Millennium Challenge Account Jordan

Monitoring and Evaluation Plan

March 6, 2012*

This Monitoring and Evaluation Plan is a binding document that serves as a guide for program implementation and management. It will help Millennium Challenge Account – Jordan (MCA-J), its Board of Directors, , Auditor, Management Team, and Implementing Entities which include the Water Authority of Jordan, the Ministry of Water and Irrigation, the Jordan Valley Authority, The As-Samra Project Company (SPC), and the Department of Statistics, beneficiaries, and other stakeholders know the progress being made towards the achievement of results.

* Approved by the MCA-Jordan Board of Directors on February 28, 2012

Contents

List of Figures

List of Tables

Annexes

Abbreviations and Acronyms

AE	Authority Engineer
CCR	Compact Completion Report
DMA	District Meter Area
DOS	Department of Statistics
DQR	Data Quality Review
ERR	Economic Rate of Return
FIDIC	Federation Internationale des Ingenieurs-Conseils
GoJ	Government of Jordan
HH	House Holds
IE	Implementing Entity
ITT	Indicator Tracking Table
JVA	Jordan Valley Authority
L/C/D	Liters per Capita per Day
MCA-J	Millennium Challenge Account- Jordan
MCC	Millennium Challenge Corporation
MCM	Million Cubic Meters
M&E	Monitoring and Evaluation
MIS	Management Information System
MWI	Ministry of Water and Irrigation
NRW	Non Revenue Water
PMC	Project Management Consultant
QDRP	Quarterly Disbursement Request Package
SPC	Samra Project Company
TBD	To be determined
TOR	Terms of Reference
US$	United States Dollar
WAJ	Water Authority of Jordan
WSA	Water Supply Area
WSH	Water Smart Homes

1. Introduction

The Government of the United States of America acting through the Millennium Challenge Corporation (MCC) and the Government of Jordan (GoJ) have entered into a Millennium Challenge Compact in the amount of two hundred seventy-five million one hundred thousand dollars ($275,100,000) to be implemented over five years by the Millennium Challenge Account-Jordan (MCA-J). The agreement was signed on 25 October 2010 and entered into force on 13 December 2011.

The Monitoring and Evaluation Plan (M&E) is a tool to manage the process of monitoring, evaluating and reporting progress towards Compact results. It is used in conjunction with other tools such as work plans, procurement plans, and financial plans. The M&E Plan is governed and follows principles stipulated in the *Policy for Monitoring and Evaluation of Compacts and Threshold Programs* (DCI-2007-55.2 from 05/12/2009, M&E Policy) as well as the Program Implementation Agreement (November 30, 2010) and the Compact document (October 25, 2010).

The M&E Plan serves the following functions:

- Explains in detail *how* and *what* the MCC and MCA-J will a) monitor to determine whether the Projects are on track to achieving their intended results and b) evaluate to assess implementation strategies, provide lessons learned, determine cost effectiveness and estimate the impact of Compact interventions;
- Includes all indicators that must be reported to MCC on a regular basis;
- Includes a description of complementary data to be collected by MCA for evaluation of programs, but not reported to MCC on a regular basis, including qualitative studies;
- Includes any M&E requirements that the MCA must meet in order to receive disbursements;[1]
- Establishes a process to alert implementers, stakeholders, MCA-J and MCC to any problems in program implementation and provides a basis for making any needed program adjustments; and
- Serves as a communication tool so that MCA-J staff and other stakeholders clearly understand the goals and targets the MCA-J and Implementing Partners are responsible for achieving.

The MCA-J M&E Plan includes:

- A summary of the program logic, including the Goal and expected Outcomes;
- The number of expected beneficiaries by Project, defined in accordance with MCC's *Guidelines for Economic and Beneficiary Analysis*;
- A select number of key indicators, drawn from the variables in the economic analysis and the broader program logic, at the Goal and Outcome levels with their definitions, baseline values, and Year 5 targets;
- Output indicators when possible with their definitions, baseline values, and Year 5 targets;

[1] Substantial compliance with the M&E Plan is a condition for approval of each quarterly disbursement request by the country.

- General requirements for data collection, reporting, and data quality reviews;
- The specific requirements for evaluation of every Project and a brief description of the methods that will be used;
- A brief description of other components of the M&E Plan (such as M&E costs and assumptions and risks); and
- Requirements for the implementation of the M&E Plan, including information management and MCA-J responsibilities.

MCC and MCA-J may make adjustments to the M&E Plan as needed, provided modifications are consistent with the requirements of the Compact and any other relevant supplemental legal documents and have been approved by MCC; these adjustments must be reflected in the Annex of this M&E Plan with an accompanying Modification Memo. Please refer to section 8.8.2 '*Modify M&E Plan'* of the M&E Policy.

