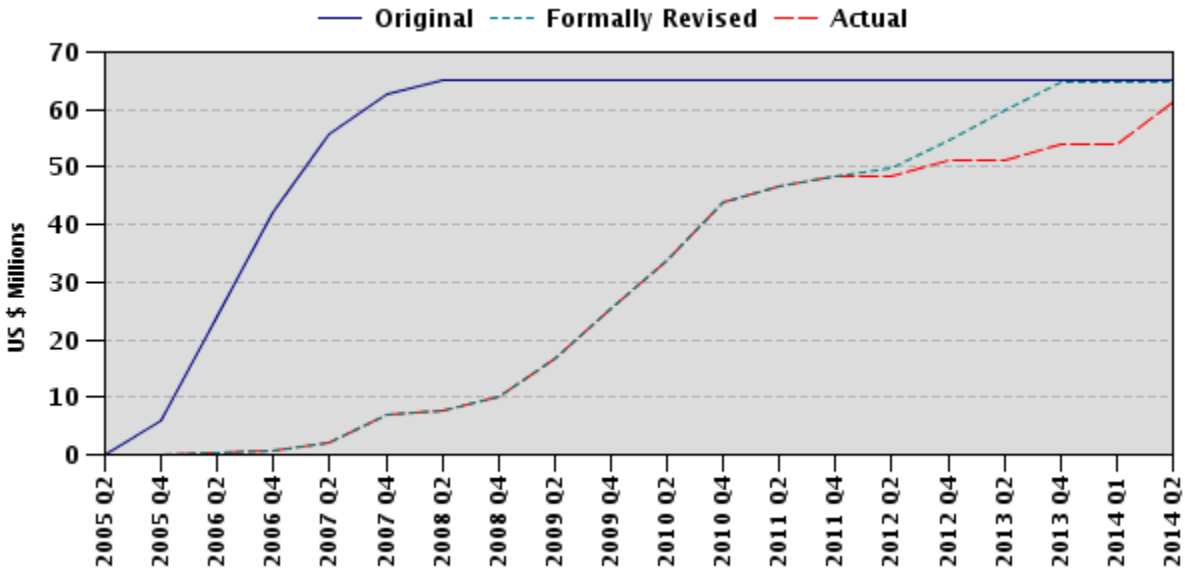
No.	Date ISR Archived	DO	IP	Actual Disbursements (USD millions)
1	12/22/2004	Satisfactory	Satisfactory	0.00
2	03/23/2005	Satisfactory	Satisfactory	0.04
3	11/04/2005	Satisfactory	Satisfactory	0.13
4	05/22/2006	Moderately Satisfactory	Moderately Satisfactory	0.30
5	06/14/2006	Moderately Unsatisfactory	Moderately Unsatisfactory	0.39
6	12/22/2006	Moderately Unsatisfactory	Moderately Unsatisfactory	1.19
7	03/28/2007	Moderately Unsatisfactory	Moderately Unsatisfactory	5.20
8	07/26/2007	Moderately Unsatisfactory	Moderately Unsatisfactory	7.38
9	09/18/2007	Moderately Unsatisfactory	Moderately Unsatisfactory	7.52
10	06/29/2008	Moderately Unsatisfactory	Moderately Unsatisfactory	10.26
11	10/29/2008	Moderately Unsatisfactory	Moderately Unsatisfactory	13.91
12	12/19/2008	Moderately Unsatisfactory	Moderately Unsatisfactory	14.04
13	03/02/2009	Satisfactory	Satisfactory	18.40
14	06/15/2009	Satisfactory	Satisfactory	23.41
15	12/30/2009	Satisfactory	Moderately Satisfactory	33.76
16	05/27/2010	Satisfactory	Satisfactory	41.63
17	06/28/2011	Satisfactory	Satisfactory	48.27
18	01/03/2012	Satisfactory	Satisfactory	48.46
19	07/22/2012	Satisfactory	Satisfactory	51.05
20	01/02/2013	Satisfactory	Moderately Satisfactory	51.13
21	06/22/2013	Satisfactory	Moderately Satisfactory	53.89

H. Restructuring (if any)

Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in USD millions	Reason for Restructuring & Key Changes Made
		DO	IP		
04/30/2010		S	MS	40.05	The restructuring included; (i) change in components; (ii) reallocation of funds; and (iii) extension of closing date

Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in USD millions	Reason for Restructuring & Key Changes Made
		DO	IP		
12/21/2011		S	S	48.46	The restructuring included; (i) reallocation of funds; and (ii) extension of closing date
02/20/2013		S	MS	51.45	The restructuring included; (i) change in results framework; (ii) reallocation of funds; and (iii) inclusion of a grace period

I. Disbursement Profile



1. Project Context, Development Objectives and Design

1.1 Context at Appraisal

In the 1970s, large oil reserves and abundant human resources enabled Iraq to attain the status of a middle income country, with developed infrastructure and well-performing education and health systems.[1] Soon thereafter, ensuing wars, international sanctions and a repressive, state-dominated economic system stifled economic growth and development, and debilitated basic infrastructure and social services. International trade sanctions in 1991 took a toll on the economy. In addition, the increasing concentration of economic and social activities in the main urban centers[2] was not matched by the required expansion in the provision of services, resulting in proliferation of under-serviced neighborhoods in major Iraqi cities. By 2001, despite the country's rich resource endowment, human development indicators were among the lowest in the region, and income per capita dropped to US$800, steadily declining to about US$500 by 2003.

Prior to the 1991 Gulf war, the population of Baghdad enjoyed a relatively high level of water supply and sanitation services. Safe potable water was accessible to over 90% of the population of Baghdad and average water supply was 330 lcd[3]. After 1991, the situation substantially deteriorated, first due to international sanctions that hampered any efforts to import spare parts or chemicals which were critical for efficient operation and maintenance, then as a result of direct damage and looting that took place during and right after the 2003 war. At the time of appraisal, it was estimated that water supply services were at 30% of 1990 levels (73% of the population had no access), while the city's three wastewater treatment plants (comprising 75% of the nation's wastewater treatment capacity) were operating at 50% of installed capacity, hampered by lack of maintenance, damage and looting, unreliable power supply, and inadequate water tariffs. Eight water treatment plants served Baghdad with a production capacity of 2.15 million m^3/day, whereas the average demand was 3.3 million m^3/day. Shortages of water led to numerous uncontrolled and illicit connections that hindered any effort to maintain pressure in the system and exposed them to contamination from leaking sewage networks and stagnant waters. It was estimated that approximately 40% of the water distribution network in the city urgently needed to be rehabilitated to reduce distribution losses (estimated at 50–60 %).

In 2004, at the time of appraisal, water production in Baghdad was 54% less than demand,[4] water coverage was around 27% for safe potable water while 25% of Baghdad's population, approximately 1.5 million people, were still unconnected to the water network; and 30% of Baghdad's population was not connected to sewerage collection and treatment system. The sanitation system in Baghdad was becoming a serious environmental and health concern as

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[1] By early 1980s, income per capita was over US$3,600.
[2] At appraisal in 2004, close to 70% of the estimated Iraqi population of 26 million lived in cities, a quarter of which (6 million people) lived in Baghdad.
[3] This standard is substantially above actual water consumption in most of the rest of the world. The International Benchmarking Network for Water and Sanitation Utilities documented in 2006 a median water production of 274 lcd and a water consumption of 234 lcd.
[4] Eight water treatment plants served Baghdad where the demand for potable water was estimated to be 3.3 million cubic meters per day whereas production capacity was only 2.15 million cubic meters per day.

untreated sewerage water discharged into rivers and waterways, as sewerage treatment plants were operating at 50% of the installed capacity. This was further exacerbated by the illegal discharge of septic sewage collected from houses into rivers or onto land. Leakage from sewer pipes was also contaminating both the potable water networks and the underground water. In addition, it was estimated that 1.5 million inhabitants had no access to piped water, and 1.2 million inhabitants had no access to sanitation. The project focus therefore was on benefitting the total population of Baghdad responding to emergency, and rehabilitation and reconstruction needs in the water sector.

In 2003, a Joint UN/WB Needs Assessment was undertaken, adopting a multilateral approach to the reconstruction and development, which estimated that Iraq required about US$35.8 billion from 2004-2007. In response, the donors expressed support for the Needs Assessment and pledged about US$32.0 billion for the four-year period.[5] To ensure swift, flexible and coordinated donor financing for priority investments identified in the Needs Assessment, the World Bank and UN set up an International Reconstruction Fund Facility for Iraq, which comprised of two trusts funds – a World Bank Iraq Trust Fund (WB-ITF) and UNDG Iraq Trust Fund – each with its own internal governance procedures and management structure, with mechanisms for close coordination to avoid overlap.

The Bank's involvement was regarded as critical as: (i) Bank financing could complement ongoing infrastructure investments, especially the large financing gap for infrastructure rehabilitation, the biggest obstacle to economic recovery; (ii) share international experience and best practices based on the Bank's considerable international experience with infrastructure reconstruction projects in post conflict effected areas. In addition, it was conceived that Bank financing would be implemented by the Iraqi institutions ensuring ownership and building institutional capacity, crucial for country's sustainable development; and Bank financing for rehabilitation would be coupled with policy advice, thereby lay the ground for sector restructuring, essential for long term sustainability of infrastructure investments.

The project was conceived as a part of the Iraq Emergency Infrastructure Reconstruction Program which intended to cover five sectors: water supply and sanitation, electricity, urban rehabilitation, transport, and telecommunications. However, in view of the limited availability of funds in WB-ITF, and donors support already available for certain sectors, project were to focus only on urgent water supply, sanitation, and municipal infrastructure needs in Baghdad. The project scope was the urgent sectoral needs of urban communities in Baghdad in the following manner: rehabilitations of water and sewer networks, pumping stations, small treatment plants, community roads, and other urban facilities. It would also provide support in a post-conflict environment to the Mayoralty of Baghdad (MOB) to better manage projects at design, supervision, operation, and maintenance stages by building the capacity of its staff.

1.2 Original Project Development Objectives (PDO) and Key Indicators

The Project Development Objective (PDO), as noted in the Grant Agreement (Schedule 2, p.10) and the Technical Annex (p.6) was to: *"restore basic water supply and sanitation services for the capital city of Baghdad through: (i) the reconstruction and rehabilitation of existing priority*

[5] At the International Donors' Conference for Iraq held in Madrid on October 23-24, 2003

networks and treatment facilities; and (ii) the provision of capacity building support through training and technical assistance."

According to the Technical Annex (p.6) the scope of the PDO would also include: creation of vitally needed short-term employment and help build Iraq's capacity to manage large-scale reconstruction.

PDO Indicators.[6] These were: (i) improved the quality and increased the quantity of water produced under the project; (ii) chlorine and chemical process at Al-Karakh Water Treatment Plant (WTP) rehabilitated; (iii) 2B pumping station rehabilitated; (iv) Al-Rasheed WTP rehabilitated; (v) Abu Nuwas raw water pumping station rehabilitated; (vi) old water network renewed and expanded in Za'afrania district; (vii) about 8,000 house connections rehabilitated in Sadr City; and (viii) about 300 man month for training provided.

1.3 Revised PDO (as approved by original approving authority) and Key Indicators, and reasons/justification

The Project Development Objectives were not revised, but changes were made to the results framework target values under each restructuring adjusting for the changes made to the component and funding allocation, impacting the target values or the indicators. In addition, during the course of the 2010 restructuring: (i) indicator "increase in quantity of water produced and quantity of sewage treated" was replaced with "increase in the quantity of water produced under the project" with a target of 500,000 cubic meter of treated water per day; (ii) indicator "reduction in number of citizens' complaints" was dropped (iii) indicator "quantity of sewage collected and transported to treatment plant (m3/day)" was added; and (iv) indicator "Al Rasheed WTP rehabilitated" dropped as the component was being undertaken by GoI using its own funds. In the 2013 restructuring the key indicators were revised and realigned, on the basis that the initial set of indicators focused solely on infrastructure built rather than assessing benefits of this infrastructure on water users, and did not contain sector core indicators. The revised results framework included relevant core sector indicators, and shifted the focus from outputs to outcomes. The revised indicators, in addition to the original indicators that were used through project implementation are being used for the assessment of project achievements. The revised indicators are as follows:

PDO Indicators. These were: (i) number of direct project beneficiaries; (ii) number of direct project beneficiaries who are female; (iii) number of people benefiting from sewerage extension or rehabilitation works under the project; and (iv) number of households with access to rehabilitated water distribution

Intermediate Outcome Indicators. These were: (i) water supply production capacity per hour (m^3/day); (ii) length of water supply network rehabilitated; (iii) number of new sewerage connections; (iv) number of rehabilitated sewerage connections; (v) length of new sewerage

[6] As per the Grant Agreement (Schedule 5, p.20), but according to the Technical Annex (Annex 11, p.95) there were 9 indicators, the additional ones were: (i) increase in the quantity of water produced under the project; (ii) improvement in the percentage of water samples meeting the WHO biological and chemical standards; and (iii) Sadr City sewerage network rehabilitated was not included.

network installed; (vi) length of sewerage network rehabilitated; and (vii) no. of man-month training provided through the project.

1.4 Main Beneficiaries

At appraisal, around 23 percent of Iraq's total population lived in the capital Baghdad, where the population was estimated to be 6 million. The city had experienced intense urbanization due to years of economic sanctions and key economic and social activities became concentrated in the capital. Based on the investment focus the benefits were meant to accrue to the population of Baghdad, directly or indirectly. Direct benefits accrued to the Za'afarania, a suburb of Baghdad, one of the poorest districts in the Karrada Municipality of Baghdad Governorate; and 6 districts of Sadr City. At closing even with component adjustments the beneficiary impact largely remained the same.

Direct beneficiaries of the project are inhabitants of the areas or neighborhoods where rehabilitation works occurred, whose water supply or sanitation services were improved or underwent urban rehabilitation under the project. At appraisal, the number of direct beneficiaries was estimated to be around 1 million inhabitants, a number that was progressively revised down to approximately 600,000 inhabitants when the scope of the project was reduced. At Project closing, it was estimated that about 590,480 inhabitants directly benefitted from the Project investments through the rehabilitation and renewal of water and sewer networks in Za'afraniya and Sadr City. While the emergency works related to the installation of pumps, chlorinators and other equipment in water treatment plants in Baghdad due to their large capacity will benefit – a large number of water end users additionally upto 3.5 million people using water services from the MOB water infrastructure.

The Municipality of Baghdad (MOB) was designed to benefit from capacity-building activities to ensure effective and sustainable implementation. The water and sanitation services are administered centrally by the Baghdad Water Authority (BWA) and the Baghdad Sewerage Authority (BSA), respectively. The planning and implementation of projects was the responsibility of the Mayoralty of Baghdad. The Project was designed to provide support to the MOB to better manage projects at the design, supervision, operation and maintenance stages by building the capacity of the staff working in the water supply and sanitation sector, in the BWA, BSA and the local municipalities. It also included the development of a Comprehensive City Development Plan (CCDP) to ensure that future expansion of the water supply and sanitation networks are in line with the overall urban development plan for the city.

1.5 Original Components

The PDOs, under the Emergency Recovery Lending (ERL), were to be achieved through eight (8) main components.

Component 1: Rehabilitation of chlorine and chemical units at Al-Karkh Water Treatment Plant (appraisal amount US$2.8 million; restructuring amount US$2.69 million; actual US$0.9 million[7]). This

[7] The grace period of the project has been extended to December 31, 2013; some payments regarding this contract are still pending.

component would finance the rehabilitation of the chlorine and chemical units at the Al-Karkh water treatment plant. This would include: installation of steel pipes for the alum network, new alum pumps, special chemical valves and equipment for the alum network and new automatic chlorinators and their accessories, and rehabilitation of the ventilation system.

Component 2: Rehabilitation of 2B pumping station in Shark Dijla Water Treatment Plant (appraisal amount US$4.5 million; restructuring amount US$3.37 million; actual US$3.4 million). This component would finance the rehabilitation of the 2B pumping station in the Shark Dijla water treatment plant. This would include: supply of spare parts for a major overhaul of main vertical pumps, replacement of defective suction and discharge valves, installation of UPS systems and batteries, replacement of chlorinators and repair of associated equipment, and capacity building and training of Baghdad Water Authority operations and maintenance staff.

Component 3: Extension and rehabilitation of Al-Rasheed Water Treatment Plant (appraisal amount US$7.2 million; actual US$0 million). This component would finance the extension, rehabilitation, and up-gradation of the Al-Rasheed water treatment plant. This would include: design and construction of a new water treatment stream, design of an additional new process unit to the existing water treatment plant, rehabilitation and strengthening of water mains, storage tanks, pumping stations and chlorinators and replacement of chemical and disinfection stations.

Component 4: Rehabilitation of the Abu Nuwas Raw Water Pumping Station (appraisal amount US$6.2 million; restructuring amount US$6.84 million; actual US$6.8 million). This component would finance the Rehabilitation and upgrading of the Abu Nuwas raw water pumping station, including rehabilitation of electrical and mechanical equipment, control panels and utility connections, and capacity building and training of the operations and maintenance staff.

Component 5: Rehabilitation and renewal of Sadr City Sewerage Network (appraisal amount US$15.0 million; restructuring amount US$24.80 million; actual US$23.3 million[8]). This component would finance the rehabilitation and renewal of the selected parts of Sadr City sewerage network, including lateral sewers and house connections.

Component 6: Rehabilitation and renewal of Drinking Water Network in Za'afarania (appraisal amount US$15.4 million; restructuring amount US$23.78 million; actual US$22.2 million). This component would finance the rehabilitation of the drinking water network in Za'afarania, including supply and installation of water pipes and valves.

Component 7: Technical Assistance and Capacity Building (appraisal amount US$3.9 million; restructuring amount US$3.7 million; actual US$3.8 million). This component would finance the provision of technical assistance and capacity building support through: (i) employment of consultants to support completion of final designs and tender documents; (ii) employment of consultants for construction supervision; (iii) capacity building activities and training in Project management and specific technical and commercial areas; (iv) design and implementation of appropriate accounting, financial management, information, billing and collection, and related systems; (v) employment of consultants to assess demand characteristics, cost of supply, demand management and tariff structures; (vi) the carrying out of external audits of Project records and accounts; (vii) employment of consultants to support Project Management Team (PMT); (viii) provision of office equipment, computer software, vehicles and furniture for PMT; and

[8] The grace period of the project has been extended to December 31, 2013; some payments regarding this contract are still pending.

(ix) carry out feasibility studies, including environmental impact assessments, environmental management plans and preparation of detailed designs for potential follow-up projects.