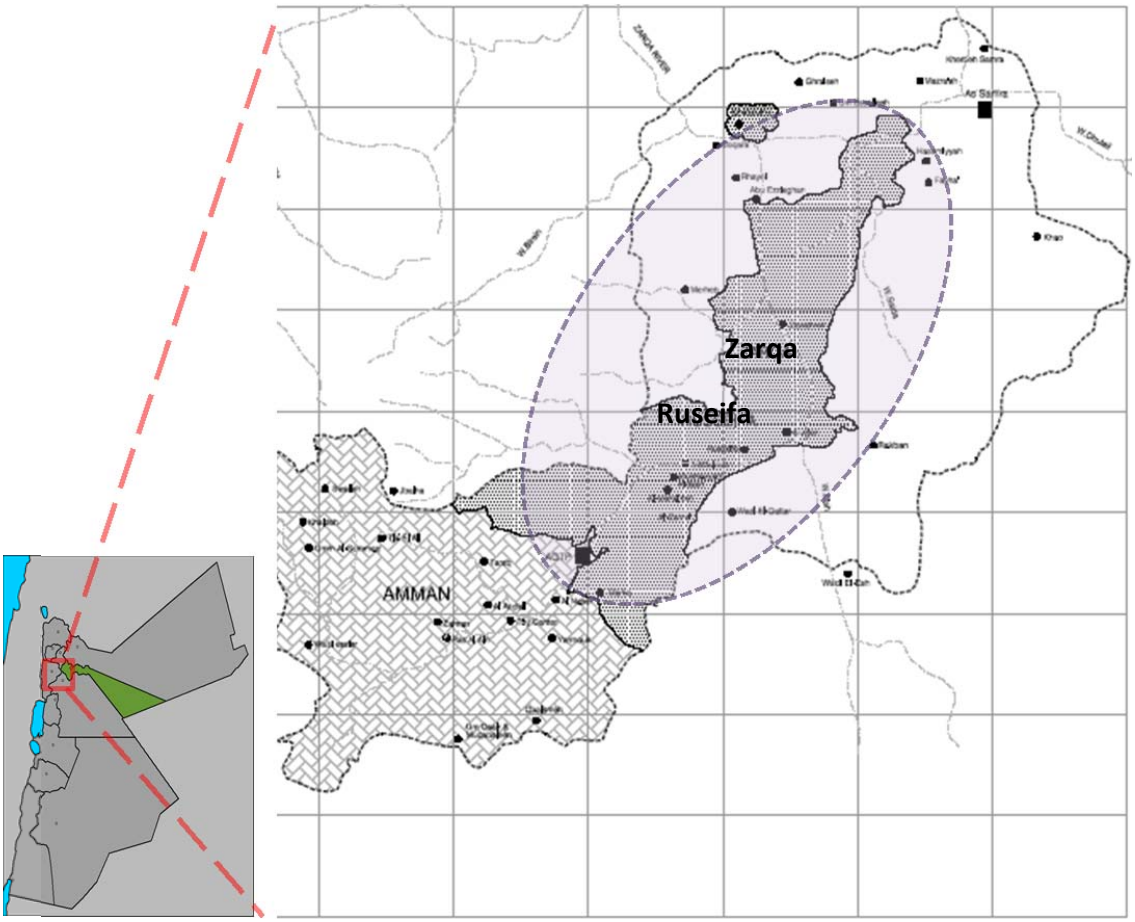
This Monitoring and Evaluation Plan is a binding document that serves as a guide for program implementation and management. It will help Millennium Challenge Account – Jordan (MCA-J), its Board of Directors, Auditor, Management Team, and Implementing Entities which include the Water Authority of Jordan, the Ministry of Water and Irrigation, the Jordan Valley Authority, The Special Project Company (SPC), and the Department of Statistics, beneficiaries, and other stakeholders know the progress being made towards the achievement of results.

2. Compact Overview and Activities

2.1. Compact Goal

The Compact Goal is to reduce poverty and increase income in Zarqa Governorate through increases in the supply of water available to households and businesses through improvements in the efficiency of water delivery, the extension of wastewater collection and the expansion of wastewater treatment.

Figure 1: The Hashemite Kingdom of Jordan - Zarqa Governorate



2.2. Compact Logic:

The Compact consists of three inter-linked projects, the Water Network Project, the Wastewater Network Project and the As-Samra Expansion Plant Project. These Projects are detailed in the next section and are expected to increase the effective supply of water that reaches household and commercial users in populous urban areas in order to meet the requirements of a growing population as well as Jordan's economic development objectives.

As indicated below in Figure 2 of the **Compact Logic**, the increase in the effective supply of water through the Projects comes from two sources: First, reductions in water losses or non-revenue water (NRW)[2] will directly increase the amount of water and its duration (or reliability of service) that reaches end users of the water network. As more water becomes available through the network on a more continuous basis, the expectation is that households and businesses will reduce their consumption of more expensive alternatives, namely tanker water and treatment shop water. Second, increased collection and treatment of wastewater will generate additional supplies of high-quality treated water that can be used for irrigated agriculture. When that treated wastewater is substituted for surface water commonly used for irrigation in the Jordan Valley, equivalent supplies of freshwater can be diverted to higher value uses in the urban areas of Amman and Zarqa Governorates where fresh water has the greatest economic benefit. Fresh water supplied through the network is then collected as wastewater from urban areas and sent for treatment to the As-Samra Wastewater Treatment Plant where it can then be reused in the Jordan Valley. Finally, these investments are expected to help poor households receive additional supplies of water through the water distribution network at reasonable prices.

The investments also contribute to reducing the need to develop increasingly expensive sources of water, for example Disi, and provide alternatives to unsustainable extraction of water from Jordan's aquifers