Component 8: Development of a Comprehensive City Development Plan (CCDP) for Baghdad (appraisal amount US$3.0 million; restructuring amount US$0.8 million; actual US$1.2 million). This component would finance the development of a comprehensive urban city development plan for the city of Baghdad, including analysis of the existing conditions and future trends related to land-use patterns, housing conditions, population, roadways and other infrastructure.

1.6 Revised Components

The Project components were subject to several revisions, in price and scope, during implementation: (i) the 2010 restructuring canceled **Component 3 (**Extension and Rehabilitation of Al-Rasheed Water Treatment Plant) as its implementation was taken over by the Government using their own funds; (ii) the 2010 restructuring also cancelled the phase II, III and IV of **Component 8 (**Comprehensive City Development Plan (CCDP)) - due to the security situation resulting in the inability to field international staff to Baghdad and hold serious consultation workshops, and the inability to carry out field surveys to deal with the lack of data. The CCDP was therefore restricted to the preparation of phase I of the study and the review of the existing conditions (mostly based on existing data) for the city of Baghdad, which included the land use, socio economic conditions, housing, transportation infrastructure, utilities and community facilities; (iii) the 2011 restructuring changed one of the activities planned under **Component 5 (**Rehabilitation and Renewal of Sadr City Sewerage Network) from works to goods contract, so equipment (vacuum, jetty and CCTV system) could be procured to clean city's sewers, eliminating the overflow of sewer on streets problem, thereby improving the quality of life and reducing the risks to public health for the 2.7 million residents in Sadr city.

1.7 Other significant changes

Projects Costs/Grant Financing/Borrower Contribution: The cost of the project was initially estimated to be US$65.45 million grant funded from the World Bank Iraq Trust Fund (WB-ITF) and contribution from the Borrower. At closing, the actual project disbursement was US$61.7 million or 95% of planned commitment of US$65.0 million.[9] About US$3.3 million remained undisbursed at closing At appraisal the Borrower planned to contribute US$0.45 million; the actual contribution was at least US$0.45 million equivalent (100% of planned), or maybe more. The MOB agreed to cover the cost of Iraqi staff seconded to Project Management Team (PMT). The project did not actively document this contribution because it was in kind contribution, and may very well have run over the appraisal amount as the project ran longer than initially conceived and the staffing costs continued to be borne by the counterparts during that time. Project attained effectiveness on the Grant Agreement signing (December 4, 2004***).***

Project Extension: The Project Grant closing date was extended four times during project implementation: (i) extended for 23 months (legal amendment), establishing July 31, 2009 as the closing date to provide sufficient time to complete all activities under the project; (ii) closing date extension on March 3, 2009 establishing June 30, 2010 as the closing date to accommodate for the difficult security situation; (iii) a closing date extension granted for an additional 18 months (2010 restructuring), establishing December 31, 2011 as the closing date allowing additional time to fully implement the project and meet the PDO in full; and (iv) granted for an additional 18 months (2011 restructuring), establishing June 30, 2013 as the closing

[9] This is based on actual Bank reported disbursement from the World Bank Client Connection. There is still a withdrawal application of about US$0.1 million pending, but has been included in the amount reported.

date to accommodate for the delays caused by the difficult implementation environment as a result of security situation that limited access of the consultants and contractors to work sites.

Funding Allocation: Funding allocations for the components were changed during restructuring. Details on this are provided in Annex 2.

Reallocation of the Proceeds of the Grant: There were five reallocations of grant proceeds for the original project, as follows:

	December 8, 2004 – Initial Allocations (US$ million)	**May 15 2006 – Revised Allocations** (US$ million)	**April 30, 2010 – Level 2 Restructuring** (US$ million)	**December 21, 2011 – Level 2 Restructuring** (US$ million)	**February 20, 2013 – Level 2 Restructuring** (US$ million)
Works	21.0	21.0	42.9	40.4	40.8
Goods	30.0	30.0	12.9	19.1	19.0
Consulting Services and Training	6.9	6.9	4.0	4.6	4.4
Operating Costs	0.1	0.5	0.8	0.8	0.8
Unallocated	7.0	6.6	4.4	0.1	0
Total	65.0	65.0	65.0	65.0	65.0

Restructuring: The project underwent three level two restructuring during the course of implementation in 2010, 2011 and 2013, respectively.

Results Framework for the Project: Adjustments were made under all the three restructuring the project went through (See Annex 2).

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

Project Design: The rationale for Bank involvement in the reconstruction and development of Iraq following the 2003 war was sound. It would focus on infrastructure emergency response and rehabilitation, where there were significant needs and demand as the other donors were focusing on other sectors or on new investments. In addition, the Bank brought significant experience in post-conflict countries as well as strong added value in infrastructure rehabilitation and capacity building. However, the background analysis of the situation was hindered by significant difficulties getting access to reliable information on the ground, which affected the quality of assessment of the rehabilitation needs at the outset. The PDO was carefully calibrated to focus all investments and efforts on the urgent rehabilitation of infrastructure, while enshrining the need to build capacity to implement and operate the infrastructure.

Project design was aimed mostly at rehabilitation works, both emergency and reconstruction, for networks and production structures. The proposed components were in line with the development objective, and consistent with the Project rationale. This consisted mostly of the supply of goods, installation and rehabilitation works, and consultant services for supervision. All components were situated in or around Baghdad, which limited geographic dispersion, a focus that made sense in view of ground reality and the effect of conflict on the current infrastructure assets. Yet, the project carried a major source of risk as Baghdad was the epicenter of violence for the duration of the post-2003 tension and war (it was estimated at one point that 80 percent of violence during the war was concentrated in a radius of 50 miles around Baghdad).

Implementation Arrangements were based on MOB having a clear mandate in the sector. A Project Management Team (PMT) was created to ensure proper implementation and compliance with bank processes and rules, with clear reporting and accountability mechanisms, including the water and sewerage directorates and municipalities. Its effectiveness was foreseen to be hampered by: (i) low institutional capacity from the start due to a general lack of experience of its staff further degraded by almost 20 years of neglect, which would require significant efforts in training and institutional strengthening; (ii) staff were to be seconded only part-time, which may result in often over-stretched staff and a lack of focus on supervision and monitoring; and (iii) the lack of security was particularly acute in Baghdad and severely constrained any supervision work, sometimes restricting access to place of work.

Lessons learnt as a result of Bank's increased role in post-conflict reconstruction over the past decade and guided by the World Bank Operational Policy (OP) 2.30, Development Cooperation and Conflict, in which the reconstruction efforts put a premium on early but selective engagement,[10] flexibility in design and implementation, capacity building, coordination with donors and other partners, and close monitoring and evaluation coupled with Bank's comparative advantage in rebuilding infrastructure.[11] In addition lessons learnt from previous sector projects were adequately reflected in project design, mainly: (i) project kept flexible to permit a quick response to changing circumstances; (ii) provide generic training in advance, including project management, procurement, financial management, and environmental and social safeguards for staff members associated with requisite ministries; (iii) planned capacity building to ensure client readiness in project implementation; (iv) early and effective collaboration with donors, external partners, and representatives of line ministries proved vital in previous emergency operations.

Risks: Risks were generally and adequately identified and mitigation measures were provided where possible, including: (i) transition to a new Iraqi government – unknown outcomes that could affect project implementation; (ii) administration changes in MOB – jeopardizing current commitment to project design and inputs; (iii) sectoral priorities – difficult to establish in the current political setting – possible disagreements between the MOB and other controlling agencies (MOPDC, MOF); and (iv) deterioration of fiscal conditions – with sustainability problems for operations. In addition, goods lost or stolen, security deterioration hampering project completion, difficulties hiring expatriate technical assistance consultants due to unavailability of local capacity, inability to supervise on-site and a resulting reliance on intermediaries for supervision, lack of familiarity or affinity with Bank procedures, which would most probably lead to implementation delays, and difficulties with the flow of funds through the banking system. Most of these risks asserted that the project implementation would happen in a post conflict environment. There was no evidence of systematic and extensive contingency planning in the event this type of risk would materialize. Once the risk of not moving to a post-conflict situation materialized, the toolkit for the Bank to respond to these risks turned out to be rather modest in scope.

Quality at Entry (QEA): No QEA of the project was carried out by the Quality Assurance Group (QAG).

2.2 Implementation

Supervision**:** Project implementation, from effectiveness, spanned 8.5 years till grant closing and project completion, with a regular trajectory of supervision missions (average of two to three missions annually). Most of these missions took place outside Baghdad either in Jordan or Lebanon; missions to Baghdad were very limited in time and did not include basic supervision. The task team leader (TTL) was HQ based, with

[10] The O.P 2.30 recognizes that countries even in conflict, the Bank should "continue efforts at poverty reduction and maintenance of socioeconomic assets" and in developing a program for a country in transition from conflict may become involved incrementally.
[11] OED. 1998. The World Bank's experience with post-conflict reconstruction.

one country-level staff working in country on day to day issues. The project counted – despite its long duration - only three TTL transitions. The Aide Memoires were detailed and focused on key implementation issues. The project successfully dealt with several implementation hurdles.

The project implementation was significantly impacted by the three years of war (2006 to 2008) marked by violence, sectarianism and political volatility in Iraq, particularly in Baghdad. The lack of security resulted in: (i) hampering MOB's implementation capacity; (ii) preventing the project design engineers from accessing installations or performing field work generating significant tendering delays; (iii) being a disincentive to contractors and consultants, local and international, from bidding for project activities; (iv) making the implementation of the CDDP component extremely difficult; and (v) substantially impeding the delivery of goods and the execution of works, and their supervision. In addition, due to the extraordinarily difficult operating environment of project implementation delays were also experienced due to: (i) contract prices showed that prices in Iraq where not only higher than the global prices, but higher than prices originally anticipated at appraisal; and (ii) procurement delays due to weak capacity of the Iraqi counterparts and the unfamiliarity with Bank procedures.

Supervision throughout implementation was in a response mode and proactively responded to ground realities by taking the necessary actions to keep the project on course and to have the necessary documentation to support it. As a result, the project was restructured a total of 3 times to extend the closing date of the Project to allow for the completion of delayed components, cancellation, or modification of components; changes in the results framework; and reallocation of proceeds following higher than expected bidding outcomes (resulting from a significant increase in market prices in the time between appraisal and the initial bidding processes). These restructurings responded to requests by the Government of Iraq (GOI) in view of ground realities as they evolved.

Project implementation suffered systematic and significant implementation delays, both due to project level and exogenous factors. Successive supervision missions systematically noted incredible difficulties in (i) getting procurement packages ready and (ii) getting them executed properly, all the while proposing adjustments in the Project design, ultimately leading to the cancellation of one component (Al Rasheed). In addition, the Project closing date was extended 4 times, usually because activities remained stalled as the closing date drew closer, and with little contingency planning (despite insistent requests from the Bank team). Overall, the Project duration was extended from three years initially to an actual duration of more than eight years.

Distinct allocation as made for capacity building funds but this was bundled with technical assistance – and due to the ground realities more budget got allocated to technical assistance than capacity building, as a result.

<table>
<tr><th colspan="2"></th><th colspan="5">Emergency, Rehabilitation and Reconstruction Works Completed</th></tr>
<tr><th>Project Component</th><th>2005-06</th><th>2007</th><th>2008</th><th>2009</th><th>2010</th><th>2012-2013</th></tr>
<tr><td>1. Rehabilitation of chlorine and chemical units at Al-Karkh Water Treatment Plant</td><td rowspan="6">SIGNIFICANT DETERIORATION ON THE GROUND, SEVERELY IMPEDING ACCESS TO SITES</td><td colspan="3">Component suspended due to strong security concerns, cancellation under consideration</td><td>Decision to maintain under goods contracts (contract rebid)</td><td>Progressive delivery of goods (till completion)</td></tr>
<tr><td>2. Rehabilitation of 2B pumping station in Shark Dijla Water Treatment Plant</td><td>Goods delivered</td><td colspan="4">Emergency Component COMPLETED in 2007</td></tr>
<tr><td>3. Extension and rehabilitation of Al-Rasheed Water Treatment Plant</td><td>Cancellation under consideration</td><td colspan="4">Cancelled, financed and implemented by GOI</td></tr>
<tr><td>4. Rehabilitation of the Abu Nuwas Raw Water Pumping Station.</td><td>Most goods delivered</td><td>Decision to convert works component to supply of goods</td><td>Goods delivery on-going</td><td colspan="2">Emergency - last goods supplied, Component COMPLETED</td></tr>
<tr><td>5. Rehabilitation and renewal of Sadr City Sewerage Network</td><td rowspan="2">Detailed designs significantly delayed</td><td rowspan="2">Detailed designs completed with 12-18 months delay on average. Bidding started</td><td rowspan="2">Works on-going</td><td>Some works are completed</td><td>Final works COMPLETED</td></tr>
<tr><td>6. Rehabilitation and renewal of Drinking Water Network in Za’afarania</td><td colspan="2">All works COMPLETED</td></tr>
</table>

Mid-term Review (MTR): The MTR mission took place July 29 – August 2, 2008 in Jordan.[12] The Bank delayed the MTR to allow the PMT time for the preparation of the mid-term review report. The MTR confirmed that the PDO as stated in the Grant Agreement were still valid. The MTR also acknowledged that the project continues to experience delays in implementation due to security situation and relatively weak implementation capacity. The MTR reached the following decision: (i) proceed with the restructuring as planned in the March 2008 to accommodate general contracting price increases in Iraq; (ii) proceed with the award of Al Za’farania. Al Sadr and CCDP contracts, left approximately US$7.0 million unallocated allowing PMT to revisit proposed cancellation;[13] (iii) the Baghdad CCDP limited to Phase I and remaining scope would be cancelled; and (iv) extension of closing date. At the time of the MTR total commitment made

[12] when actual MTR was planned for January 2006, was extended to January 2007, then April 2007, then to August 2007, and then again to November 2007.

[13] In March 2008 the PMT proposed the cancellation and restructure the project: (i) Component 1 and Component 3 due to lack of sufficient funds; and (ii) cancellation of Package W02 under Component 2.

were at US$ 56.6 million, while disbursement was US$11.7 million, which was approximately 18 percent of the total value of the project.

2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization

M&E Design: Granted that the project was an emergency operation and much was not known on the outset, a basic monitoring and evaluation framework was included in project design, but with baselines to be determined and targets to be refined during early stages of implementation by the MOB with consultant support. The M&E design depended upon the use of project supervision reports, mid-term review reports and annual implementation progress reports to monitor and evaluate progress of the Results Framework. The design of the M&E framework largely focused on measuring progress of the component (percentage of works completed per subcomponent). With two indicators focused on the quantity and quality of the water supplied. Staffing to undertake project level M&E at the PMT was not defined but an "Independent Monitoring Agent" would be appointed to assess compliance with the GA and the scope of monitoring activities were not clearly delineated at appraisal (Technical Annex, p.15).

M&E Implementation: M&E during implementation of the project focused primarily on the physical progress of works as outputs. Dedicated M&E staff was not available in the PMT team for most of the duration of the project. The Bank was challenged on many fronts in regard to M&E, due to travel restrictions, project uncertainties and changes due to security situation, but mostly because direct supervision was not possible and basic data was not available.[14] The Bank team frequently reminded the PMT of its obligations on M&E but without much effect. The physical progress was monitored as outputs; outcomes were not accounted for during implementation.

The project restructuring of February 2013, focused on revising the indicators in the results framework to include core sector indicators to better reflect project outcomes – a move in the right direction, but only four months before project closing. In addition, the baseline and target value were left as "to be decided (TBD)," or "blank." Target values were established during the last supervision (April 2013), and at closing in the final Implementation Supervision Report (ISR), it was partially incorporated (only included five of the Intermediate indicators that the project delivered on).

M&E Utilization: M&E utilization was considered a compliance issue, as data was collected with the objective to comply with World Bank requirement for monitoring the projects implementation progress and PMT's buy-in was limited.

2.4 Safeguard and Fiduciary Compliance

(a) Safeguards

Among the Bank's Operational Policies (OP) for Safeguards, two policies were triggered. These were (i) Environmental Assessment (OP 4.01), and (ii) International Waters (OP 7.50). No environmental or social safeguard issue was identified during implementation, compliance with ESSAF was met

Environment: The project triggered OP 4.01 and was classified as Category B (Partial Assessment) at appraisal since the investments were related to civil works without significant impact to the environment. Under the project all sub-projects would be processed in accordance with the Environmental and Social

[14] The latest full census was conducted in Iraq in 1987, followed by a partial one in 1997.

Safeguards Assessment Framework (ESSAF) for Iraq (which was disclosed in English through the InfoShop for EWSSURP in October 2004) was fairly detailed and comprehensive. In addition, it was planned under the ESSAF that: (i) all sub-projects would be screened by the MOB through ESSAF checklist; (ii) code of practice would be included as parts of civil work and purchase and installation of equipment contract; and (iii) capacity building undertaken on environmental safeguards to enable MOB, and the Ministry of Environment to address any potential aspects that may arise during the screening and implementation of the components.[15] At design stage environmental safeguards were adequately addressed. During implementation, EAs/EMPs were to be prepared for each component, most often by the resident engineer.

Throughout the project implementation period, Environmental Safeguard were mostly rated "*Moderately Satisfactory*" as compliance with ESSAF was met on: (i) additional reporting information; (ii) improve the compliance to workers, general public health, and safety measures; (iii) updating and upgrading standard operating procedure of the Safeguard Focal Point. During implementation, EAs/EMPs were duly prepared for Components 5 (Rehabilitation of Sadr City Sewerage Network) and 6 (Rehabilitation and Renewal of Old Drinking Water Network with House Connection in Za'afarania), by teams from the University of Baghdad and the University of Mustansiriya, respectively. EMP monitoring summary was a part of the Quarterly Progress Report all throughout implementation, but from 2011 a more detailed reporting on each sub-project EMP was included. Also, from 2011, the newly established Environmental Assessment Department (part of the Solid Waste and Environment Directorate within the Mayoralty of Baghdad) has been responsible for the follow-up and monitoring EMP post-construction within their recurrent budget, and for the preparation of monthly and quarterly reports (previously completed by the Supervision Bureaus of the PMT during subproject construction phase). The submitted inputs were reviewed by the PMT Safeguards Focal Point and environmental consultant, the final product is an outcome of organizational collaboration. At completion the MOB prepared and monitored relevant sub-projects EMP, while the EMP reporting was rudimentary but was consistent throughout project implementation.