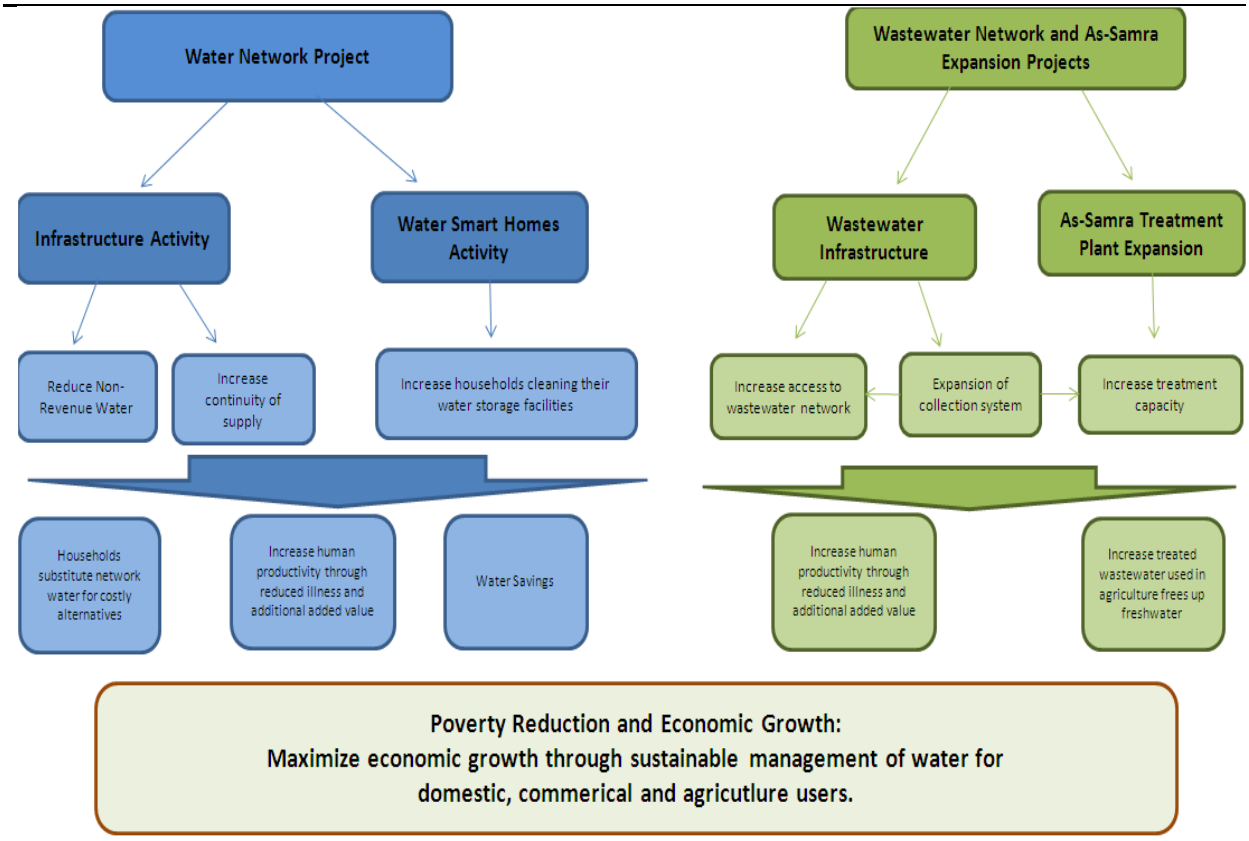
Figure 2, **Compact Logic,** shows the Compact logic and illustrates the relationship between the Compact goal and outcomes.

2.3. Projects and Activities

Decisions as to what projects to support were based on a preliminary analysis of constraints in consultation with different local parties and citizens which concluded the importance of selecting the water sector in Zarqa Governorate out of the 12 Governorates in Jordan. The preliminary analysis was followed by a submission of concept paper by the GoJ and an assessment of the concept paper carried out by MCC. Finally, feasibility studies that included rigorous analysis of economic rates of return of the projects were completed.

[2] NRW is comprised of unaccounted for water that is not billed as a consequence of physical losses (leaks) and administrative losses plus any unbilled but authorized consumption, including, for instance, water used for system flushing.

Figure 2: Compact Logic



2.3.1. Water Network Project

The Water Network Project, through the Infrastructure Investment Activity, will reduce water losses and improve continuity of water service thereby improving the overall efficiency of network water delivery. This will lead to more reliance on network water and decrease costs that households in Zarqa Governorate incur to satisfy their water needs. It is also expected that increased availability of water on a more continuous basis will lead to improved human productivity through reduced illness and time available for adults and children to focus on productive activities such as enterprise and education. As a means of improving the distributional effects of the Projects, the Water Smart Homes Activity Project will also provide direct assistance to poor households in improving their household water and sanitation infrastructure.

Figure 3, **Water Network Project Logic,** summarizes the Project Logic and key indicators for the monitoring and evaluation of the Water Network Project.

2.3.2. Infrastructure Investment Activity

The activities financed under the Infrastructure Investment Activity will restructure and rehabilitate transmission and distribution water supply systems in key areas of Zarqa Governorate. In addition to reducing physical leaks, this Activity is designed to facilitate the transition of the

water supply systems from periodic distribution under high pressure to more frequent, gravity-fed distribution. This Activity consists of the following sub-activities:

i. Water Supply Area (WSA) Works –rehabilitate, restructure and upgrade works in the primary, secondary and tertiary water supply systems in Ruseifa High and Low, Zarqa High and Batrawi Distribution Areas.

ii. Strategic Infrastructure Works –replacement of defective customer meters and restructure and construct District Meter Areas.

2.3.2.1. Water Smart Homes Activity[3]

The Water Smart Homes (WSH) Activity is designed to improve the condition of home water systems and enhance the benefits that households, particularly poor households, gain from increases in the effective supply of water in Zarqa Governorate. This Activity consists of two sub-activities:

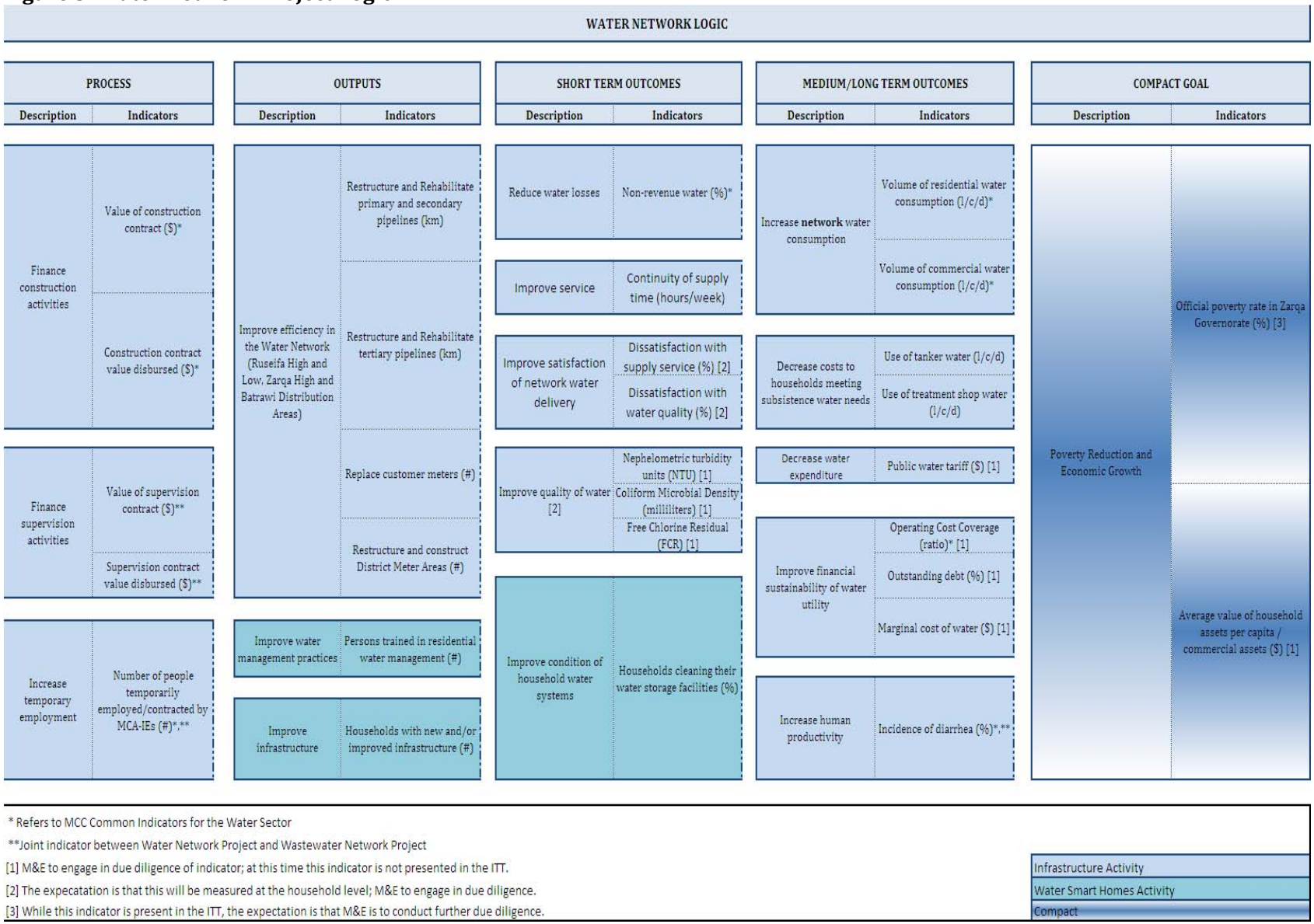
1. WSH Outreach Campaign – disseminate information on techniques for cleaning water storage tanks and properly maintaining home water systems, along with benefits of regular maintenance, to households in the geographic areas targeted by the Infrastructure Investment Activity.

2. WSH Direct Assistance Program – provide technical assistance and infrastructure inputs to poor[4] households in Zarqa Governorate for critical improvements in their home systems for water storage, water delivery and sanitation. This sub-activity is expected to support replacement of water storage tanks, replacement of pipes, installation of water-saving faucets and construction of proper connections to the wastewater collection systems, as needed.

[3] In Sept 2009, the GoJ and MCA-Jordan contracted ECO Consult to carry out "the Study of the Benefits to the Poor of MCC financed water sector projects in Zarqa Governorate". The study focus themes were: analysis of key factors affecting under-consumption for the poor and non-poor consumers, estimating the economic benefits of addressing the under-consumption key factors, prioritizing investment areas for water and wastewater services, and identifying and examining a set of policy, institutional, and household interventions and recommend an intervention for project preparation. Accordingly, a set of policy, management and operation, infrastructure investments, and household infrastructure interventions were examined throughout the study. These interventions were analyzed to evaluate the benefits to the poor and cost effectiveness of implementation, examine the overlap and complementarities of other programs, and assess the overall impacts to the consumers and the utility. As a result, the household Infrastructure and Knowledge Improvement (now the 'Water Smart Homes Activity') intervention was selected to be implemented throughout the compact.

[4] Eligible recipients for MCC Funding under this sub-activity must first qualify for the National Aid Fund (NAF), a Ministry of Social Development program that provides financial support to the very poor.

Figure 3: Water Network Project Logic



2.3.3. Waste Water Network Project

The Wastewater Network Project will increase access to the wastewater network, increase the volume of wastewater collected and reduce the incidents of sewage overflow. The increased wastewater collected is linked to the benefits derived from the As-Samra Expansion Project, detailed in the next sub-section. The improved human productivity as a result of health outcomes associated with increased access to the wastewater network will be explored during year one of Compact implementation, and shall be further detailed in an update to this M&E Plan.

The main activities financed under the Waste Water Project will expand, rehabilitate and reinforce the network in West and East Zarqa, and West Ruseifa.

Figure 4, **Wastewater Network and As-Samra Expansion Projects,** summarizes the Project Logic and key indicators for the monitoring and evaluation of the Wastewater Network Project and the As-Samra Expansion Project.

2.3.4. As-Samra Expansion Project

The As-Samra Expansion Project will increase the volume of treated wastewater that is available as a substitute for freshwater in agricultural use and protect existing agriculture from untreated wastewater[5].