Social: At appraisal, Involuntary Resettlement (OP 4.12) was not trigged. It was anticipated that land acquisition and resettlement would be kept to a minimum and all land acquisition would be carried out in accordance with the guidelines set forth in the ESSAF for Iraq. As per ESSAF guidelines, the project was not allowed to finance any sub-projects on non-publicly owned land or allow for land acquisition as the investment focus was rehabilitation of current assets. It was understood that all works would be on land under Ministry of Finance ownership. Contract technical specifications included provisions to provide unimpeded public access through diversions during project construction.

International Waters: The Bank's policy on International Waterways (OP 7.50) was triggered as the project was drawing intake water from both the Tigris and Euphrates and their tributaries. At appraisal it was determined that the project falls within the exception to notification requirement of the policy (Paragraph 7(a)) and a "no objection" was obtained from the Regional Vice President to this effect (cleared on November 15, 2004). Compliance with this Bank's policy was considered as *Satisfactory* as no issues were raised during implementation. Before closing, the project also received a waiver for the riparian notification that the project works had not led to an increase in water withdrawals.

(b) Fiduciary Compliance

Procurement: Procurement during early period was rated "*Moderately Satisfactory*" by 2008 and then to "*Satisfactory*" rating from 2012 to closing. Procurement (mostly the preparation of bidding documents and evaluation reports) was a major factor for implementation delays. Nationally in Iraq there were some non-

[15] The Technical Annex (p.15) also mentions: an EMP will be undertaken during Rustumiyah Wastewater Treatment Plant (WWTP). This scope was omitted by appraisal so was not undertaken by the project.

Bank compliant procurement procedures and practices in place. These included: inadequate requirements for registration of suppliers and contractors; insufficiently transparent and fair debarment procedures; continued use of obsolete methods and procedures for procurement of goods and works and selection of consultants; undue restrictions on access to bidding documents; absence of adequate national bidding documents; insufficiently transparent bid submission; opening and evaluation procedures and contract award procedures; lack of effective bid protest mechanisms on contract awards; and lack of effective contract management. Additionally, the project provided substantial training in procurement and FM to build capacity to support future implementation of projects. A review by the Bank Integrity Vice-Presidency identified that one of the suppliers misrepresented the amount of commissions paid to an agent.

Financial Management: Throughout project implementation period, FM was generally rated "*Moderately Satisfactory*" with some dips towards "*Moderately Unsatisfactory*" during 2007-09. The project's overall financial management arrangement was adequate, including staffing, financial reporting, and annual external auditing requirements, sound internal controls and funds flow without major interruptions, with some delay in fixed asset register reporting (but complied with before project closing).[16] Financial management was outsourced to a private company as the Bank's Fiduciary Monitoring Agent for the ITF- and IDA-financed projects. This was very helpful, as the contractor became familiar with Bank procedures and was able to allocate the required resources when necessary. However, at the beginning, the project suffered from frequent turnover of PMT staff with FM responsibilities which added to the lack of understanding of World Bank guidelines causing ineligible expenditures, inaccurate accounting records, significant delays in replenishing expenditures from the World Bank, and delays in reconciling project records with the World Bank Client Connection. The overall performance of the financial management team improved during the later stages of project implementation as PMT familiarity with Bank procedures increased.

Disbursement. The project suffered from payment delays, especially payments in Iraqi Dinars (IDQ), mainly due to: (i) the weak banking system in Iraq, (ii) lack of familiarity of consultants and contractors with internationally accepted business practices, especially the monthly submission of invoices and full documentation of invoices, (iii) limited capacity within the PMT for management, and (iv) the reliance on overly complicated Letters of Credit arrangements. Moreover, the project did not benefit from electronic signature during most of the life of the project and had to send hard copies of documents to India and later Europe. This heavy administrative process put an extra burden on the PMT and Bank staff.

Fiduciary Monitoring Agent (FMA). The fiduciary monitoring agent (FMA) hired by the Bank for fiduciary purposes, effectively operated within the scope of their terms of reference. FMA staff visited the PMTs two to three times per month on average to: (i) review the PMTs' IFRs and reconcile their records with the Bank records; (ii) monitor unclaimed expenditures; (iii) verify disbursement plan updates; and (iv) provide on-the-job training in FM matters. The FMA included the PMT-prepared IFRs in their quarterly reports, as well as the adjusted IFRs (with their review comments and recommendations for the PMT IFRs). IFRs were submitted in a timely manner. The FMA also conducted, on a sample basis, pre-screening and post-review of withdrawal applications for direct payments and reimbursements. FMA technical staff visited all sites on a regular basis to carry out physical verification with reporting and digital evidence of on-going works and alerting the Bank on deficiencies in quality and complementation. The World Bank staff had the FMA staff participating in all supervision missions.

[16] As per ISR 21, June 22, 2013.

2.5 Post-completion Operation/Next Phase

During the final stages of implementation, the PMT was regularly reminded that any works that were not completed by Project closing would have to be financed and completed under the MOB's direct responsibility. According to the PMT, such arrangements have been put in place, and, most importantly, funding was secured. Component 1 which was not fully completed, but all the good were supplied, some installations were pending at closing. In addition, the Environmental Assessment Department, part of the Solid Waste and Environment Directorate within the Mayoralty of Baghdad has agreed to follow-up and undertake EMP post-construction monitoring within their recurrent budget in order to contribute to works sustainability post project closure. A follow-up project is currently under discussion.

During implementation, the main focus was on dealing with the significant complexities of achieving results in the difficult Iraqi circumstances, and little attention was given to institutional reform and capacity-building as prerequisites to the sustainable operation and maintenance of the investments financed by the Project. Yet, the significance of this has become increasingly clear to MOB management. In a recent training funded through the World Bank Institute, 75 MOB staff participated in the "Leadership for Results" training that aimed to solve water and sewer problems through teamwork and close collaboration with the local population. In one of the pilots, the teams were able to increase collection efficiencies in a subsector of the city. MOB management has also included several of the Bank procedures – such as procurement and environmental monitoring – and integrated it in its own organization.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

Rating: Substantial

The objective was highly relevant to Iraq's reconstruction and development priorities as an emergency project, and was clear on the reconstruction of physical assets, especially the water and sanitation infrastructure and services, and capacity building. The Bank's Country Partnership Strategy (CPS) 2013-2016 also identified: poor public service delivery (including water) as a major source of discontent for the Iraqi people and poor water quality and sanitation are also serious concerns in the key development challenges facing Iraq. The project's objectives remain consistent with the Bank's CPS 2013-2016, and directly respond to two out of the three broad result areas of engagement mainly: supporting economic diversification for broadly-shared prosperity, and improving social inclusion and reducing poverty which identifies: improved delivery of water supply services, and strengthened infrastructure services as clear CPS outcomes.

The project's objectives also align with the Government's National Development Plan (2013- 2017), a medium-term development strategy aimed at providing a framework for the country's sustainable development. One of the goals of the Iraq National Development Plan is to reduce poverty through amongst others the provision of basic services. The government's policy is still to improve universal access to good quality drinking water and also to improve sanitation, including improvement of wastewater collection and treatment. The major focus is still on rehabilitation and optimization. The project focused mainly on rehabilitation and reconstruction of existing systems as outlined in the National Development Plan. Therefore, the objective, design and implementation remain highly relevant to the country and sector context.

The relevance of design and implementation was *Substantial*. The scope of design was focused, manageable and well-targeted. The scope of project design was carefully calibrated to focus all investments and efforts on the urgent rehabilitation of infrastructure, while enshrining the need to build capacity to implement and operate the infrastructure. The project was fully consistent with the then Interim Strategy Note, which also

emphasized the need for rapid rehabilitation of critical infrastructure and services, short-term employment generation and institutional capacity building as pre-requisite for long-term sustainable recovery (Technical Annex p.3). The results framework accounted for all the components, and investment allocations were made such that they focused on two poorer neighborhoods of Baghdad (Sadr city and Za'afarania), while other investment accrued indirect benefits to all of Baghdad.

3.2 Achievement of Project Development Objectives

The PDO essentially consists of one part and focused on: *Restoring basic water supply and sanitation services for the capital city of Baghdad* to be implemented through a two prong approach: (i) the reconstruction, rehabilitation, and upgrading of water and sewer infrastructure in the city of Baghdad; and (ii) the provision of capacity building support through training and technical assistance. **Substantial**

The project successfully accomplished its PDO of restoring basic water supply and sanitation services through emergency response as well rebuilding and rehabilitation, supported substantially through "on the job" training. Infrastructure investments in the city of Baghdad assisted in rehabilitating and/or reconstructing water and sewerage networks and benefitted almost 590,440 people directly – impacting their quality of lives, well-being, and health. Of the total number of direct beneficiaries, 290,496 beneficiaries[17] were female.

Outputs:

- 18 chlorinators and ancillary equipment installed
- 6 pumps of varying sizes installed with a total capacity of 18,000 m^3/hour for Abu Nuwas Raw Water Pumping Station
- 43.5 km of sewer network reconstructed in Sadr City
- 7,125 sewer connections replaced in Sadr City; with another 1,800 house connections benefiting from improvements on the transmission network
- 1.9 km of transmission network replaced in Sadr City
- 44 km of water supply network replaced in Za'afraniya
- 306 man-month training provided through the project – 102% of the target met

Outcomes:

- Targeting of primary beneficiaries was met 100% under the project, 590,440 benefited against a target of 590,000. In sum, the project in all benefitted 5.8 million people, of which 590,440 people were primary beneficiary and 5.2 million people were secondary beneficiary.
- A total of 115,440 people directly benefiting in Sadr city which included 92,150 people from reconstruction of sewer network in Sadr City, and 23,290 from improvements to the transmission network;
- 475,000 people directly benefiting from water supply networks in Za'afraniya
- 1.7 million people benefiting from sewer maintenance equipment in Sadr City
- 1.2 million people benefiting from improvements to water supply system in Baghdad
- 2.3 million people benefiting from improvements to the water treatment plant of Shark Dijla (with funding from UNICEF and MOB; Bank only funded 2of the 6 pumps)

[17] According to the data of the Statistical Office, women make up about 49 percent of the total population. No specific data could be found for Baghdad.

Beneficiary population – The project consisted of two types of interventions. The works in Sadr City and Zafraniya were reconstruction works. The works in Sadr City – which also included work on the transmission networks – have reduced sewer blockages in six sectors and in some sectors adjacent to the six that were directly affected by the project. As the sectors are densely populated the number of people indirectly benefiting from the project could be a significant addition to the 115,480 directly benefiting from the project. In addition, the delivery of equipment to the two municipalities in Sadr City to maintain the sewer networks is to benefit all of Sadr City's population of 1.7 million[18] by reducing the number of sewer blockages. The works in Zafarniaya benefited 475,000 people with access to improved water supply services.

The smaller project components were essentially emergency investments aimed at improving the quality of water by supplying new equipment (pumps, chlorinators, chemical units, etc.). These emergency investments have brought large benefits to the population of Baghdad – even when the benefits of component 1 which were not fully installed by project closing – are excluded. It is estimated that 2.3 million people can benefit from the works under Component 2 (Shark Dijla Water Treatment Plant) that were funded by the Bank, UNICEF and MOB. The number of beneficiaries of Component 4 (Abu Nuwas Water Pumping Station) can amount to 1.2 million people.
In addition, the capacity building component of the project achieved its goals. Yet, the funding for most activities did not come through the project but through other means of funding, because (i) the capacity building component was very small as it was combined with TA and operating costs; and (ii) with the delays in implementation the TA and operating costs increased (as did the works that turned out to be more expensive than originally anticipated) crowding out the funds for capacity building. The majority of the capacity building efforts were linked to "on-the-job" training complemented with workshops, seminars, technical training tours, and a leadership for results training that helped MOB staff to pilot the use of result-based approaches in addressing urgent water and wastewater challenges in the city.

Household connected – 8,925 household sewerage connections were rehabilitated and restored under the project.

Accrued health and other benefits – Between 2000 and 2011, UNICEF conducted three surveys in Iraq, which amongst others looked into water and sanitation access and diarrhea incidence. According to these surveys, diarrhea incidence decreased between 2000 and 2011. It also noted that the sharpest declines were registered in Erbil, Salahaddin and Baghdad. In Baghdad, the incidence of diarrhea under five year old in the past two weeks declined from 20.9 percent in 2000 to 10 percent in 2011. This is likely to have had a positive impact on child mortality and morbidity.

Short –term employment – It is not quantifiable but the project did generate gains in short-term employment as a result of the physical works undertaken during the project implementation.

3.3 Efficiency

The economic and financial benefits of this project were not quantified at appraisal (Technical Annex p.16), as this was an emergency operation (as allowed under OP8.50). However, a case was made that the project investment was economically viable as it will: (i) produce an improvement in the quality of life of about a million people in Baghdad through the elimination of sewage backup in streets and homes; and (ii) reduce the incidence of oral fecal diseases and the rate of mortality in children which are most affected by water-borne diseases. In addition the project not only provides for the rehabilitation of water and sewerage facilities

[18] Data on access to sewer network was 63.1 percent in Baghdad Governorate. It tends to be lower in poorer neighborhoods, but it is likely to be higher in the capital city of Baghdad. We have assumed that 63 percent of the current population in Sadr City will benefit from improved sewer maintenance.

but compliments and enhances the effectiveness of other works underway in Baghdad by other donors, notably the US. In addition to ensure sustainability, the project provided for capacity building in accounting, financial management, information system, billing, collection and tariff. In addition, with a forecasted investment of US$65 million and 1 million beneficiaries, the per capita project cost was estimated at US$65. Therefore given the high positive externalities for investment of this type, the project was expected ex-ante to be cost effective.

In the absence of an economic and financial analysis at project appraisal, the analysis made at project completion can only be limited in scope as there is nothing to compare the results with. In addition access to project sites was still not possible due to travel restrictions in Iraq at the time of project completion.

For the two main investment projects, we rapidly appraise the costs of the systems, assuming that the operation and maintenance cost of the system would add to 5 percent of the investment costs. The number of beneficiaries used in this rapid assessment is discussed in the previous Section 3.2 and Annex 2, while we used the government standard of providing water of 350 lcd with a wastewater flow of 90 percent.[19] Project delays are included in these calculations as actual work under either of these schemes did not start until 2008. Under these assumptions, the following conclusions can be reached:

Za'afraniya:

- The net present value of the total cost per person served over the lifetime of the project of 25 years is US$9.07;
- The net present value of the cost of water supplied is US$0.07 per cubic meter;
- Consumers before rehabilitation were relying on tankers and were reportedly spending 20 percent of their family income on water. In such a context, the cost benefit ratio – even before taking into consideration any externalities – is positive;
- In a recent article on the cost of deficient water supplies in Baghdad, it was mentioned that where water quality is deficient, the incidence of waterborne diseases was markedly higher than where water quality was up to standard;
- In summary, this investment is a very cost-effective one if compared to an average price of water supply distribution network of US$0.75[20] as mentioned in the literature.

Sadr City:

- The net present value of the total cost per person served over the lifetime of the project of 25 years is US$103.00;
- The net present value of the cost of water supplied is US$0.90 per cubic meter of wastewater collected;[21]

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[19] http://www.anglianwater.co.uk/business/your-account/tariffs/charges-explained/.

[20] Whittington, Dale, W. Michael Hanemann, Claudia Sadoff and Marc Jeuland, 2009. The Challenge of Improving Water and Sanitation Services in Less Developed Countries. *Foundations and Trends In Microeconomics*, Vol.4, pp. 469-609. In this the authors calculate the basic cost of water and wastewater and come up with a price of about USD 2.50 (assuming a NPV of 10 percent), of which USD 1.06 is linked to water supply, and the rest to wastewater collection, treatment and disposal.

[21] Whittington, Dale, W. Michael Hanemann, Claudia Sadoff and Marc Jeuland, 2009. The Challenge of Improving Water and Sanitation Services in Less Developed Countries. *Foundations and Trends In Microeconomics*, Vol.4, pp. 469-609. In this the authors calculate the basic cost of water and wastewater and come up with a price of about USD 2.50 (assuming a NPV of 10 percent), of which USD 1.00 is linked to wastewater collection and conveyance to wastewater treatment plant.

- In such a context, the cost benefit ratio – even before taking into consideration any externalities – is likely to be positive;
- The price of wastewater collected is cost –effective when compared to results found in the literature where the cost of wastewater collection is estimated at US$1.00 per cubic meter of wastewater collected.

In addition, the incidence of diarrheal diseases has decreased rapidly in Iraq in recent years. Data from the Multi-Indicator Cluster Surveys that were conducted in Iraq in 2000, 2006 and 2011, shows that in Baghdad Governorate[22] the diarrhea incidence between 2000 and 2011 declined by almost 31 percent. A recent article[23] on drinking water pollution in Baghdad confirmed the major health effects of pollution of especially drinking water as measured in terms of infant and child mortality. So positive externality of health impacts could be substantial; direct attribution of such impacts as a result of project investments remains a challenge.

3.4 Justification of Overall Outcome Rating

The project successfully delivered on its project development objective to restore basic water supply, sanitation and urban services for urban areas of the city of Baghdad under a very difficult context. Overall the project benefitted almost directly 567,190 people while the emergency operations in the major water treatment plants benefited a large part of the Baghdad population with improvements in water quality. In addition, the sewer maintenance equipment for Sadr City is benefiting a population of 2.7 million in these two municipalities. The project did suffer from some delays and increased costs for reasons explained above, but stayed on course toward emergency rebuilding of infrastructure in Baghdad in a very difficult work environment. The project proactively dealt with many unknowns in the ongoing conflict environment, resulted in almost full disbursement, and a more than satisfactory completion of the works.

Relevance of the objectives is rated *High*, and design is rated *Substantial*. The objective "*Restore basic water supply and sanitation services for the capital city of Baghdad*" is rated *Substantial*. Overall, efficiency is rated as *Substantial*. As a result, the overall Project Outcome is rated as *Satisfactory*. As a result, the overall Project Outcome is rated as *Satisfactory*.

Rating: Satisfactory

3.5 Overarching Themes, Other Outcomes and Impacts

(a) Poverty Impacts, Gender Aspects, and Social Development

The project was focused on serving these areas where the poor were very well represented. Za'afraniaya was classified as one of the poorest districts in the Karrada municipality bordering Baghdad city. Sadr City (or Al-Thawra city) was built as a public housing project for Baghdad's urban poor.

As also mentioned earlier Multiple Indicator Cluster Survey (MICS), access to piped water through house or yard connections of the poorest quintile in Iraq increased from 12.8 percent in 2000 to 41.6 percent in 2011. A similar rapid increase was registered for access to toilets connected to the sewer network or a septic tank that increased from 10.1 percent in 2000 to 36.2 percent in 2011. This is not fully attributable to the project

[22] Baghdad Governorate exceeds the boundaries of Baghdad, but about 60 percent of the households in the governorate reside in Baghdad city.

[23] Aenab, A.M. and S.K. Singh, 2012. Evaluation of Drinking Water Pollution and Health Effect s in Baghdad, Iraq. *Journal of Environmental Protection*, vol. 3, pp. 533-537.

investment as the Bank was not the only organization funding investments, but it is possible to conclude that the Bank project investments contributed to these gains.

(b) Institutional Change/Strengthening

The project included technical assistance and capacity building. As the allocation in the project budget for training was limited, funding for training was mainly dependent on external funding and "on-the-job" training. The funding came in the form of formal training in workshops funded by USAID, and other Bank trust funds that help to organize workshops and study tours regarding asset management, non-revenue water, wastewater reuse, and utility and water resource management. The Bank also provided support to MOB through the Leadership for Results Program that helped MOB staff to use a result-based approach to urgent water and sewer problems in the city within a timeframe of 90 days.

In addition, the Bank team in the first years provided training especially on contract management as a standard part of supervision missions, adding additional time to train PMT staff, contractors and consultants in contract management skills. The very close supervision of the project on a virtual daily basis provided "on-the-job" training to the PMT on all aspects of Bank project management (procurement, financial management, disbursement, contract management, etc.). In addition the FMA provided on-the-job training and more formal training to MOB staff during the project implementation on a regular basis during project implementation. "On-the-job" training was also provided to MOB staff at the final stages of project implementation through suppliers training on use of equipment. MOB reported that the use of Bank procurement procedures is now also used when MOB undertakes procurement with its own funds.

(c) Other Unintended Outcomes and Impacts (positive or negative)

In Baghdad, houses on plots under 200 m^2 cannot legally connect to the sewer network. As population pressures are high, especially in places like Sadr City, it is likely that more people will benefit from the works albeit not all officially. As the population of Sadr City is divided in 80 sectors and a total population of 2.7 million is living here, and the sectors tend to be relatively even in setup, the average population per sector in 2013 would be 33,750. This would translate in a total beneficiary population in the six sectors of about 202,500 people. For the estimation of the number of beneficiaries, we have used the estimate of 115,480 people benefitting directly from the project interventions. As a rapid survey in Sector 38 and 55A showed that all households were connected, the number of people actually benefiting from the project may be significantly more than the numbers of those legally connected.

3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops

Not Applicable. A beneficiary survey was not conducted or programmed under implementation.
However, the PMT included a number of beneficiary random ad-hoc surveys while preparing its completion report. The major outcome of these surveys is that in generally there is significant satisfaction with the outcomes of the project. Satisfaction with the efficiency of the network in two sectors of Sadr City increased significantly at the same time that the number of sewer blockages declined.

Another interesting feature from this survey was that the number of house connections increased rapidly once rehabilitation of the sewer networks were completed from 84 to 100 percent in Sector 55A and from 72 to 100 percent in Sector 38. A similar survey in Za'afraniya found that 100percent of respondents were connected to the reconstructed water supply network and that dependence on water vendors had ceased.

4. Assessment of Risk to Development Outcome

Rating: High

The risk to development outcome is rated *high* as in the context of Iraq as the unknown outweigh the known, especially in the case geopolitical safety and security at the local level. This would directly affect the likelihood that completed works are not operated and maintained in a satisfactory manner, or that improvements in water and sanitation services received by beneficiaries are not maintained, or vice versa. This is due to: (i) inefficient sector governance, as institutional reform has not yet been initiated (CCDP could not be completed) and the sector still struggles with technical and fiduciary capacity challenges; (ii) a prevailing inefficient financial model where water tariffs are inadequate, in design as well as in levels, capacity for proper financial management and asset management is limited (albeit that fiscal transfers to the sector are large); and (iii) a persistently volatile context where political contestation, sectarianism and violence still remain.

5. Assessment of Bank and Borrower Performance

5.1 Bank Performance

(a) Bank Performance in Ensuring Quality at Entry

The Bank's performance during preparation is rated *Moderately Satisfactory*. The Bank adequately responded to sector and country demands with the objective to help Iraq's development and reconstruction priorities. The scope of design was focused, manageable, well targeted, and was carefully calibrated to respond to immediate needs, both with regard to investment and capacity, in order to restore basic water supply and sanitation services for the capital city of Baghdad. The urgency with which the project was prepared did not always allow the project team to focus on all elements of project preparation. As a result, in an environment where much was not known due to years of isolation and conflict, the project was prepared well within these constraints. The technical annex and ESSAF were fairly detailed. Lack of information precluded full preparation for capacity building, financial and economic analysis, monitoring and evaluation and contingency planning for a situation of security deterioration (despite a clear identification of these risks at design).

In essence the project design hinged on the assumption that project implementation would happen in a post-conflict environment, which did not materialize during the life of the project. The Bank did not have any precedent in this context when the reality in Iraq, especially in Baghdad turned out to be that project implementation continued in a conflict situation. At the outset the scope of the Third Party monitoring was designed to palliate the inability of Bank teams to supervise the Project on the ground, but their terms of reference had a limited scope that essentially did not compensate for the lack of Bank in-country supervision (especially with regard to safeguard compliance and project monitoring).

Rating: Moderately Satisfactory

(b) Quality of Supervision

The Bank's performance during implementation is rated *Satisfactory*. The Bank essentially operated in an environment where it did not have any precedent (conflict situation) and did not have access to many tools to respond adequately. The Bank team supported the implementation of the Project during extraordinarily difficult circumstances, which were only partially foreseen at appraisal.

The Bank was continually challenged on the implementation front; as a result it was constantly in a response mode throughout the implementation period and grappled with many hurdles. The deterioration of the security situation quickly prohibited any field missions and hindered the team's capacity to perform direct supervision of implementation progress. As a result the Bank team had to rely on third parties that were working under a terms of reference of limited scope focusing on procurement, physical verification of works and financial management. In spite of these circumstances, the team met regularly with counterparts and was proactive in assessing the evolution of the situation and proposing adjustments as a result to deal with the construction of the infrastructure. The Bank team invested significantly in supervision support to deal with the capacity gaps and constantly provided on-the-job advice with field staff providing continuous support. It also provided training wherever it could – in view of the small project budget and spent major efforts to secure other funding sources to provide support for capacity building. The project was diligently and timely restructured three times in response to project changes as they surfaced, and compliance with fiduciary and safeguards was adequate. Monitoring of activities was mainly related to the on-going physical output progress with little emphasis on outcomes but was revised at the end of project implementation.

Capacity building activities – apart from on-the-job training – were especially in the earlier years mostly focused to familiarize PMT staff with Bank procedures and improve contract management. Investments were made to build capacity in MOB staff by providing them with knowledge on improving water and wastewater service delivery through workshops (on for instance asset management, and non-revenue water), study tours and result-based management pilots.

The Bank proactively continued to operate implementation in a very difficult environment by being proactive and results were achieved. In hindsight, there were some shortcomings which should be considered in the extremely difficult environment in which the project was implemented as the "growing pains" or "learning opportunity" of working in a conflict environment.

Rating: Satisfactory

(c) Justification of Rating for Overall Bank Performance

The project was a timely response to realities on the ground in Iraq for Baghdad. The urgency with which the project was prepared did not enable the team – especially in an environment where much was not known – to ensure that the project was fully ready to be implemented as it relied on the assumption that a post-conflict environment would materialize once the project would be implemented. When this crucial assumption did not materialize, the Bank was left with a very limited set of instruments to undertake project implementation. The project did suffer delays during implementation, mostly a consequence of factors relating to security and ongoing conflict. The Bank team responded proactively to issues that arose during implementation and adapted to the unpredictable circumstances in Iraq. World Bank support to the Government of Iraq in preparing and implementing the project is rated as Satisfactory as the Bank was able to perform and deliver on the project outputs and outcomes. Most importantly, the project responded directly to the Borrower's rebuilding needs in a timely and responsive manner, despite the lack of enabling environment, directly and indirectly benefitting around 4 million people in Baghdad alone as a result of emergency and reconstruction works.

Rating: Moderately Satisfactory

5.2 Borrower Performance

(a) Government Performance

At appraisal, the Mayoralty of Baghdad (MOB) was the Government counterpart agency for the project. However, municipal services, such water, sanitation and solid waste collection, under each jurisdiction were delegated to the respective nine municipalities in Baghdad. While water and sanitation services are administered centrally by the Baghdad Water Authority (BWA) and Baghdad Sewerage Authority (BSA). Overall, it was mired in the same difficulties faced by most public sector institutions. The Government cannot be held responsible for the security concerns that impacted project implementation as it was due to exogenous factor beyond the scope of jurisdiction. Although the Ministry strongly supported the project and its objectives are aligned with the National Development Strategy, support wavered slightly during implementation which resulted in implementation delays when the government refused to pay for taxes incurred by contractors and consultants. A testimony that the Government supported the project till the end was the provision of staff seconded to the PMT from existing technical units initially for three years but which continued till project completion, for more than 8 years. In addition, it is using the Bank procedures in the procurement of the turnkey contract for the Al Rasafa treatment plant.

Rating: Moderately Satisfactory

(b) Implementing Agency or Agencies Performance

Within the MOB, BWA, and BSA, the project implementation was undertaken by the Project Management Team (PMT). Administrative and bureaucratic constraints at times impeded project progress, but it should be taken into account that the PMT worked under extraordinarily difficult conditions in the context of country that levitated from conflict to rebuilding. The PMT during implementation was stretched, as the staff seconded to the PMT in reality was performing two jobs. Despite the dearth of such specialists, the PMT was able to attract environmental and legal staff to assist in dealing with the issues that arose during project implementation. Additional exogenous factors included continued lack of clarity with respect to tax treatment and letter of credit hurdles, but the PMT was able to achieve the project outcomes in a cost-effective manner, and should be commended for their dedication and ability to deliver the project outputs and outcomes successfully.

Rating: Satisfactory

(c) Justification of Rating for Overall Borrower Performance

The overall Borrower performance is rated *Moderately Satisfactory* based on the Government's commitment to achieve the Project Development's Objective, their continued staffing of the PMT, the full achievement of results, but also taking into account delays in project implementation, all this within the context of lack of a proper enabling environment. It is important to consider that this project was not implemented under ordinary circumstance but rather under extra ordinary circumstances, within an environment that was not enabling, institutions that were also in rebuilding mode just like the country, while in parallel grappling with many exogenous factors beyond the scope of this project – and reaching project completion should be applauded.

Rating: Moderately Satisfactory

6. Lessons Learned

Iraq significantly challenged the Bank's ability to perform successfully in post conflict-states under O.P 8.50 . The Bank's tools to mitigate risks were limited in Iraq, when the post-conflict environment did not materialize. Even though the Bank had identified the risk of on-going conflict, it did not include sufficient contingency planning as to how to operate in such an environment. The Bank's experience and its instruments to deal with such a situation were limited; the teams were mostly reliant on the FMA and on restructuring (which is not a very flexible tool, is time consuming and requires a formal client request which can be difficult to obtain in conflict-affected situations). The number of restructurings could have been reduced if a more flexible approach in the definition of project components had been applied (with for instance one investment component instead of each subproject defined into a project component).

Need to examine trade-off between risk mitigation measures and speed of implementation/achievement of development outcomes. The Bank often has to make difficult trade-offs in conflict areas between risk mitigation and implementation expediency. For example, the lack of a designated account (put in place as a risk mitigation measure) meant that all payments were to be processed by the Bank team, and similarly virtually all procurement was made under prior review procedures, and this added to the transaction costs of implementation in terms of time needed to achieve project goals. Considering these trade-offs during project preparation may result in a more realistic assessment of project implementation period.

The Bank should consider expanding the role and scope of the Fiduciary Monitoring Agent (FMA) to respond effectively to the ground realities. Under the project FMA scope was limited to physical verification, procurement and financial management and did not include safeguard compliance and project monitoring or technical supervision. Project experience confirms that in situations where the Bank cannot go on field visits, and hence the accessibility to project implementation monitoring is limited, the scope of the FMA activities should be expanded to encompass all aspects of project monitoring if possible. It should also be noted that in conflict-affected countries such as Iraq, technical and managerial capacity may not be available in the local consulting market to a degree sufficient to substitute for Bank team supervision. Nevertheless, in such an environment, while the Bank regularly assessed the effectiveness of the FMA, it might have usefully explored the possibility of expanding the scope of their Terms of Reference beyond fiduciary monitoring alone.

Capacity building should not be bundled with technical assistance. In hindsight since the allocation for capacity building under the project was bundled with technical assistance, the actual allocation of funds to capacity building was limited especially as the implementation delays required more funds for technical assistance. In future projects, the capacity building budget allocation should be independently dedicated.

Conflict situation calls for thinking about M&E differently. Project experience shows that M&E of an emergency operation may not incorporate the necessary rigor at the preparation stage as the project preparation is not based on a comprehensive sector review. In the case of Iraq, monitoring was further complicated by the lack of reliable data. M&E should be given due priority for reassessment during implementation. Additionally M&E should focus equally on outputs and outcomes, should be kept simple, and target values should be established. Most importantly, the project should facilitate client capacity to assume these responsibilities from the beginning of the project to foster a target- and results-driven mindset for the project. A simple beneficiary assessment should be a standard part of Bank preparation and implementation to validate project results.

The cost of doing business in conflict areas is high. Supervision in a conflict environment is costly, as is reflected in the high cost of supervision and the dependence on FMA. Hence, in such an environment it is important that the Bank is very selective in its operations and focuses its interventions on working with those agencies that have implementation capacity.

7. Comments on Issues Raised by Grantee/Implementing Agencies/Donors

(a) Grantee/Implementing agencies

The document was send to the Borrower for comments, which were not received by the time the document needed to be submitted into the system. Comments, if received from the Borrower, will be filed in the project folder. The ICR Borrower's report is presented in Annex 7.

(b) Cofinanciers/Donors

Not applicable.

(c) Other partners and stakeholders

Not applicable.

Annex 1. Project Costs and Financing

Components	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Component 1: Rehabilitation of Chlorine and Chemical Units at Al-Karkh Water Treatment Plant	2.80	0.9[3]	39%
Component 2: Rehabilitation of 2B pumping station in Shark Dijla Water Treatment Plant	4.50	3.4	85%
Component 3: Extension and Rehabilitation of Al-Rasheed Karkh Water Treatment[1]	7.20	Omitted during implementation	NA
Component 4: Rehabilitation of Abu Nuwas Raw Water Pumping Station	6.20	6.9	111%
Component 5: Rehabilitation and Renewal of Sadr City Sewerage Network	15.00	23.3[3]	155%
Component 6: Rehabilitation and Renewal of Old Drinking Water Network with House Connections in Za'afarania	15.40	22.2	144%
Component 7: Development of a comprehensive urban master plan (city development plan) for Baghdad	3.00	1.2	40%
Component 8: Technical Assistance and Capacity Building	3.90	3.8	97%
Project Management and Operating Costs[2]	0.45	0.45	100%
Total Baseline Cost	58.45	62.15	106%%
Physical Contingencies	4.70		
Price Contingencies	2.30		
Total Project Costs	65.45	62.15	95%
Front-end fee PPF	0.00		
Front-end fee IBRD	0.00		
Total Financing Required	65.45	61.7	95%

Notes:
[1] This component was in the Grant Agreement, but was not undertaken during implementation.
[2] Based on the Technical Annex 2 – allocation for PMT salaries was made a part total project and not identified as separate component.
[3] The grace period of this project extends to December 31, 2013 and hence payments marked with the asterisk may not be final.

(b) Financing

Source of Funds	Type of Cofinancing	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Borrower[1]		0.45	0.45	100%
International Development Association – Special Financing – Iraq Reconstruction Trust Fund		65.00	61.67	95%
Total		65.45	62.12	95%

Notes:
[1] Based on the Technical Annex 2 – allocation for PMT salaries – contribution was not documented during project implementation

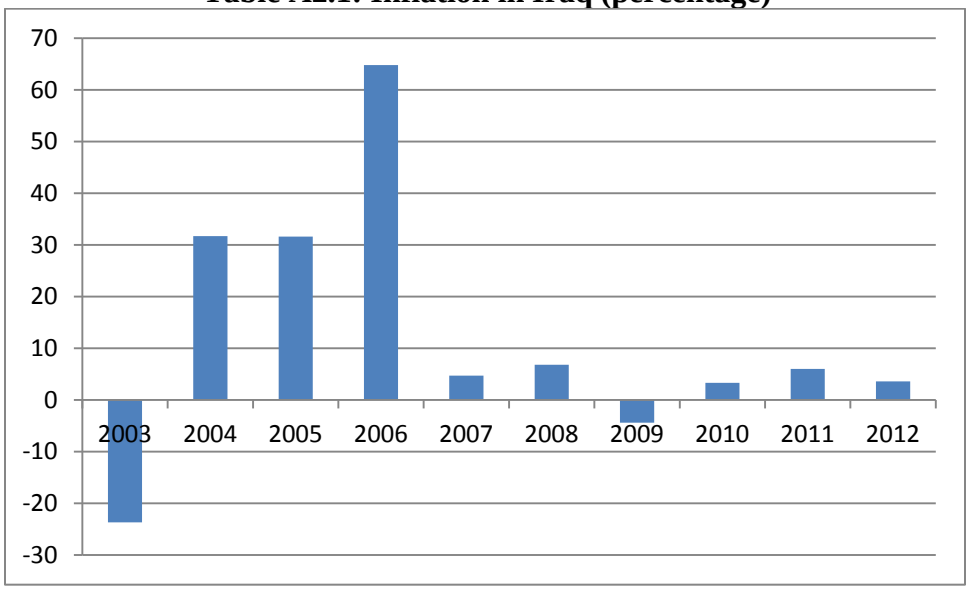
Annex 2. Outputs by Component

Introduction

The project at appraisal was conceived very differently than the project that was eventually implemented. Several factors have affected all project components as described below. They relate to a (i) radical change in the macroeconomic climate between project appraisal and project implementation; (ii) the endurance of the conflict and the ensuing lack of safety in many parts of the country; and (iii) a legal and regulatory environment that was biased towards the private sector.

Changes in the macroeconomic environment. The project was prepared in 2004 in an environment with scant and unreliable data that was dating back from an era in which prices were heavily controlled. After 2003, the economy started to liberalize all prices with the exception of energy and some food items. In addition, the country suffered from supply bottlenecks and conflict that resulted in an acceleration of inflation between 2003 and 2006, when inflation averaged about close to 40% annually. By end of 2007 inflation was brought under control, but the high inflation in the earlier project years resulted in a sharp increase in overall price levels compared to the situation at project appraisal. The high inflation resulted in most project components ending up significantly more expensive than originally planned.