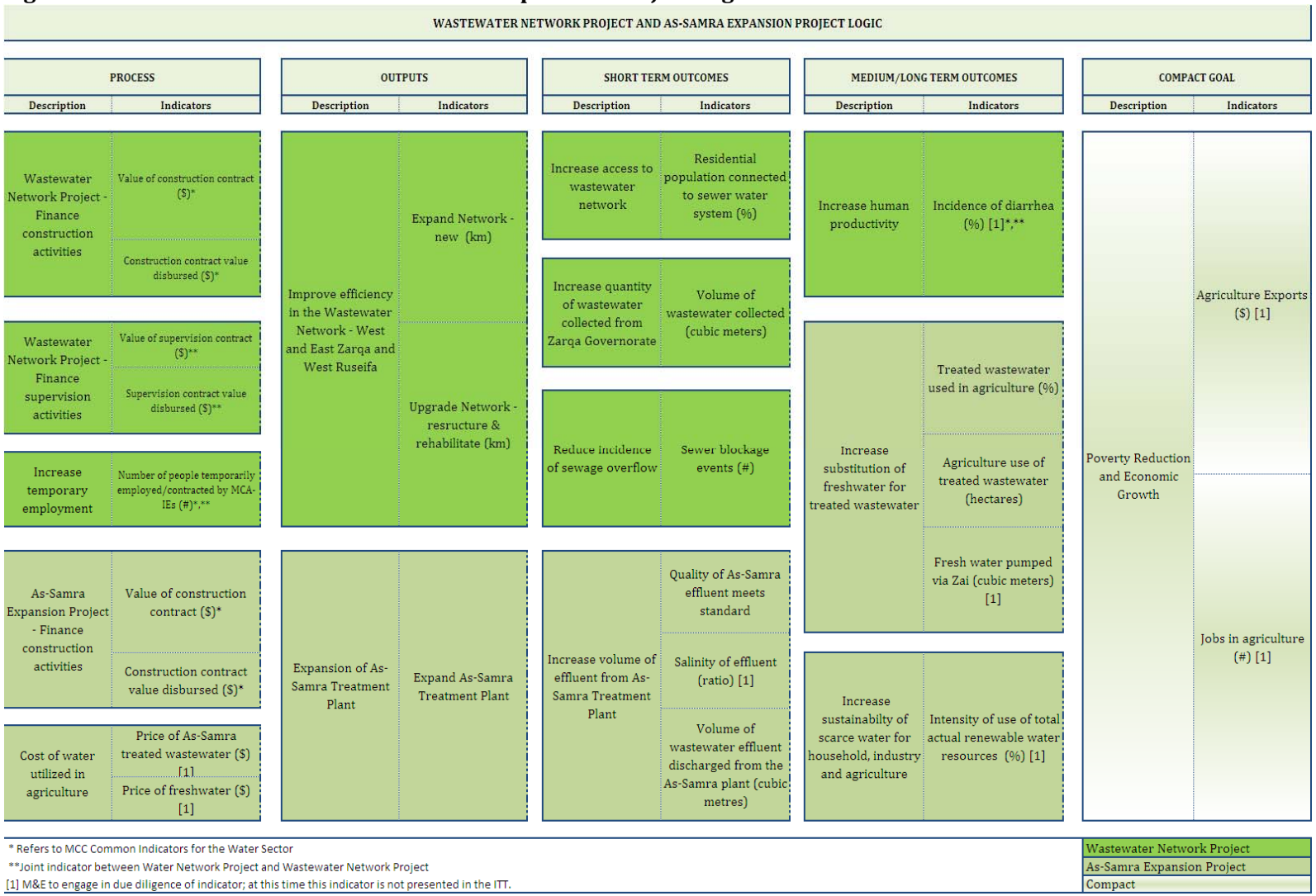
The main activity financed under the As-Samra Expansion Project is its expansion. The expansion is designed to increase the hydraulic capacity of the existing treatment plant and its ability to handle suspended solids and biological materials, among other critical treatment requirements.

Originally built with support from the United States Agency for International Development, the As-Samra Wastewater Treatment Plant is the primary facility for treating wastewater from Jordan's Amman and Zarqa Governorates. The Plant is nearing its capacity and the As-Samra Expansion Project is designed to address this challenge by expanding the Plant's capacity to handle increasing volumes of wastewater and suspended solids, and improving its ability to manage sludge. The Plant will be expanded in partnership with a private sector operator that will mobilize a portion of the cost of construction, potentially enhancing operational sustainability by transferring some risks related to financing, construction and operations to the private sector.

[5] The Ministry of Water and Irrigation under the national water strategy is compelled to optimize the use of fresh water as well as treated water. On October 13, 2009, as a condition precedent to disbursement of MCC 609 (g) funds, the Ministry of Water and Irrigation submitted to MCC a Memorandum of Understanding (MOU) between the Jordan Valley Authority and the Jordan Water Authority for the *substitution of treated wastewater by fresh water*. MCC and MCA-J will work with MWI to ensure the implementation of this MOU.

Figure 4, **Wastewater Network and As-Samra Expansion Projects,** summarizes the Project Logic and key indicators for the monitoring and evaluation of the Wastewater Network Project and the As-Samra Expansion Project.

Figure 4: Wastewater Network and As-Samra Expansion Project Logic



3. Jordan Demographics

Per **Table 1: Zarqa Governorate Demographics,** the population of 910,800 in Zarqa Governorate represents almost 15% of the total Jordanian population coming third in the number of residents after Amman and Irbid. Most of the residents of Zarqa are urban with roughly only 5.5% of the population rural, far below the Jordanian average of 17.4%; however the female to male population is almost similar to that of the Jordanian average, 48.2% to 51.8%.

Table 1: Zarqa Governorate Demographics[6]

Indicator	Zarqa Governorate	Kingdom
Estimated Population (Thousands) 2010	910.8	6,113
Female Population (%) 2010	48.2%	48.5%
Male Population (%) 2010	51.8%	51.5%
Population Density (P/Km2) 2010	191.3	68.8
Estimated Urban Population (%) 2010	94.5%	82.6%
Estimated Rural Population (%) 2010	5.5%	17.4%
Water and Expenses for Waste Water (% of Household Expenditure) 2008[7]	0.74%	0.88%

4. Economic Rate of Return Analysis

Table 2: Summary of Economic Rates of Return

Compact/Project	2010 Base Case ERR (Hurdle = 10.0%)
Compact	16%
Water Network Project	19%
Waste Water Network Project	14%
As-Samra Expansion Project	

4.1. ERR Water Network Project

The economic analysis of the **Water Network Project** focuses on improvements in the efficiency of water supplied to the populations of Zarqa and Ruseifa[8]. In 2010, most households received water

[6] Department of Statistics, Statistical Yearbook 2010.
[7] Department of Statistics, Household Expenditure and Income Survey 2008. Additional water-related indicators will be added to this table once they have been vetted.
[8] Water quality is not an issue that is being addressed through the chosen Projects as 'the water quality data for the supply network for the year 2008 indicates a high level of compliance with key parameters such as presence of coliforms and chlorine residual. For the samples taken at the pumping station/reservoir sites and at various locations in the supply network, the level of compliance with the coliform standard of less than

through the water supply network only once or twice per week, making water availability a key challenge. At the same time, roughly half of the water supplied to the network was non-revenue water (NRW)—which includes a combination of physical water loss and administrative lapses. Evidence from the feasibility study suggests that a high portion of NRW losses are due to physical losses.