Table A2.1: Inflation in Iraq (percentage)

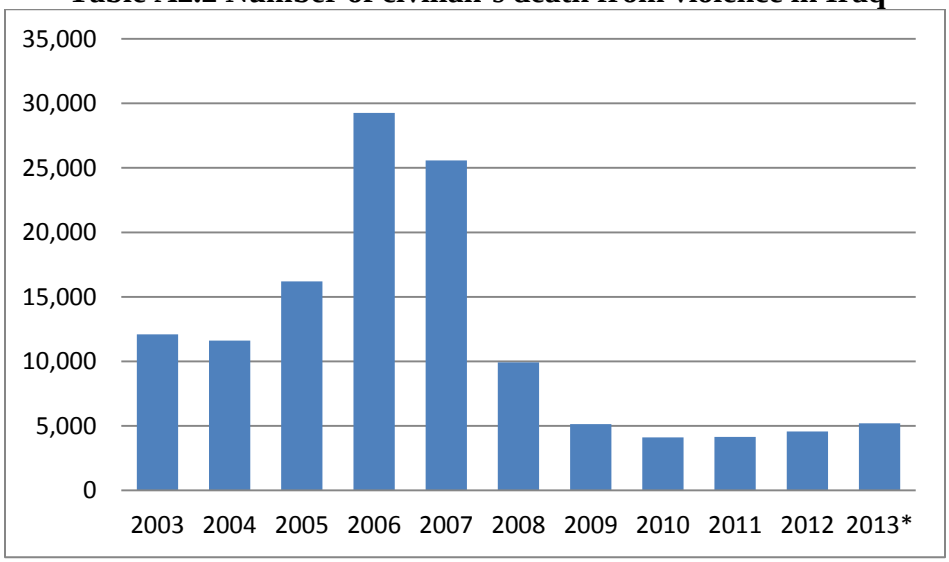


Source: Iraq Central Bank

The endurance of the conflict. The intensity of the conflict has varied over the years, and lack of security has remained a major concern. The lack of safety had a profound impact on project implementation. The lack of security has made it difficult to attract high quality contractors and consultants. International contractors and consultants, especially in the project's early years, proofed impossible to attract (with bidding process not attracting any, or sufficient bidders). At the same time, in a country where the private sector is underdeveloped, the capacity of local contractors to bid for works – especially larger ones – has been limited. The lack of supply of high quality staff to implement projects resulted in extended time needed to award contracts as often several rounds of bidding were necessary, resulting higher bid prices to account for the lack of security in the country that exceed the budgets allocated at appraisal. To deal with the limited local capacity and lack of interest of international bidders, solutions were introduced; such as splitting contracts

into a set of smaller contracts to attract local contractors; and the use of joint ventures. However, these strategies were not without costs as the capacity of local contractors turned out to be highly variable (as is shown in the relatively frequent use of early contract terminations and long implementation periods), while the burden on project management to supervise a larger series of small contracts increased.

Table A2.2 Number of civilian's death from violence in Iraq



Note: *2013 data pertain the period from January 1 – September 15, 2013 from www.iraqbodycount.org*

The lack of security was also reflected in the quality of engineering designs and implementation. As consultants prepared the designs, the lack of security often did not make it possible to go to the sites. A number of designs were made using remote sensing data, but the lack of ability to calibrate the satellite data with the situation at the site – in combination with the long delays in awarding contracts – resulted in the need to often significantly change the design while it was being implemented; resulting in higher costs and implementation delays. During implementation, the lack of security resulted at work being interrupted at times.

The regulatory environment is still not very favourable to the private sector. The limited capacity of local contractors and consultants was further aggravated by regulation that often was not very conducive to doing business. The Bank's "Doing Business" report of 2013 ranked Iraq still as very low in the ease of doing business. Contractors and consultants were operating in an environment of byzantine rules and regulations and a government not at all familiar with international business practices.

Project Components

Component 1: Rehabilitation of Chlorine and Chemical Units at Al-Karkh Water Treatment Plant (appraisal amount US$2.8 million; actual US$0.9 million) Al-Karkh Water Treatment Plant (WTP) was constructed in 1985 and is one of the largest treatment plants in the world with a total capacity of 1,365 million liters per day (MLD). This plant is large enough to serve 3.9 million people according to the government's standard of serving people with 350 liters per capita per day. The source of raw water is the River Tigris and water treated by the plant supplied for 65 percent of the total water demand of Baghdad. Unavailability of spare parts, damaged equipment and chlorine leakages, over the last 14 years affected the plant efficiency. This component aimed to improve the reliability and efficiency of the chlorination and chemical processes and increase safety by installing new automatic chlorinators and by rehabilitating the

ventilation system. The component will improve the reliability and efficiency of the chlorination and chemical processes and increase safety with the installation of the automatic controls.

Due price escalation, the bids for these works turned out to be much higher than planned for during project appraisal. Therefore, it was decided to re-bid the process with a local supplier. Yet, the local supplier was not able to get the supplies purchased and installed, and eventually the contract was terminated. The third bid which was won by another local supplier in July 2011, which has been struggling with the purchase and installation of the chlorinators, ancillary equipment and spare parts. The delivery of supplies has been hindered by administrative issues, including the difficulties to use letters of credit in the country. By June 30, 2013, about 65 percent of the goods were installed under this component. The Mayoralty will pay for the remaining equipment, including the automatic controls, to be installed. A payments are still pending under this contract as the grace period was extended to December 31, 2013.

Rating: Moderately Unsatisfactory

Outputs:

A total of 18 chlorinators and ancillary equipment have been installed.

Outcome:

At completion, when only the project indirectly may have benefitted the population, but as not all chlorinators have been installed yet, the full impact of the benefits has not yet been achieved.

Component 2: Rehabilitation of 2B pumping station in Shark Dijla Water Treatment Plant (appraisal amount US$4.5 million; actual US$3.4 million). Baghdad is located on the two sides of the Tigris River. It receives its potable water from two principal WTP, namely Al-Karkh WTP (mentioned above) on the west side (Karkh district), and the Shark Dijla WTP (540 MLD), on the east side in the Rasafa District. In 1989, a 820 MLD (820,000 cubic meters per day) blending station, referred to as the 2B pumping station, was added to the Shark Dijla WTP to receive potable water from Al Karkh WTP and pump it to the Rasafa district. This pumping station has not been renovated since the 1990s and was in dire need of repair. The pumping station could serve up to 2.3 million residents.

This component aimed to rehabilitate the 2B pumping station at the Shark Dijla WTP by overhauling the six vertical pumps, replacing the valves and 3 chlorinators and install UPS systems and batteries. However, the cost of the goods turned out to be significantly higher than originally anticipated, and eventually the project only funded 2 vertical pumps and the valves. As the rehabilitation of the pumping station was very urgent in 2005, the Mayoralty stepped in with its own funds to replace 2 vertical pumps while UNICEF funded the remaining two pumps. This contract was signed for US$3.4 million of which US$3.0 million was disbursed.

Rating: Satisfactory

Outputs:

- Completed the installation of two vertical pumps with spare parts and valves
- Supply of spare parts
- Supply and installation of valves

Outcome:
At completion, the project directly benefitted a population of 2.3 million people[24] although the Bank provided only one third of the pumps that needed to be installed so this result can only be partially be attributed to the Bank.

Component 3: Extension and Rehabilitation of Al-Rasheed Karkh Water Treatment (appraisal amount US$7.2 million; actual US$0 million). This is an old WTP with a design capacity of 68 MLD (68,000 cubic meters per day), which was designed to supply potable water to the Za'afarania suburb (estimated to have about 350,000 inhabitants in 2003) – it was in poor shape and unable to meet the demand of the community. This component covered the expansion, rehabilitation and upgrading of the plant to treat the highly polluted raw water of the Tigris water at this location. It also covered the rehabilitation and strengthening of the water mains, storage tanks, pumping stations and chlorinators.
After the detailed design was undertaken, this component turned out to significantly more expensive than conceived at project appraisal and was estimated at US$43.0 million – due to a sharp increase in prices and the need to also extend the network more than originally envisaged. In view of its importance, MOB contracted out the work through its own investment budget in 2008 and this component was cancelled under the project in the 2010 restructuring.

Rating: Not Rated

Component 4: Rehabilitation of Abu Nuwas Raw Water Pumping Station (appraisal amount US$6.2 million; actual US$6.8 million). This pumping station was destroyed and vandalized in the 2003 conflict. The Abu Nuwas pumping station contained four vertical pumps of a 3,600 m^3/hr capacity and two vertical pumps of 1,800 m^3/hr capacity together with all related works. At appraisal, only two pumps of 3,600 m^3/hr were operational.

The proposed component aimed to completely rehabilitate the electrical and mechanical equipment in the station to increase the pumping capacity back to 18,000 m^3/hr (5 cubic meters per second). The pumping station is currently fully functional and provides raw water that then is treated and distributed.

Rating: Satisfactory

Outputs:

Completed installation of six pumps with a total pumping capacity of 18,000 m^3/hr, and 24 high pressure valves, control equipment and SCADA system.

Outcome:

At completion, the project directly benefitted a population of 1.2 million people

Component 5: Rehabilitation and Renewal of Sadr City Sewerage Network (appraisal amount US$15.0 million; actual US$17.2 million for works only). Sadr City comprises 80 sectors with a population of about 2 million inhabitants in 2004 (at current urban population growth rates as estimated by the Department of

[24] The Government in its National Development Plan uses a standard of providing people with 350 lcd. Using this standard, the theoretical number of people served is based on the capacity and this standard in the absence of any other data available.

Statistics estimated at least about 2.7 million people by 2013[25]). At appraisal, the city experienced frequent back-ups resulting in overflow of sewage to streets and adjacent neighborhoods. This was due largely to broken pipes, lack of maintenance and inadequate rehabilitation. This component aimed to rehabilitate secondary sewers ranging in size between 200-400 mm in parts of Sadr City and its surrounding areas, including the addition of house connections. Sewage would then flow through the pre-existing sewer mains to the Rustumiya Wastewater Treatment Plant.

This design was adjusted as due to the severity of the wastewater problems, it was decided to renew the secondary networks and house connections in these six sectors (instead of rehabilitating them). In addition, it was also found that in three of the six sectors, sewer trunk lines needed to be replaced to address the sewer back-up lines.

The total disbursement for the renewal of networks in Sadr City under this component was US$17.2 million (excluding goods component, see below) – almost 15 percent higher than originally anticipated. The contract was originally bid out as one single contract, but this contract garnered too few interested (international) bidders. It was then decided to split the original contracts in six smaller contracts that were bid out to local contractors (as price increases did not make it possible to include all original works as foreseen).

The results of the component are summarized in Table A2.3. The absence of up to date population data[26] for Baghdad in general and Sadr City in particular, has resulted in difficulties in estimating the number of direct beneficiaries. The data on the number of beneficiaries provided by the PMT in its report is only 63,200 for the six sectors (excluding beneficiaries from transmission rehabilitation works), which essentially uses the average household size of the country in urban areas of 6.7. UN Habitat in its reports mentioned the large housing deficit and the increasing likelihood of housing plots getting subdivided – meaning that the likelihood that more than 1 household uses a connection is increasing. The PMT uses a factor 1.32 (for the number of households per plot). This number is not consistent with several other sources of information as collected by the Central Office for Statistics (CSO). In the CSO statistics, the number of households in Baghdad in 2007 is provided as 665,000 with a population that was around 6.5 million that year, resulting in about 10 people per household. Using this number and the crowding factor of 1.32 would provide 115,480 people with wastewater services. However, that number seems low when the population of Sadr City is divided in 80 sectors and a total population of 2.7 million is living here. As the sectors tend to be relatively even in setup, the average population per sector in 2013 would be 33,750. This would translate in a total beneficiary population in the six sectors of about 202,500 people. For the estimation of the number of beneficiaries, we have used the estimate of 115,480 people benefitting directly from the project interventions.

In addition, in Baghdad, plots under 200 m2 cannot legally connect to the sewer network. As population pressures are high, especially in places like Sadr City, it is likely that more people will benefit from the works albeit not all officially.

In three of the six sectors, sewer transmission lines needed to be replaced to address sewer backup problems. The replacement of the sewer trunk lines did not only benefit the people in the six sectors, but also people in adjacent sectors that were served by the same sewer transmission.
After the cancellation of the Al-Rasheed water treatment plant, it was decided to add an additional contract to the project to supply the two municipalities in Sadr City with the equipment to maintain the sewer networks – similar to sewer maintenance equipment that has recently become operational in other parts of Baghdad

[25] This number seems to be confirmed by an informal rapid assessment carried out by the PMT as the number of sewer connections before and after rehabilitation has increased from 84 to 100 percent in Sector 55A, and from 72 to 100 percent in Sector 38.

[26] The last full population census in Iraq was undertaken in 1987 (a 1997 census excluded several governorates). The 2007 census has not yet been held.

City. This equipment was delivered just before the closing date of the ITF in June 2013. The total amount disbursed for this equipment was US$ 6.0 million. This equipment will improve the quality of the sewer network maintenance of the total population in Sadr City. The staff in the municipalities has been trained to operate the new equipment.

Rating: Satisfactory

Outputs:

- Completed 1.9 km of transmission network
- Completed 46.91 km of secondary sewer network
- Completed 40.85 km of tertiary network.
- Rehabilitation of 8,925 house connections
- Provision of sewer maintenance equipment to the two municipalities in Sadr City

Outcome:

This component directly benefitted a population of 115,440 covering six sectors in Sadr City with improved sewer services.

A2.3 Results from Component 5 Sadr City

Sector	Secondary Network		Transmission lines		Cost in USD million
	Length of network renewed (km)	Number of house connections	Length of transmission lines renewed (km)	Number of house connections affected	
Sector 10	6.07	1,300	Not Applicable	Not Applicable	2.9
Sector 38	7.12	1,100	Not Applicable	Not Applicable	3.1
Sector 48	6.97	1,200	0.55	1,800	2.2
Sector 55	12.22	1,325	Not Applicable	Not Applicable	4.0
Sector 78	7.05	1,100	0.70	Not Applicable	2.8
Sector 79	7.48	1,100	0.65	Not Applicable	2.9
Total	*46.91*	*7,125*	*1.90*	*1,800*	***17.9***

Component 6: Rehabilitation and Renewal of Old Drinking Water Network with House Connections in Za'afarania (appraisal amount US$15.4 million; actual US$22.2 million). Za'afarania was one of the poorest districts in the Karrada Municipality of Baghdad Governorate. The area had a population of approximately 350,000 in 2003 (which is equivalent to about 475,000 in 2013 at current population growth rates), of which only about one third benefited from low-quality piped water supply. The population depended on water tankers as their main source of water. They were provided with water of low quality, resulting in high water expenditures typically comprising of 20 percent of the average family's monthly income in 2003. This component included the supply and installation of water pipes of varying diameters to provide adequate water supplies for domestic and commercial use. This component also aimed to improve the economic conditions of the population by reducing the purchase of water from unregulated tankers, and

contribute to the reduction in the incidence of waterborne diseases by providing safe potable water. This component disbursed US$ 22.2 million. This contract was split up into four smaller contracts.

This component was aimed to supply and install 39.5 kilometer of water distribution network of varying diameters from 250 to 1,400 mm.

A2.4 Results from Component 6 Za'afarania

Sector	**Secondary Network**		**Cost in US$ million**
	Length of network (km)	**Number of house connections**	
Contract W06A	4.64		7.8
Contract W06B	14.47		4.3
Contract W06C	10.42		4.8
Contract W06D	13.97		5.3
Total	*43.50*	*95,000*[1]	*22.2*

***Note**: [1] each connection accounts for 2.7 households*

Rating: Satisfactory

Outputs:
The component completed installation of 43.50 km of water distribution network with a diameter of 1,400 mm to allow for future growth in this area. This was 11% more than what was conceived (39.5 km).

Outcome:
The new distribution network directly benefitted the total population of Za'afraniya – currently estimated at 475,000 people and an increasing number of commercial and industrial users

Component 7 Technical Assistance and Capacity Building. (appraisal amount US$3.9 million; actual US$3.7 million). This component was essential to ensure the proper implementation of the project and to train MOB staff on efficient utility practices and financing. It included the following activities:

- Consulting services to complete final designs and tender documents. The project disbursed USD 1.4 million for detailed designs. As not all designs could be funded under this project due to financing constraints, MOB is using them to implement them with other funding sources;
- Consulting services for construction and implementation supervision. The project disbursed USD 1.3 million for the supervision of the works in Sadr City and Al-Zafra'aniya.
- Audits. Audits were completed and were submitted with an unqualified opinion. Total disbursement reached USD 0.1 million;
- Individual consultants to support the Project Management Team (PMT). The project disbursed USD 0.1 million for individual consultants to support the PMT for very specific tasks.
- Office equipment, vehicles, furniture and operation costs for the Project. The project disbursed about USD 0.7 million for operating costs,

The small allocation for capacity building and technical assistance essentially meant that the amount of funding for capacity building and training of about 40 MOB staff throughout was mainly dependent on external funding and "on-the-job" training. The funding came in the form of formal training in workshops funded by USAID, and other Bank trust funds to help to organize workshops and study tours regarding asset management, non-revenue water, wastewater reuse, utility and water resource management. The Bank also provided support to MOB through the Leadership for Results Program that helped 75 MOB staff to use a result-based approach to urgent water and sewer problems in the city within a timeframe of 90 days.

In addition, the Bank team in the first years provided training especially on contract management as part of the supervision missions, adding additional time to train PMT staff, contractors and consultants in contract management skills. The very close supervision of the project on a virtual daily basis provided "on-the-job" training to a PMT on all aspects of Bank project management (procurement, financial management, disbursement, contract management, etc.). The FMA provided on-the-job training and more formal training to MOB staff during the project implementation on a regular basis during the 8.5 years of implementation.

On-the-job" training was provided to Directorate staff at the final stages of project implementation when the contractor handed works over to local staff and trained them in the use of the facilities. However, when the different on-the job training is included from FMA staff, Bank staff, training by contractors and suppliers and the formal training, the total man-months of training could add up to 306 months.

Rating: Satisfactory

Outputs:

- The Bank staff organized a set of formal trainings to the PMT with a total of 109 months of formal training courses.
- The different on-the job training estimated by the Bank includes on-the-job training from FMA staff, Bank staff, training by contractors and suppliers. The total man-months of training could add up to 197 months (excluding more formal training).

Component 8: Development of a comprehensive urban master plan (city development plan) for Baghdad (appraisal amount US$3.0 million; actual US$1.2 million). At appraisal in 2003, around 23 percent of Iraq's total population lived in the capital Baghdad, where the population was estimated to be 6 million. The city had experienced intense urbanization due to years of economic sanctions where key economic and social activities became concentrated in the capital. Baghdad had been developing in the absence of effective planning and had grown well beyond its planned limits. Spontaneous informal settlements became established in and around the city.

A Comprehensive City Development Plan[27] (CCDP) was therefore proposed to carry out the vision for the future of Baghdad for the year 2030. This CCDP was to be prepared through a public process that produces a modern, citizen-focused comprehensive plan for 2030. After the first phase of the CCDP (and a total disbursement of US$ 1.2 million) the Bank did not extend the contract with the consultant as it was not possible to implement the study through a public process, whereas the collection of new customer-based information was seriously hindered by the difficult security situation in the city. The Bank formally cancelled the remainder of this component during 2010 restructuring the phase II, III, and IV of the "Development of a Comprehensive City Development Plan for the City of Baghdad". The MOB decided to continue the CCDP with its own funding. The study is currently still under implementation.

Rating: Moderately Unsatisfactory

Outputs:
Completed Phase 1 of the CCDP. Phase I reviewed past experience, current status and trends in municipal services in the capital city of Baghdad.

[27] The latest attempt at formulating a Comprehensive City Development Plan (CCDP) for Baghdad was carried-out during the late eighties but was not completed because of the Gulf War, while the MOB is still working on the 1967 city plan. The process was highly centralized and failed to adequately incorporate social, economic and environmental considerations.

Trajectory of Changes to the Project Components over the course of Implementation:

Project Component	Component costs in US$ million				
	At Appraisal	April 2010 restructuring		December 2011 restructuring	
CLOSING DATE	*08/31/2007*	*12/31/2011*	*4 additional years to reflect major delays in implementation due to unfamiliarity of MOB staff with World Bank procurement procedures and the degraded security situation in Baghdad*	*06/30/2013*	*18 additional months to allow for final works and goods contracts to be implemented*
1. Rehabilitation of chlorine and chemical units at Al-Karkh Water Treatment Plant	2.80	2.23	Works cancelled, component limited to supply of goods	2.69	
2. Rehabilitation of 2B pumping station in Shark Dijla Water Treatment Plant	4.50	3.37	Rehabilitation of chlorinator and corresponding repairs cancelled.	3.37	
3. Extension and rehabilitation of Al-Rasheed Water Treatment Plant	7.20	-	Cancelled, financed and implemented by GOI		
4. Rehabilitation of the Abu Nuwas Raw Water Pumping Station.	6.20	6.84	-	6.84	
5. Rehabilitation and renewal of Sadr City Sewerage Network	15.00	19.02	Increased cost estimate to reflect bidding outcomes	24.80	Inclusion of supply of vacuum, jetting and CCTV systems to clean the city's sewers.
6. Rehabilitation and renewal of Drinking Water Network in Za'afarania	15.40	23.78	Increased cost estimate reflective of bidding outcomes	21.78	
7. Technical Assistance and Capacity Building	3.90	3.20	-	3.70	
8. Baghdad Comprehensive City Development Plan (CCDP)	3.00	0.80	Phases II, III and IV cancelled	0.80	
BASELINE COST	**58.00**	**59.24**		**63.98**	
Contingencies (unallocated costs)	7.00	5.76		1.02	
TOTAL PROJECT COST	**65.00**	**65.00**		**65.00**	

Annex 3. Economic and Financial Analysis

The country context did not allow for economic analysis to be undertaken at ex-ante and ex-post (due to travel restriction in place at completion). A comprehensive review of cost benefits has been attempted and report in the main text of the document.

Annex 4. Grant Preparation and Implementation Support/Supervision Processes

(a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
Lending/Grant Preparation			
Suhail Jme'an	Task Team Leader	EASWE	TTL
A. Amir Al-Khafaji	Consultant	-	Co-TTL
Sateh Chafic E-Arnaout	Sr. Municipal Development Spec.	AFTSN	Co-TTL
Sana Kh. H. Agha Al Nimer	Sr. Water and Sanitation Spec.	ECSUW	Engineering
Hiba Muawyah Tahboub	Sr. Procurement Specialist	ECSO2	Procurement
Robert Bou Jaoude	Sr. Financial Management Spec.	SACPK	FM
David Webber	Lead Finance Officer	-	Finance
Ayman Abu Haija	Sr. Financial Management Spec.	-	FM
Hadi Kana'an	FM Consultant		FM
Dahlia Lotayef	Senior Environmental Specialist	AFTN2	Environment
Noureddine Bouzaher	Senior Economist	AFTG1	Economist
Hany Shalaby	Senior Environmental Specialist	AFTN2	Environment
Hiroko Imamura	Legal Specialist/Consultant	-	Legal
Ali Awais	Consultant	-	Legal
Karim Jacques Sehnaoui	Junior Professional Associate	-	
Zakia Chummum	Program Assistant	MNSWA	Project Support
Imelda Sevilla	Program Assistant	SDNRM	Project Support
Fathi Kraiem	Consultant	-	Urban
Belhaj Merghoub	Consultant	-	
Supervision/ICR			
Caroline Van Den Berg	Lead Water and Sanitation Spec.	MNSWA	TTL
Roohi Abdullah	ICR Author	SASDU	ICR Author
Ayman Abu-Haija	Sr Financial Management Specialist	MNAOS	Finance
Sana Kh.H. Agha Al Nimer	Sr Water & Sanitation Spec.	ECSUW	Ex-TTL
Suhail Jme'an	Task Team Leader	EASWE	Ex-TTL
Hayat Taleb Al-Harazi	Program Officer	MNARS	Project Support
Faisal Abdulrahaem Al-Hothali	Senior Environmental Specialist	GSDSR	Environment
A. Amir Al-Khafaji	Consultant	MNSSD	Ex-Co-TTL
Nazaneen Ismail Ali	Senior Procurement Specialist	MNAPC	Procurement
Soran Hama Tahir Ali	Operations Officer	MNSTR	Operations
Hezam H. Alotaibi	Consultant	MNSWA	

Armando Ribeiro Araujo	Consultant	LCSTR	
Maya Boulos Boulos	Consultant	MNAFM	
Nourredine Bouzaher	Consultant	AFTP4	Economist
Ahmed A. R. Eiweida	Sector Leader	ECSSD	
Sateh Chafic El-Arnaout	Sector Leader	AFTSN	Ex-Co-TTL
Mona El-Chami	Sr Financial Management Specialist	MNAFM	Finance
Mutasem El-Fadel	Consultant	MNSEG	
Fadi Haddadin	E T Consultant	MNSIF - HIS	
Maged Mahmoud Hamed	Regional Safeguards Adviser	MNAOS	Safeguards
Claire Kfouri	Water & Sanitation Spec.	MNSWA	Engineering
Jad Raji Mazahreh	Sr Financial Management Specialist	MNAFM	Finance
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Josephine G. Salang	Senior Program Assistant	MNSSD	Project Support
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Hany Shalaby	Consultant	AFTN2	
Sepehr Fotovat	Sr. Procurement Specialist	MNAPC	Procurement
Tracy Hart	Senior Environmental Spec.	MNSEE	Environment
Magalie Pradel	Program Assistant	MNSWA	Project Support
Zakia Chummun	Program Assistant	MNSWA	Project Support

(b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)		Staff Time and Costs (Trust Fund)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)	No. of staff weeks	USD Thousands (including travel and consultant costs)
Lending				
FY05		-0.54	28	205.9
FY06		1.24		-6.05
FY07		6.53		12.13
Total:		7.23	28	212.13
Supervision/ICR				
FY05		23.34	26	145.33
FY06		21.75	36	163.98
FY07		11.37	43	199.18
FY08		1.07	36	196.34
FY09		0.00	42	208.01
FY10			40	156.06
FY11			36	156.52
FY12			36	204.18
FY13			29	134.84
397				
Total:		57.53	324	1,564.45

Annex 5. Beneficiary Survey Results

Not Applicable – Not required to be undertaken for the project.

Annex 6. Stakeholder Workshop Report and Results

Not Applicable – Not required to be undertaken for the project.

Annex 7. Summary of Grantee's ICR and/or Comments on Draft ICR

1. Introduction

The City of Baghdad and its suburbs have an area of approximately 900 km^2 that are administered by the MOB. The City of Baghdad itself is divided into fourteen municipalities. Each municipality is responsible for the municipal services under its jurisdiction such as water, sanitation and solid waste collection. The water and sanitation services are administered centrally by the Baghdad Water Authority (BWA) and the Baghdad Sewerage Authority (BSA), respectively. The BWA is responsible for the main water intakes, treatment plants, transmission lines, storage reservoirs and water distribution networks. The BSA is responsible for the main sewers, sewage treatment plants and sewage disposal. Both Authorities have departments for administration, finance, procurement, operation and maintenance etc.
The Municipalities' role is limited to install house connections and pipelines with diameter less than 250mm. The planning and implementation of projects related to each municipality is the responsibility of the Mayoralty of Baghdad. This includes project planning, funding, agreements with donors, design and execution. Funds from international donors are coordinated with the Ministry of Planning and Development Cooperation.

2. Project Description

Background: Large oil reserves and abundant natural and human resources enabled Iraq to attain the status of a middle-income country in the 1970s. Income per capita rose to over US$3,600 in the early 1980s. Today, Iraq's human development indicators are now among the lowest in the region. Per capita income dropped to about US$770-1,020 by 2001. Although there is a scarcity of reliable economic data, the gross domestic product (GDP) for 2003 is estimated at about US$13-17 billion, or about US$480-630 per person.
Since the mid-1980s, years of conflicts, misdirected resources, and the effects of Iraq's centralized command economy have stifled economic growth and development, curtailing Iraq's ability to invest in new infrastructure and maintain existing facilities. Conflicts, looting, and sabotage have also resulted in direct damage to buildings, pipelines, communication equipment, and transportation links. Billing systems and associated revenues that maintain operations have collapsed. Today, most Iraqis have limited access to essential basic services, including electricity, water supply, sanitation, and refuse collection. Serious environmental and health risks associated with contaminated water supplies, inappropriate handling of solid waste, and disposal of sewage threaten to further burden the already stressed health system. The concentration of economic and social activities in the main urban centers of Iraq has also led to a proliferation of under-serviced neighborhoods in major Iraqi cities. The lack of basic infrastructure services, particularly electricity, has contributed to the general lack of security in various parts of the country.

Water and Sanitation Sectors in Baghdad: Prior to the 1991 Gulf War, the water supply system in Baghdad was operating efficiently. Safe potable water was accessible to over 90% of the population in Baghdad with an average water supply of 330 liters per capita per day (l/c/d). During the 1990–2000 periods, water supply in Baghdad suffered from defects due to international sanctions that prevented the importation of spare parts and chemicals. The situation further deteriorated as a result of the 2003 war due partly to direct damage, looting, lack of maintenance and power outages. These factors have led to a reduction in the effectiveness of the water treatment and supply systems with water supplies actually reaching consumers estimated at 30% of 1990 levels.

The main water source for Baghdad is the Tigris River. Water is supplied by direct pumping from different points. Currently, the average water supply into the Mayoralty of Baghdad is 2.15 million m^3/day, whereas the average demand is 3.3 million m^3/day. Eight water treatment plants serve Baghdad with a current production capacity of 2.15 million m^3/day compared to a total design capacity of 2.55 million m^3/day. In addition there are some 52 compact water treatment units supplied either directly from the River Tigris or from raw water pumping systems that are used primarily for irrigation purposes.

The treatment plants are old, in need of rehabilitation, and are unable to meet the increased demand for water. The shortages of water have led to numerous uncontrolled and illicit connections into the networks in order to secure supplies. As a result, the pressure in the water networks is low and water cannot reach the elevated water tanks in residential houses. This has also exposed the networks to contamination from damaged sewers, polluted ground, and stagnant sewage. Approximately 40% of the water distribution networks in the city urgently need to be rehabilitated to reduce distribution losses (estimated at 50–60%). In addition, improvements are needed to ensure the network remains pressurized and thus improve the quality of the water delivered to consumers. This is a substantial undertaking, as Baghdad's primary and secondary distribution network consists of 12,500 km of pipe with diameters ranging from 90 mm to 2,300 mm. The network consists of ductile iron, steel, asbestos cement, polyvinylchloride (PVC) and cast iron pipe. Some of the cast iron pipes are over 40 years old and have suffered from deterioration due to the aggressive ground conditions and lack of maintenance. All in all, currently about 25% of Baghdad's population, approximately 1.5 million inhabitants are still unconnected to the water network.

Approximately 30% of Baghdad's population is not connected to a sewage collection and treatment system. The sanitation system in Baghdad is becoming a serious environmental and health concern. According to available reports, sewage treatment plants are operating at 50% of the installed capacity, and untreated sewage is being discharged into rivers and waterways. This problem is exacerbated by the illegal discharge of septic sewage collected from houses into rivers or onto land. Leakage from sewer pipes is also contaminating both the potable water networks and the underground water, which is further adding to the health and environmental problems.

Baghdad's three sewage treatment plants combined comprise 75% of the nation's sewage treatment capacity. Due to sanctions, war and looting incidents after the war, the plants' performance efficiencies have dropped by 30-50%. In addition, power cuts are frequent and the standby generators need continuous repairs. The three plants, therefore, are not operating effectively allowing the wastewater to flow directly into the River Tigris. It is estimated that more than 1.2 million people in Baghdad alone currently have no access to sanitation, and according to CARE International, the US-based charity, 300,000 metric tons of raw sewage escape into the Tigris River daily.

Project Components Description: The project addresses the urgent reconstruction needs of Baghdad including water mains, distribution pipes, sewer collectors, pumping stations, small treatment plants, and auxiliary facilities. It provides support to the MOB to better manage projects at the design, supervision, and operation and maintenance stages by building the capacity of the staff working in the water supply and sanitation sector. It also includes the development of a Comprehensive City Development Plan (CCDP) to ensure that future expansion of the water supply and sanitation networks are in line with the overall urban development plan for the city. Project components and their estimated costs are summarized below. The estimated total costs for components 1 through 6 exclude physical and price contingencies (estimated at 11%), as well as design and training costs .

Project Objectives: This project represents the first phase of the Emergency Infrastructure Reconstruction Program, described in the Project Information Document (PID) of April 21, 2004, which intended to cover five sectors: water supply and sanitation, electricity, urban rehabilitation, transport, and telecommunications. In view of the limited availability of funds in the World Bank Iraq Trust Fund, and the expressed interest of donors for certain sectors, the project will focus on the urgent water supply and sanitation rehabilitation needs of the capital city of Baghdad. Given the MOB's independent status, its historical responsibility for most infrastructure services within its boundary, and the severity of the physical and environmental damages to its facilities during the last conflict, a similar project is also proposed for other urban areas outside Baghdad.

The principal objective of the Emergency Baghdad Water Supply and Sanitation Project is to assist in restoring basic water supply and sanitation services for the capital city of Baghdad through (a) the reconstruction and rehabilitation of existing priority networks and treatment facilities and (b) providing capacity building support through training and technical assistance. The project will also create vitally needed short-term employment and help build Iraq's capacity to manage large-scale reconstruction.

Description and quantitative components of the project are as follow:

- Rehabilitation of chlorine and chemical units at Al-Karkh Water Treatment Plant.
- Rehabilitation of 2B pumping station in Shark Dijla Water Treatment Plant.
- Rehabilitation of Al-Rasheed WTP.
- Rehabilitation of the Abu Nuwas Raw Water Pumping Station.
- Rehabilitation and renewal of Sadr City Sewerage Network.
- Rehabilitation and renewal of Drinking Water Network in Za'afarania.
- Technical Assistance and Capacity Building.
- Development of a Comprehensive City Development Plan for Baghdad (CCDP).

3. Project Components

The project addresses the urgent reconstruction needs of Baghdad including water mains, distribution pipes, sewer collectors, pumping stations, small treatment plants, and auxiliary facilities. It provides support to the MOB to better manage projects at the design, supervision, and operation and maintenance stages by building the capacity of the staff working in the water supply and sanitation sector. It also includes the development of a Comprehensive City Development Plan (CCDP) to ensure that future expansion of the water supply and sanitation networks are in line with the overall urban development plan for the city. Project components and their estimated costs are summarized below. The estimated total costs for components 1 through 6 exclude physical and price contingencies (estimated at 11%), as well as design and training costs .

Component 1: Rehabilitation of chlorine and chemical units at Al-Karkh Water Treatment Plant. (Estimated cost of US$3.92 million):

Al–Karkh Water Treatment Plant (WTP) was constructed in 1985 and is one of the largest treatment plants in the world with a total capacity of 1,365 million liters per day (MLD). The source of raw water is the River Tigris and water treated by the plant supplies 65% of the total water demand of Baghdad. Unavailability of spare parts, damaged equipment and chlorine leakages, over the last 14 years has affected the plant efficiency. This component will serve to both improve the reliability and efficiency of the chlorination and chemical processes and increase safety by installing new automatic chlorinators and by rehabilitating the ventilation system. The component includes supply and installation of chlorinators, chemical (Alum and Lime) equipment and ancillaries, including rehabilitation of civil works and supply and installation of miscellaneous items.

This component includes the following contracts which are:

1) (TF054435- C01/2005): Detailed Design and Tender Documents for Rehabilitation of chlorine and chemical units at Al-Karkh WTP have been prepared by Binnie & Partners Company under the consultancy contract.
2) (TF054435-G12/05): Supply of goods for Chlorine and Chemical Units at Al-Karkh Water Treatment Plant.
3) G13 /2010: Supply and Installation Equipment for Chlorine Unit at Al-Karkh Water Treatment Plant WTP.
4) G14 /2010: Supply Jetting Trucks, Vacuum Trucks and Sewage Pipes Inspection Trucks by Closed Circuit Television (CCTV)
5) TF054435-W01/2005 Al Karkh WTP: Rehabilitation of Chlorine and Chemical Units at Al-Karkh WTP (W01)

(TF054435- C01/2005) : Detailed Design and Tender Documents for Rehabilitation of chlorine and chemical units at Al-Karkh WTP

- Contractor name : Binnie & Partners Company

- Signature date : 25/12/2005
- Contract amount : 782577 US$
- amendment amount : 333462 US
- Revised/ Final Contract Value : 1105995 US$
- Physical progress: 100%
- Financial progress: 100% (the remaining 10,044 US$ will not pursuing payment so the final contract price was 1,105,995 US$).