From the utilities perspective, reducing the physical loss component of NRW reduces both the average cost to deliver a cubic meter of water and the total quantity of water that must be produced for a given level of per capita consumption.

From the household's perspective, the problem of limited water availability is exacerbated in the summer months. In 2010, about 35 percent of households received network water deliveries no more than once per week, while another 30 percent received water deliveries no more than two times per week.[9] To supplement these limited supplies, many households purchased additional supplies of water from "treatment shops" and private tanker trucks. According to a detailed socioeconomic survey conducted by Jordan's Department of Statistics, nearly 30 percent of poor households in Zarqa consume shop water, at an average additional cost of JOD 10-15 ($14.40-21.60) per month[10].

Improvements in the water network that reduce water losses, enable more water to reach end consumers and extend supply hours would make higher quantities of water available for use in households. Because network water is substantially less expensive than other sources of supply, these changes would favorably impact household incomes or allow consumption of higher quantities of water at a given cost. Enhanced efficiency also shifts the water "supply curve" upward, reducing quantities that must be extracted from groundwater aquifers in order to meet the consumption needs of the region's growing population.

These efficiency gains, including shifts in household consumption patterns, represent an overall economic return (ERR) to the project of 19 percent. This return includes benefits to households where per capita consumption is low enough to cause health risks related to sanitation and hygiene, although these overall impacts were found to be modest. However, it does not include potentially higher value-added in commerce and industry, the benefits of which are difficult to model because data was not readily available. In Zarqa, commercial and industrial users account for roughly 15 percent of total water consumption, and it appears that much of the industry that has developed in the region does not rely on large water supplies. [11]

4.2. ERR Waste Water Network

The economic analysis of the **Wastewater Network Project** focuses on the increased efficiency of substituting treated wastewater for freshwater, when properly collected and treated. This is

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1.1 MPN/1000ml was over 98%. In addition a chlorine residual was detected at 99% of sampling locations', per 'Zarqa Governorate Water System Restructuring and Rehabilitation' Investment Master Plan, page 75.

[9] Cowi. "World Bank GPOBA Jordan Water and Wastewater Output Based Aid (OBA) Study: Task 1Report - Feasibility," Washington, DC, presentation, April 15, 2010.

[10] 2009 Water Survey Report, Department of Statistics

[11] Possible explanations that account for commercial and industrial users comprising only 15% of total water consumption include type of industry, low agriculture and high use of personal wells and tanks.

particularly true in the case of irrigated agriculture, which already uses large volumes of treated wastewater in Jordan. Given the relation between collection and treatment, the benefits of the Wastewater Network Project and the As Samra Expansion Project have been analyzed together.

Given the large share of water resources consumed in agriculture, expansion in the capacity to collect and treat wastewater increases the supply of high quality treated wastewater potentially available for substitution. Much of the infrastructure needed for this substitution currently exists. The existing As-Samra Wastewater Treatment Plant is a key part of the system, and wastewater treated at As-Samra is currently used in agricultural irrigation throughout the middle and lower portions of the Jordan Valley. In exchange for the treated wastewater, supplies of fresh surface water are pumped from the Jordan Valley to Amman and Zarqa Governorates, where they meet residential and commercial needs before flowing through the urban wastewater collection system. Eventually, much of the wastewater from Amman and Zarqa Governorates is treated at the As-Samra Wastewater Treatment Plant, from which it is conveyed to the Jordan Valley and used in irrigation. At present, the As-Samra Wastewater Treatment Plant cannot handle additional flows of wastewater, and the limitations on its capacity have prevented opportunities to expand the wastewater collection system in Amman and Zarqa Governorates. Thus, the decision to expand treatment capacity through the As-Samra Expansion Project enables the expansion of wastewater collection through the Wastewater Network Project. These two projects together may generate up to 10 million cubic meters of additional freshwater to Zarqa Governorate that will be available for substitution on an average annual basis.

The analysis values fresh water made available for domestic consumption at the marginal cost of water supply. Given the high costs associated with other options for supplying water, including the Disi aquifer project[12], pumping from the Jordan Valley offers a lower cost alternative for expanding effective urban supplies[13]. The analysis also includes a measure of added value in agriculture associated with improved reliability and availability of treated wastewater for agricultural cropping. Finally, the analysis also measures the negative impact on existing agricultural production if facilities for treating the rapidly growing volumes of wastewater from Amman and Zarqa were not realized, resulting in a deterioration of the quality of water making its way into the irrigation supply. The effects could include food safety risks and the loss of markets for agricultural goods. **Based on these assumptions, the estimated ERR for the two projects together is 14 percent.**

4.3. ERR As-Samra Expansion Project

The analysis of the economic returns to the **As-Samra Expansion Project** is identical to that already described for the Wastewater Network Project. Benefits derive from two principle sources: (i) the value of fresh irrigation water "freed up" for use in Amman and Zarqa through substitution with increased volumes of high-quality treated wastewater flowing through the As-Samra Expansion Project; and (ii) the prevention of a collapse in agricultural production values that would occur without appropriate treatment of wastewater. Based on an anticipated project cost at the time of Compact negotiations, the economic return to these two projects is estimated at 14 percent.

[12] Disi is expected to come on-line in 2014.

[13] Costs associated with Disi water were considered when ERRs were calcualted for the As-Samra Expansion Project and the Wastewater Network Project.

5. Beneficiaries[14]

The estimated total number of beneficiaries for the Jordan Compact is three million, the sum of beneficiaries of each of the projects, net of beneficiaries who are expected to incur benefits from two or more of the projects, to avoid possible double-counting; methodology further detailed in **Table 3: Project Beneficiaries**.

Table 3: Project Beneficiaries

Projects	Beneficiaries	Estimation Methodology
Water Network Project	1,634,000	The projected total population of Zarqa Governorate who will benefit from the efficiency gains anticipated in the water supply network; over twenty years.
Waste Water Network Project and As-Samra Expansion Project	2,023,000	Population of Amman and Zarqa Governorates that will benefit from additional supplies of freshwater that can be transferred to these areas as larger volumes of treated wastewater will be available for substitution in the Jordan Valley, in addition to individuals in the Jordan Valley who are expected to benefit from consistent supplies of high-quality treated wastewater that can be used in irrigation; over twenty years.
Compact Total	**3,000,000**	Total beneficiary count for the Compact does not equal the sum of the project beneficiary counts due to overlaps between projects, i.e., some beneficiaries benefit from more than one project.

The **Water Network Project** is expected to benefit approximately 302,000 households, for a total of 1,600,000 individuals, over twenty years. This figure represents the projected total population of Zarqa Governorate who may benefit from the efficiency gains anticipated in the water supply network. This figure includes an estimated 110,000 households, for a total of 600,000 individuals who will benefit directly from changes in domestic expenditure or higher consumption of water provided through the water supply network.

The figure also includes an estimated 3,500 poor households, for a total of almost 19,000 individuals, who will benefit from direct assistance to rehabilitate their household water and sanitation systems under the Water Smart Homes Activity.

Within the Water Network Project an estimated four percent of beneficiaries will be among those living on less than US$2.00 per day on a purchasing power parity basis, with those living on US$2.00 – US$4.00 per day representing another quarter of the total beneficiaries.

[14] MCC's definition of a beneficiary is those individuals who realize improved standards of living, primarily through higher incomes, as a result of economic gains generated by the MCC-funded project…counting as beneficiaries all members of households that have at least one individual who realizes an income gain. http://www.mcc.gov/documents/guidance/guidance-economicandbeneficiaryanalysis.pdf. The beneficiary estimates include population growth and exclude accounts for double counting.

The **Wastewater Network Project** will provide direct benefits to the residents of East Zarqa and West Zarqa, where up to 19,000 households, for a total of approximately 100,000 individuals, will have opportunities to connect to new lateral sewer lines over the next twenty years and forego the installation, maintenance and potential health risks associated with the use of cesspits in an urban environment.

Together with the Wastewater Network Project, the As-Samra Expansion Project will benefit approximately 375,000 households, for a total of 2,020,000 individuals, in Amman and Zarqa Governorates. These households will benefit from additional supplies of freshwater that can be transferred to these areas as these Projects make larger volumes of treated wastewater available for substitution in agricultural applications in the Jordan Valley. This includes approximately 8,500 households in the Jordan Valley, for a total of 46,000 people that are expected to benefit from consistent supplies of high-quality treated wastewater that can be used for irrigation.

6. Assumptions and Risks

The program logic and expected outcomes and impact are based on specific assumptions about the linkages between individual project activities and the long-term goal of poverty reduction. These assumptions inform the economic return analysis while risks are external to program implementation but are likely to affect program success. The assumptions and risks for each of the projects are presented below in **Table 4: Assumptions and Risks**. Note that as the analysis for the Waste Water Network Project and the As-Samra Expansion Project is done in tandem, so too are the assumptions and risks.

Table 4: Assumptions and Risks

Assumptions	Risks
Water Network Project	
Of NRW, physical losses are assumed to be a much greater share than administrative losses. At baseline, total NRW is estimated at roughly 57% with 50% physical and 7% administrative losses (all figures as a percent of total system input).	If the share of administrative losses is actually much higher than the estimate, the overall NRW figure may not improve as predicted since the intervention addresses primarily physical, not administrative, losses.
Households consume treatment shop water to cope with the poor quality of network water. The intervention will improve network water quality by limiting the time the network is under no pressure and contaminated water can seep into the pipes. Quality will also improve when less air is present in the system (due to continuous supply) which will prevent the formation of rust. With improvements in quality, households will shift their source of drinking water from high cost treatment shop water to low cost network water, and therefore generate a net savings.	Consumption of treatment shop water may not decrease with improvements in network water. - First, treatment shop water may be consumed for reasons poorly correlated to quality of network water such as status. - Second, perceptions of poor quality of network water may persist due to customers having incomplete information.
Households consume tanker water to cope with the limited quantity and frequency of network water delivered. As the availability of network water improves, households will shift their source of water from high cost tanker water to low cost network water, and therefore generate a net savings.	Limited external risk.
Those consuming 50 liters per capita per day or less of water experience minor health costs (lost days of productivity and incurred medical expenses) since hygiene requirements are not 100% met. When these households are able to consume 60 liters of water or more, the health costs are eliminated.	Limited external risk.
Waste Water Network and As-Samra Expansion Projects	
Incremental freshwater substitution begins shortly after project completion and increases over a few years to reach 10 MCM per year.	Operational decisions may be taken to not increase or even reduce the amount of freshwater pumped out of the Jordan Valley. The Disi project will supply large quantities of freshwater to the municipal areas as scheduled in a fix priced contract. In response, water authorities may reduce the pumping out of the valley as municipal supplies could be met for several years based on the Disi increase (in the long term, substitution is very likely to resume).
Additional treated wastewater leads to incremental value-added as current supplies of water are notably short of optimum levels. Similarly, additional treated wastewater preserves the existing agriculture, which would otherwise be lost with diminishing supplies of water.	Any negative external shocks to the agriculture sector would diminish the magnitude of the assumed benefits (for example: a fall in output prices, unfavorable weather conditions, etc.).
The ERR assumes a significant number of people connect to the wastewater network in response to the project activities, thus increasing the volume of water collected and treated.	Actual connection rates may be short of the projected connection rates. If so, the substitution and incremental agriculture production would be reduced.