The details for this contract are to prepare D.D & T.D. for the following sub projects:

- Rehabilitation of chlorine and chemical units at Al-Karkh WTP,
- Rehabilitation of 2B Pumping Station at Shark Dijila WTP,
- Extension and rehabilitation of Al- Rasheed Water Treatment Plant,
- Rehabilitation of Abu Nuwas Raw Water Pumping Station
- Cross river Link
- Karkh WTP upgrading

The amendment was done because:

- W101/06 (New raw water pipeline for Al-Rasheed WTP)
- W04/05 (New intake & Raw water pumping station for Al-Rasheed WTP).
- New chlorine station in Sharq Dijlah
- -Aren't included to the above subprojects.

(TF054435-G12/05) : Supply of goods for Chlorine and Chemical Units at Al-Karkh Water Treatment Plant.

- Contractor name : Rawafed Al Ghadaq Co.
- Signature date : August 18, 2009
- Contract amount : 2.226.225 US$
- **Note:**

Details of this contract:

- The project has announced twice at the second announcement it was awarded to Rawafed Al Ghadaq Co. & The WB no objection has been issued on May 18,2009 with amount of 2,226,225.00 US$.
- The contract was extended 54 days (The period from contract signature to October 12, 2009 the date LC was opened. The contract amended completion date is May 2, 2010)
- The contractor didn't supply anything and from 2/5/2010 was subjected to penalties.
- The contract is cancelled due to the failure of the contractor.

G13 /2010: Supply and Installation Equipment for Chlorine Unit at Al-Karkh Water Treatment Plant WTP.

- Contractor name : Kar Company
- Contract No : (TF054435- G13/2011)
- Signature date : July 27.2011
- Contract amount : 2.688.256 US$
- Physical progress: %
- Installation: 65%
- Financial progress:

- G 13 it was supposed to be one contract contains two lots as follows:
- Lot No.1: Supply Jetting Trucks, Vacuum Trucks and Sewage Pipes Inspection Trucks by Closed Circuit Television (CCTV)
- Lot No.2: Supply and Installation Equipment for Chlorine Unit at Al-Karkh Water Treatment Plant WTP

Note:

When the project announced to bidders most of the bidders offers was about one lot, so the decision was suggested by both PMT& MOB to change the sub project G13 from the one contract with two lots and consider each lot as a separate contract the Lot 1 supply of vehicles and CCTV has become G14 and Lot 2 has become G13 (Supply and Installation Equipment for Chlorine Unit at Al-Karkh Water Treatment Plant WTP).

G14 /2010: Supply Jetting Trucks, Vacuum Trucks and Sewage Pipes Inspection Trucks by Closed Circuit Television (CCTV)

- Contractor name : Machine Technology Trading Company
- Contract No : (TF054435- G14/2011)
- Signature date : May 13.2012
- Contract amount : 4.575.300 €

TF054435-W01/2005 Al Karkh WTP: Rehabilitation of Chlorine and Chemical Units at Al-Karkh WTP (W01)

- Supply and installation of chlorinators, chemical equipment and ancillaries, including rehabilitation of civil works and supply and installation of miscellaneous items.
- Cancelled

Note:
This component covers the supply and installation of chlorinators, chemical equipment and ancillaries in the Al-Karkh Water Treatment Plant was canceled and listed under G13.

Component 2 - Rehabilitation of 2B pumping station in Shark Dijla Water Treatment Plant. (Estimated cost of US$7.09 million)

Baghdad is located on the two sides of the Tigris River. It receives its potable water from two principal WTP, namely Al-Karkh WTP (mentioned above) on the west side (Karkh district), and the Shark Dijla WTP (540 MLD), on the east side (Rasafa District). In 1989, a 820 MLD blending station, referred to as the 2B pumping station, was added to the Shark Dijla WTP to receive potable water from Al Karkh WTP and pump it to the Rasafa district. This pumping station has not been renovated since the 90s and is in dire need of repair.

The objective of this component will address rehabilitation of the 2B pumping station at the Shark Dijla WTP including the supply and installation of chlorination units, mechanical and control systems and civil works.

Activities: Design and supply two vertical motors with spare parts and valves

Implementation of this component was satisfactory

- (TF054435- C01/2005) : Detailed Design and Tender Documents for Rehabilitation of 2B Pumping Station in Shark Dijila WTP have been prepared by Binnie & partners company under the consultancy contact
- (TF054435-G01/05) : Supply of 11 Kv slip-ring vertical motors for operating stage 2B pumping station

- (TF054435-G02/05): (2a)- Supply of spare parts and supervision for maintenance of 6 pumps at 2B pumping station
- (TF054435-G03/05): 2B- Supply and installation of valves for 2B pumping station
- (TF054435-G11/05) : Supply valves for Abu-Nawas pumping station and 2B pumping station
- (TF054435- W02 /2005): Rehabilitation works in Shark Dijla WTP, including the supply and installation of chlorination units, mechanical and control systems and civil works.

(TF054435- C01/2005): Detailed Design and Tender Documents for Rehabilitation of 2B Pumping Station in Shark Dijila WTP.

Same component 1Pargraph 1 mentioned above.

(TF054435-G01/05) : Supply of 11 Kv slip-ring vertical motors for operating stage 2B pumping station

- Contractor name : Weir Company
- Contract No : (TF054435-G01/05)
- W.B No Objection : 18/8/2005
- Signature date : 25/8/2005
- Contract amount : 1,050,744.00 US$
- Physical progress: 100 %
- Financial progress: 100 %

Note:
- The supplier is Weir Company which is chosen according the type of bidding (SS) single source.
- The contract has been completed physically and financially 100% without any problems

(TF054435-G02/05): (2a)- Supply of spare parts and supervision for maintenance of 6 pumps at 2B pumping station

- Contractor name : Weir Company
- Contract No : (TF054435-G02/05)
- W.B No Objection: 2/8/2005
- Signature date : 25/8/2005
- Contract amount : 270,187.00 US$
- Physical progress : 100 %
- Financial progress : 100 %

Note:
- The supplier is Weir Company which is chosen according the type of bidding (SS) single source.
- The contract has been completed physically and financially 100% without any problems

(TF054435-G03/05): 2B- Supply and installation of valves for 2B pumping station

- Contractor name : Weir Company
- Contract No : (TF054435-G03/05)
- W.B No Objection : 17/8/2006
- Signature date : 11/9/2006

- Contract amount : 1,782,477.00 US$
- Physical progress : 100 %
- Financial progress : 100 %

Note:

- The supplier is Weir Company which is chosen according the type of bidding (SS) single source.
- The contract has been completed physically and financially 100% without any problems

(TF054435-G11/05) : Supply valves for Abu-Nawas pumping station and 2B pumping station

- Contractor name : EPC Engineering Company
- Contract No : (TF054435-G11/05)
- W.B No Objection : 11/5/2006
- Signature date : 29/6/ 2006
- Contract amount : : 1,083,520.00 US$
- Physical progress : 100%
- Financial progress : 100%

Note:

The supply of specialized valves was completed and it were delivered and subsequently inspected by the FMA.

(TF054435- W02 /2005): Rehabilitation works in Shark Djilas WTP, including the supply and installation of chlorination units, mechanical and control systems and civil works.

- On Nov. 20, 2007 the consultant (Binnie & Partners) has submitted the final tender documents.
- During the mission between W.B & MOB on Mar, 2008 and due to the price increasing of project components, MOB agreed to cancel this package from the grant and implement it with their own funds.

Component 3 - Rehabilitation of Al-Rasheed WTP. (Estimated cost of US$4.35 million)

This is an old WTP with a design capacity of 68 MLD, which was designed to supply potable water to the Za'afarania suburb (350,000 inhabitants). It is currently in poor shape and unable to meet the current demand of the community. This component covers the rehabilitation and upgrading of the plant to treat the highly polluted raw water of the Tigris water at this location. It also covers rehabilitation and strengthening of the water mains, storage tanks, pumping stations and chlorinators. The rehabilitation works is required to increase the current production capacity from 50,000 to design capacity of 68,000 cubic meters per day.

- (TF054435- C01/2005) : Detailed Design and Tender Documents for Extension and rehabilitation of Al-Rasheed WTP

- (TF054435- W04 /2005 Al-Rasheed WTP /Phase 1 Rehabilitation works required to increase the current water production capacity from 50,000 to design capacity of 68,000 cubic meters per day.

(TF054435- C01/2005): Detailed Design and Tender Documents for Extension and rehabilitation of Al-Rasheed WTP

Same component 1Pargraph1 mentioned above.

(TF054435- W04 /2005 Al-Rasheed WTP /Phase 1 Rehabilitation works required to increase the current water production capacity from 50,000 to design capacity of 68,000 cubic meters per day.

- During the mission between W.B & MOB on March 2008 and due to the price increasing of project components, MOB agreed to cancel this package from the grant and implement it with their own funds.
- MOB is implementing the project since 2008, benefit from the designs World Bank grant (TF054435-C01/2005)

Component 4 - Rehabilitation of the Abu Nuwas Raw Water Pumping Station (Estimated cost of US$3.12 million)

This pumping station was destroyed completely and vandalized in the latest conflict. The Abu Nuwas pumping station contains four vertical pumps of a 3,600 m^3/hr capacity and two vertical pumps of a 1,800 m^3/hr capacity together with all related works. The pumps were working at low performance with no measured values because of the lack of measuring equipment at the station.

Objective: The objective of this component is to improve the performance of the old equipment in the station to reach the designed pumping capacity (18,000 m^3 /hr).

Activities:

- Replacement of the complete six sets of pumps (pumps+ motors).
- Replacement of six pressure control valves (PCV) + accessories and non-return valves.
- Replacement of most of electrical equipment and cables in addition to adding SCADA system.

The implementation is satisfactory for electrical equipment, but for the mechanical equipment (pump sets) are moderately satisfactory because of the technical problem which have been appeared after short time from the installation.

Indicators: The station is rehabilitated and becomes working at the designed capacity.

Outcome: The objective is achieved when the new equipment are working within the designed capacity with full operation protection in addition to elongate the station life due to the new supplied and installed equipment also adding the ability to communicate with the new SCADA system which will be installed later.

- (TF054435- C01/2005): Detailed Design and Tender Documents for Rehabilitation of Abu Nuwas Raw Water Pumping Station
- (TF054435-G04/05): Supply and installation of pump for Abu- Nawas pumping station
- (TF054435-G05/2006) (Formally called W03)Supply and installation of electrical / mechanical systems for Completion of Abu Nuwas Raw
- (TF054435-G10/05): Supply of Iron Ductile Pipes, Fittings and valves.

(TF054435- C01/2005): Detailed Design and Tender Documents for Extension and rehabilitation of Al-Rasheed WTP

Same component 1 Paragraph 1 mentioned above.

(TF054435-G04/05): Supply and installation of pump for Abu- Nawas pumping station

- Contractor name : Flowserve Company
- Contract No : (TF054435-G04/05)
- W.B No Objection 21/7/2005
- Signature date : 23/8/2005
- Contract amount : 2,127.400.00 US$
- Physical progress : 96 %
- Financial progress : 100 %

Note:
The supplier is chosen according the type of bidding (SS) single source.
Physical progress 96% (installation, commissioning and testing (not achieved)

(TF054435-G05/2006.Formally called W03)Supply and installation of electrical / mechanical systems for Completion of Abu Nuwas Raw

- Contractor name : EPC Engineering Company
- W.B No Objection : 29/4/2008
- Signature date : 2/6/2008
- Contract amount : 3,790,000.00 US$
- amendment amount: 111,200.00 US$
- Revised contract value: 3,901,200.00 US$
- Amount paid up to June 30,2013: 3,223,760 US$
- Remaining coast : 677,440,00 US$
- Physical progress : 100 %
- Supply : 100%
- Financial progress: 82%

1- (TF054435-G10/05): Supply of Iron Ductile Pipes, Fittings and valves.

Note:

Canceled

<u>Component 5– Rehabilitation and renewal of Sadr City Sewerage Network. (Estimated cost of US$15.16 million)</u>

Sader City comprises 80 districts with a population of about 2 million inhabitants. The city has experienced frequent blocks and seepages of sewage to streets and adjacent neighborhoods. This is due to broken pipes, lack of maintenance, inadequate rehabilitation and increasing of populations in this city.

The objective of this component is to provide rehabilitation of secondary sewers ranging in size between 200-400mm sewer pipes in six districts of Sader City and its surrounding areas with main sewer lines in some of these districts ranging in size between 500-700mm, in addition of house connections, serving approximately 100,000 inhabitants. Sewage would flow through the existing trunk mains to pump station (Al-Habibaya) and then towards Al Rustumiya Wastewater Treatment Plant.

The objective was achieved when the house and buildings connections have been done 100% in the six sectors even for the new houses divisions which have been not existed previously.

And currently the six sectors do not experience the seepages and blocks in the sewers and this indicated by no recorded complaints from the six sectors inhabitants

The implementation was satisfactory for the achievement of the service100% for the sewage drain

Indicators of this component is

- Execution of about 7350 **(7125)** new house connections.
- Renew sewerage network with length 78.51km
- Renew the main sewer line with different sizes 500-700mm with length at approximately 1900m.

Contracts:

a) (TF054435-C02/05) Detailed Design and Tender Documents for Rehabilitation & renewal of Sadr City Sewerage Network have been prepared by Alani & AlShamma- consulting Engineers company
b) W05a Sector (55 A)-Rehabilitation works in district (55A).
c) W05b (10)-Rehabilitation works in district 10
d) W05c (38)-Rehabilitation works in district 38
e) W05d (78)-Rehabilitation works in district 78
f) W05e (79)-Rehabilitation works in district 79
g) W05 (g) -Rehabilitation works in district 48

(TF054435-C02/05) Detailed Design and Tender Documents for Rehabilitation & renewal of Sadr City Sewerage Network have been prepared by:

- Contractor name : Alani & AlShamma- consulting Engineers company
- Signature date : 16/8/2005
- Contract amount : 144,800.00 US$
- Physical progress : 100%
- Financial progress: 100%

The details for this contract are to prepare D.D & T.D for the following sub projects:

- W05a (55A)-Rehabilitation & renewal in district (55A).
- W05b (10)- Rehabilitation & renewal in district 10
- W05c (38)- Rehabilitation & renewal in district 38
- W05d (78)- Rehabilitation & renewal in district 78
- W05e (79)- Rehabilitation & renewal in district 79
- W05 (g) - Rehabilitation & renewal in district 48

W05a (55A)-Rehabilitation works in district (55A)

- Contractor name: Modern Style Co.
- Signature date : Dec/30/2007
- Contract amount : 4499341US$
- Physical progress : 100 %
- Financial progress: 100 %
- Amendment: -504.540 US$
- Net payment: 3994801 US$

W05b (10)-Rehabilitation works in district 10

- Contractor name : Altameer Alhandasia
- Signature date : Dec/16/2007
- Contract amount : 2535670 US$
- Physical progress : 100 %
- Financial progress: 100 %
- Amendment: 411.210 US$
- Amendment: -12. 843 US$
- Net payment: 2934037.46US$

W05c (38)-Rehabilitation works in district 38

- Contractor name: Modern Style Co.
- Signature date : Apr/ 22/2008
- Contract amount : 3785845 US$
- Physical progress : 100 %
- Financial progress: 100 %
- Amendment: -678.965US$
- Net payment: 3106880 US$

W05d (78)-Rehabilitation works in district 78

- Contractor name : Thagar aljonoob Co. and Majira al khairat Co
- Signature date : Apr/1/2008
- Contract amount : 2565322 US$
- Physical progress : 100 %
- Financial progress: 100%
- Amendment: 541,105.00 US$

- Amendment: -24,223.00 US$
- Amendment: -281,159.00 US$
- Net payment: 2801045 US$

W05e (79)-Rehabilitation works in district 79

- Contractor name: Modern Style Co.
- Signature date : Sep/8/2008
- Contract amount : 2630460US$
- Physical progress : 100%
- Financial progress: 100%
- Amendment: 615190 US$
- Amendment: -196660 US$
- Amendment: -49215 US$
- Net payment: 3048990US$

W05 (g) -Rehabilitation works in district 48

- Contractor name : Wahat Aljanoop company
- Signature date : Feb/18/2009
- Contract amount : 1874525 US$
- Physical progress : 100 %
- Financial progress: 98 %
- Amendment: 671880 US$
- Amendment: - 332.070US$
- Net payment: US$

Sector	Number of Popular	Served popular %					
		2008	2009	2010	2011	2012	2013
55A	12,000	91	9				
10	10,400	100					
38	10,400	50	50				
78	10,000	31	63	6			
79	10,400	15	57	28			
48	10,000		25	25	20	28	
Total Sum	63,200						

Years	2008	2009	2010	2011	2012	2013
Total served people	31180	21008	6012	2000	2800	0
percentage of total sum	49%	33%	10%	3%	4%	0%

Indicators

Sector NO.	Length of the network(m)	No. of Manholes	No. of House connection	No. of Gully connection	No. of Houses	Length of House connection (m)
10	6066	198	1100	170	1100	4750
55A *	12221	342	1325	347	1325	10573
79	7050	206	1200	220	1200	6277
78	7479	208	1200	208	1200	6200
38	7120	196	1100	181	1100	6280
48	6970	181	1200	170	1200	6500

***This sector is bigger than the other sectors.**

Indicators Questionnaire
For No. sector 55A

Indicators	Indicator No.1House connection	Indicator No.2 Efficiency of network	Indicator No.3 Sewer blockages
Before Re-habilitation	84%	12% good	80%
After Re-habilitation	100%	88% good	28%

Indicators Questionnaire
For No. sector 38

Indicators	Indicator No.1 House connection	Indicator No.2 Efficiency of network	Indicator No.3 Sewer blockages
Before Re-habilitation	72%	20% good	80%
After Re-habilitation	100%	80% good	20%




Component 6 - Rehabilitation and renewal of Drinking Water Network in Za'afarania. (Estimated cost of US$17.34 million)

Za'afarania is one of the poorest districts in the Karrada Municipality of Baghdad Governorate. The area has a population of approximately 475,000 where the main source of drinking water for 350,000 of them is water tankers of uncontrolled quality. Expenditure on water typically comprises 20% of the average family's monthly income.

This component includes the supply and installation of water pipes of varying diameters to provide adequate water supplies for domestic and commercial use. This component will also improve the economic conditions of the population by reducing the purchase of water from unregulated tankers, and contribute to the reduction in the incidence of water borne diseases by providing safe potable water.

The objective of this component is to provide adequate water to approximately 500000 persons through the implementation of a complete new pipe network (grid type) instead of the old randomly laid old main pipe lines that feed only 1/3 of the Za'afaranya area inhabitants with inadequate quality and quantity of water that was built more than 50 years ago. The new water distribution pipe network includes pipes of diameters ranging between 1400 to 250 mm and a whole length of 43.5 km that cover the whole present inhabited area and future extensions.

Target was achieved when adequate water reached to 1/3 Za'farania area inhabitants as soon as the new network put into operation and the rest of the population will benefit from the secondary network respectively.

The indicator for this component was to provide adequate water to the houses by taps without need to purchase water from unregulated tankers

Activity: Design and implement main water pipe lines and a new network for the area

Implementation of this component was satisfactory

This component is implemented through six contracts four of them are work contracts and the res two contracts are consultancy contracts with total amount 24 927 477 US$

1) (C03/05)Detailed Design and Tender Documents for: Rehabilitation and renewal of old drinking water network in Al-Za'afaraniah.
2) C13- Construction Supervision for W06 (A), W06 (B), W06 (C), and W06 (D)
3) W06 (A) Rehabilitation Works
4) W06 (B) Rehabilitation Works
5) W06(C) Rehabilitation Works
6) W06(D) Rehabilitation Works

Lesson learned:

By the implementation of this component the water supplied (quantity& quality) contribute to improve the economic conditions of the population by reducing the purchase of water from unregulated tankers which take 20% of the average family's monthly income, and contribute to the reduction in the incidence of water borne diseases by providing safe potable water and to reduce water losses in the old network.

(C03/05)Detailed Design and Tender Documents for: Rehabilitation and renewal of old drinking water network in Al-Za'afaraniah

- Contractor name : Alani & AL-Shamma consulting engineers
- Signature date : Aug/16/2005
- Contract amount : 155550 US$
- Total Adjusted Price: 157,300.00 US$
- Amount paid: 155,550.00 US$
- Physical progress: 100%
- Financial progress: 99% (the remind 5% for taxes issues)
- The consultant gave up the remaining sum (1750 US$), of his fees according to his email dated March 21, 2011.

C13- Construction Supervision for W06 (A), W06 (B), W06 (C), and W06 (D)

- Contractor name : Consulting Engineering Bureau- University of Baghdad
- Signature date : Nov/02/2008
- Contract amount : 480000 US$
- Amendment: 267000 US$
- Net payment: 747000 US$

W06 (A) Rehabilitation Works

- Contractor name : EPC ENGINEERING AB
- Signature date : Aug/24/2008
- Contract amount : 7928578 US$
- Physical progress : 100 %
- Financial progress: 100 %
- Amendment: 346,320.00 US$
- Amendment: 112,281.00 US$
- Amendment: -515,034US$
- Amendment: - 60,000 US$
- Net payment: 7812145 US$

W06 (B) Rehabilitation Works

- Contractor name : Al-KESSA & MAJBEL
- Signature date : July/17/2008
- Contract amount : 3957550US$
- Physical progress : 100 %
- Financial progress: 100 %
- Amendment: 351,770.00 US$
- Amendment: 146,000.00 US$
- Amendment: -188,016US$
- Amendment: -20.00 US$
- Net payment: 4267284 US$

W06(C) Rehabilitation Works

- Contractor name: EPC ENGINEERING &Aridh AlSahil Co.
- Signature date : July/20/2009
- Contract amount : 5228570US$
- Physical progress : 100 %
- Financial progress: 100 %
- Amendment: 46,620.00US$
- Amendment: 130,157.00US$
- Amendment: -554,945.00US$
- Amendment: -26,067.00US$
- Net payment: 4824335 US$

W06(D) Rehabilitation Works

- Contractor name : Al-KESSA&MAJBEL
- Signature date : SEP/ 3/ 2008
- Contract amount : 4789950US$
- Physical progress : 100 %
- Financial progress: 100 %
- Amendment: 361,310.00US$
- Amendment: 381,000.00US$
- Amendment: -170,985US$
- Amendment: -21,445US$
- Net payment: 5339830 US$

Component 7 - Technical Assistance and Capacity Building. (Estimated total of US$3.34 million)

This component is essential to ensure the proper implementation of the project and to train MOB staff on efficient utility practices and financing. It includes the following activities:

- Consulting services to complete final designs and tender documents for CO1, CO2 ,CO3
- Detailed Design and Tender Documents for (CO1):
- Rehabilitation of chlorine and chemical units at Al-Karkh WTP,
- Rehabilitation of 2B Pumping Station in Shark Dijila WTP,
- Extension and rehabilitation of Al- Rasheed Water Treatment Plant.
- Rehabilitation of Abu Nuwas Raw Water Pumping Station
- Cross river Link 6- Karkh WTP upgrading (TF054435-C01/05):

- Detailed Design and Tender Documents for: Rehabilitation & renewal of Sadr City Sewerage Network (TF054435-C02/05):
- C03- Preparation of DD & TD for Za'farania Water Supply Network
- Construction Supervision for W06 (A), W06 (B), W06 (C), and W06 (D)
- C04- Lead City Advisor (Sabah Azzawi)
- C05 - Baghdad Comprehensive City Development Plan
- C08- Deputy City Planning Advisor (Ali Nouri)
- C09- Urban Planner (Ayad Mohammed Saleh)

** The WB have issued no- objection on October 24,2006 for the draft contract and recommended to increase the ceiling to be 30000 US$ instead of 28,800 US$ to cover both remuneration and reimbursable.
**The contract has been signed between the MoB and the consultant Ayad Mohammed saleh on November 1, 2006.

- C10- Legal Advisor to PMT (Fakhri Abed El Hussein)
- C11- Independent External Financial Auditors (Mess Tallal Abo Ghazaleh)
- C12- Construction Supervision for W01, W02, G05, and W04
- C14- Construction Supervision for W05 (a), (b), (c), (d) and (e)
- C15- Procurement Advisor
- C17/2012- Environmental Advisor

It was agreed during the Mission of March (18-23-2012) that PMT will contract with the environmental advisor in part time with 4500 US$ in six months

*** Consulting services for construction and implementation supervision for C12, C13, C14 .

a) Capacity building and training in specific technical, environmental and social and commercial areas;

b) Design and implementation of appropriate accounting, financial management, information, billing and collection, and related systems;

c) Consulting services to asses demand characteristics, cost of supply, demand management and tariff structures;

d) Individual consultants to support the Project Management Team (PMT) (CO4) Lead City Advisor, C08- Deputy City Planning Advisor (Ali Nouri).

(TF054435- C01/2005): Detailed Design and Tender Documents for Rehabilitation of 2B Pumping Station in Shark Dijila WTP.

Same component 1, Pargraph 1 mentioned above.

(TF054435-C02/05) Detailed Design and Tender Documents for Rehabilitation & renewal of Sadr City Sewerage Network.

Same component 5, Pargraph 1 mentioned above.

(TF054435-C03/05)Detailed Design and Tender Documents for: Rehabilitation and renewal of old drinking water network in Al-Za'afaraniah.

Same component 6, Paragraph 1 mentioned above.

(C04)- Lead City Advisor (Sabah Azzawi):
(contracting with this consultant is Cancelled)
****** To support the preparation of the Baghdad comprehensive city development plan (CCDP): MOB selected Mr. Sabah Al-Azzawi for this assignment ($188,900 for eight (8) months). Unfortunately the initialed contract for counter-signature.

(C05) - Baghdad Comprehensive City Development Plan

- Contractor name: Khateeb & Alami
- Signature date : Dec.26,2007
- Contract Price: 4,150,300 US$ with taxes
- Amount paid: 1,179,063.00 US$

- Physical progress: Cancellation of Phases II, III & IV
- Financial progress: Cancellation of Phases II, III & IV

** MOB implement it with their own funds.

(C08)- Deputy City Planning Advisor

- Contractor name: ALI NOURI HASSAN AL-MOUSSAWI
- Signature date : Aug/15/2005
- Contract Price: 29200 US$
- Amount paid : 29200US$
- Physical progress: 100%
- Financial progress: 100%

(C09)- Urban Planner

- Contractor name: Ayyad Mohammed Saleh
- Signature date : Nov/1/2006
- Contract Price: 30000 US$
- Revised contract amount: 28,818 US$)
- Amount paid : 28818US$
- Physical progress: 100%
- Financial progress: 100%

(C10)- Legal Advisor to PMT

- Contractor name: Fakhri Abed El Hussein
- Signature date (first) : Aug/23/2005
- Contract Price: 12332 US$
- Signature date (second) : Jul/21/2006
- Contract Price: 6482 US$
- Total Price: 18,814.00 US$
- Physical progress: 100%
- Financial progress: 100%

(C11)- Independent External Financial Auditors

- Contractor name: Auditing services Talal Abu- Ghazaleh &Co. (TAGCO)
- \Signature date : Jun/27/2006
- Contract Price: 97,570.00 US$
- Amendment 1: 15,000.00 US$
- Total Price: 112,570.00
- Physical progress: completed
- Financial progress: completed
- Amendment 2: 20,000.00 US$
- Total Price: 132,570.00US$
- Amendment 3: 40000 US$
- Revised payment: 137,570.00US$

(C12)- Construction Supervision for W01, W02, G05, and W04/ Cancelled

(C13)- Construction Supervision for W06 (A), W06 (B), W06 (C), and W06 (D)

- Same component 6Pargraph 2 mentioned above.

(C14)- Construction Supervision for city Sewerage

- Contractor name : Mustansiriya University
- Signature date : Aug/20/2008
- Contract amount : 300000US$
- Amendment: 267000 US$
- Amendment #1: 42,000.00 US$
- Amendment # 2: 38,000.00 US$
- Amended Price: 380,000.00 US$
- Amendment # 3: 39,000.00 US$
- Amended Contract Price: 419,000.00 US$
- Amendment 5: 29,460.00
- Amended price: 448,460.00
- Amendment 6: 28,500.00
- Amended price: 476,960.00
- Amendment 7: 23,400 US$
- Amended price: 500,360.00 US$
- Amount paid by Sep30, 2012: 480,980.00 US$
- Physical progress: Ongoing
- Financial progress: 100% of the amended price

(C15)- Procurement Advisor

- Contractor name: George Awwad
- Signature date : Nov/20/2006
- Contract amount : 6770 US$
- Physical progress: 100%
- Financial progress: 100%

(C17/2012)- Environmental Advisor

It was agreed during the Mission of March 23, 2012) that PMT will contract with the environmental advisor in part time with 4500 US$ in six months

Although some of the project development objectives were not met, it would also be good to note that most of the target intermediate outcomes were achieved and the Department continues to complete the remaining activities targeted under the project.

Component 8 - Development of a Comprehensive City Development Plan for Baghdad (CCDP). (Estimated cost of US$4.10 million)

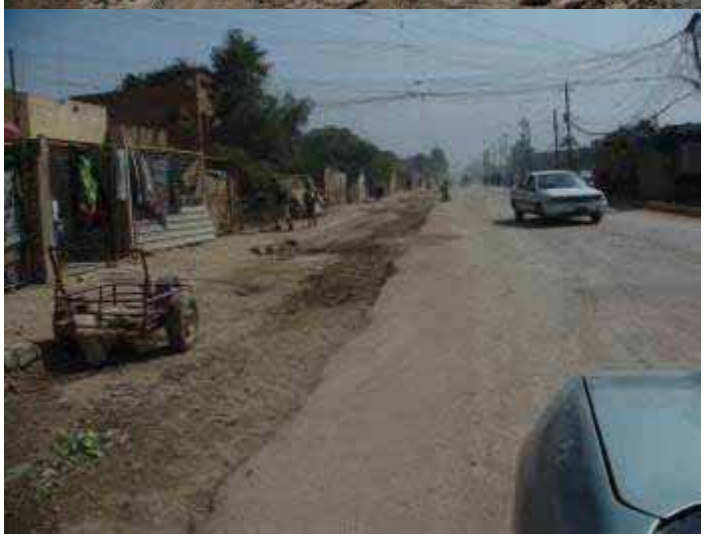
Around 23% of Iraq's total population lives in the capital Baghdad, where the population is estimated to be 6 million. The city has experienced intense urbanization due to years of economic sanctions where key economic and social activities became concentrated in the capital. Baghdad has been developing in the absence of effective planning and has grown well beyond its planned limits. Spontaneous informal settlements became established in and around the city. The latest attempt at formulating a Comprehensive City Development Plan (CCDP) for Baghdad was carried-out during the late eighties, but it was uncompleted due to the Gulf war. The latest master plan that MOB still working on was done in 1967. The proposed CCDP is to carry the vision for the future of Baghdad for the year 2030and to consist the following:

1-review of past experience, current states, data updating trends for the year 2030.

Developing master plan for the year 2030.

Although some of the project development objectives were not met, it would also be good to note that most of the target intermediate outcomes were achieved and the Department

Wo6D



Excavation, pipes laying and backfilling, house connections, manholes construction, ventilation pipes and construction of the storm drainage inlet chambers and its connections and grates were all completed. Currently asphalt pavement is progressing.

Wo5e

Excavation, pipes laying and backfilling, house connections, manholes construction, and construction of storm drainage inlet chambers and its connections and grates for the internal drainage network were progressing, and Work was progressing at the new main line 700mm as well.

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Annex 8. Comments of Cofinanciers and Other Partners/Stakeholders

Annex 9. List of Supporting Documents

- World Bank, Aide Memoires
- World Bank, ISRs for Project
- World Bank, Grant Agreement
- World Bank, Restructuring documents in WBDocs
- World Bank, Grant Agreement
- World Bank, 2004. Technical Annex on a Proposed Trust Fund Grant for the Emergency Baghdad Water Supply and Sanitation Project. Washington DC

- Mayoralty of Baghdad, Quarterly Progress Report
- Mayoralty of Baghdad, Borrower ICR dated October
- Mayoralty of Baghdad, Audit reports
- Republic of Iraq, Ministry of Planning, 2013. National Development Plan 2013-2017. Baghdad

- Aenab, A.M. and S.K. Singh, 2012. Evaluation of Drinking Water Pollution and Health Effect s in Baghdad, Iraq. *Journal of Environmental Protection*, vol. 3, pp. 533-537.
- OED, 1998. Post conflict Reconstruction. Fast Track Brief, Washington D.C.
- UNICEF, Multiple Indicator Cluster Survey, 2000.
- UNICEF, Multiple Indicator Cluster Survey, 2006.
- UNICEF, Multiple Indicator Cluster Survey, 2011
- World Bank. Iraq: Country Water Resource Assistance. Washington D.C
- World Bank, 2006. Rebuilding Iraq: Economic Reform and Transition. Washington D.C.
- World Bank, 2012. Country Partnership Strategy for the Republic of Iraq for the Period FY2013-016. Washington D.C.
- Whittington, Dale, W. Michael Hanemann, Claudia Sadoff and Marc Jeuland, 2009. The Challenge of Improving Water and Sanitation Services in Less Developed Countries. *Foundations and Trends In Microeconomics*, Vol.4, pp. 469-609.

IRAQ

EMERGENCY BAGHDAD WATER SUPPLY AND SANITATION PROJECT

PROJECT SITES

GSDPM
Map Design Unit

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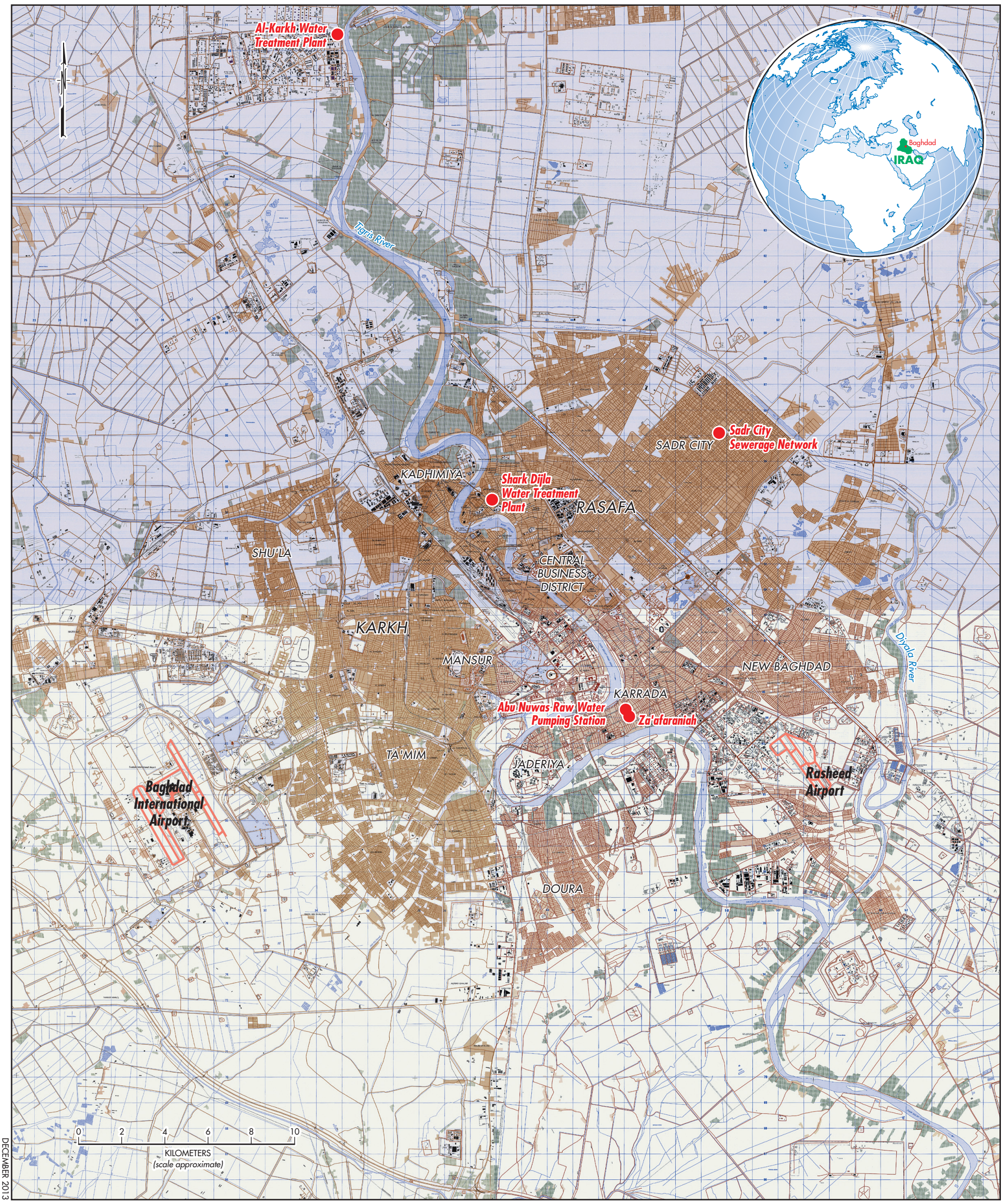

DECEMBER 2013

IBRD 33715R