7. Monitoring

Monitoring is defined by MCC as "a continuous function that uses the systematic collection of data on specified indicators to gauge progress toward final program goals and achievement of intermediate results along the way". Effective project monitoring is considered to be essential for tracking disbursement of process indicators (financial and in-kind inputs) and the generated outputs and outcomes of those investments. Additionally, monitoring permits managers of MCA-Jordan to make programmatic adjustments as necessary with the view toward improving overall impact of the program.

7.1. Indicators

Indicators are used to measure progress toward the expected results throughout the implementation period. Different types of indicators are needed at different points in time to trace the Program Logic. All indicators should have a specified unit of measurement, which must align with MCC's approved list of units of measurement. Units may be added to this list at the request of an MCA if necessary, but they will be subject to MCC approval.

7.1.1. Indicator Levels

- **Goal Indicators**: These indicators measure the economic growth and poverty reduction that occur during or after implementation of the program. For MCC Compacts, goal indicators will typically be a direct measure of local income.
- **Outcome Indicators**: These indicators measure the intermediate effects of an Activity or set of Activities and are directly related through the Program Logic to the output indicators.
- **Output Indicators**: These indicators directly measure Project Activities. They describe and quantify the goods and services produced directly by the implementation of an Activity.
- **Process Indicators**: These indicators measure progress toward the completion of Project Activities. They are a precondition for the achievement of Output Indicators and a means to ascertain that the work plan is proceeding on time.

7.1.2. Common Indicators

Common indicators are used by MCC to measure progress across Compacts within certain sectors, as it pertains to the Jordan Compact these are water-specific as well as disbursement-related indicators. They allow MCC to aggregate results across countries and report to key external stakeholders. Common indicators may be specified at all indicator levels (process, output, outcome and goal).

7.2. Data Sources

Data sources have been identified and vetted for all the indicators listed in Annex 1, Indicator Tracking Table. Generally, monitoring data will be obtained from various primary sources, ranging from Implementing Entities (Ministry of Water and Irrigation, Water Authority Jordan, Water

Authority Jordan-Zarqa, Project Management Consultant, Authority Engineer and contractors) and Service Providers to the MCA/MCC surveys (notably the Department of Statistics). In addition, the MCA-Jordan M&E unit may obtain secondary data for the high level (Impact) indicators from the relevant government agencies including Department of Statistics and the Jordan Valley Authority.

7.3. Method of Data Collection

The data for many goal and outcome indicators will be drawn from surveys conducted by MCA-Jordan in conjunction with Implementing Entities and contractors, while the lower-level indicators will be drawn from the Project implementers' records. Indicators will be reported through a Management Information System (MIS). Data will be reported to MCA-Jordan on a monthly, quarterly, or annual basis, depending on the indicator's requirements. To ensure this, MCA-Jordan will set proper cooperation and collaboration with Implementing Entities and Contractors by putting necessary requirements for Contractors to develop and put in place proper reporting mechanisms, including potentially connection to MCA-Jordan' future MIS.

Where and if necessary, MCA-Jordan will commission surveys to collect special data in coordination with the institutions in charge of each project area. Data collection instruments (including surveys and data collection forms and registries) will be designed in a participatory manner with the teams of the relevant Implementing Entities. In order to provide for the specific needs of evaluations, Impact Evaluators shall be involved in the design of the surveys, including in setting the survey strategy, designing questionnaires and helping developing TORs for survey contractors. Beneficiary registries, kept by implementers, may serve as one source for the sample frames. Therefore the M&E Unit will need to coordinate with the projects to ensure these registries are sufficiently designed to serve as sample frames.

Additionally, M&E Unit will use data provided by the different implementing entities and the Project Management Consultant (PMC).

7.4. Indicator Baselines and Targets

To ensure that the Program is on track to meet its over-all Goals, every indicator selected has a baseline and target. To the extent possible, an indicator's baseline should be established prior to the start of the corresponding Activity. Baselines demonstrate that the problem can be specified in measurable terms, and are thus a pre-requisite for adequate intervention design.

Indicators in the M&E Plan, Annex 1, Indicator Tracking Table, include annual targets whenever possible and appropriate. MCC does not require quarterly targets; however, the MCA-J may choose to set quarterly targets for internal management purposes. Quarterly reporting of progress against annual targets is required by MCC, as documented in the M&E Plan, even though quarterly targets are not required.

7.5. Frequency of Data Collection

During the Compact period, data will be collected on a monthly, quarterly or annual basis, depending on the indicator.

Some of the Contractors and Implementing Entities will be required to report on project milestones and outputs quarterly, and the others annually. Those arrangements will be recorded in the respective contractor's TORs and Implementing Entity Agreements. Decision on frequency will be taken for each individual implementation agreement to reconcile MCA-Jordan need for fresh data with administrative burden and cost efficiency.

7.6. Data Quality and Data Quality Reviews (DQR)

M&E data is the key source of information on progress towards the achievement of Compact results and supports decision making by program managers. Ensuring that the underlying data are of good quality is essential to maintain a high level of confidence in the decisions that are made using the data.

Data Quality Reviews (DQR) are a mechanism to review and analyze the utility, objectivity, and integrity of performance information. DQRs cover a) quality of data, b) data collection instruments, c) survey sampling methodology, d) data collection procedures, e) data entry, storage and retrieval processes, f) data manipulation and analyses and g) data dissemination.

7.6.1. Data Quality Standards

MCA-J should seek to ensure that M&E indicators meet the following standards:

Validity: Data are valid to the extent that they clearly, directly and adequately represent the result to be measured. Measurement errors, unrepresentative sampling and simple transcription errors may adversely affect data validity. Data should be periodically tested to ensure that no error creates significant bias.

Reliability: Data should reflect stable and consistent data collection processes and analysis methods over time. Project managers and M&E staff should be confident that progress toward performance targets reflects real changes rather than variations in data collection methods. Reliability can be affected by questionable validity as well as by changes in data collection processes.

Timeliness: Data should be available with enough frequency and should be sufficiently current to inform management decision-making. Effective management decisions depend upon regular collection of up-to-date performance information.

Precision: Data should be sufficiently accurate to present a fair picture of performance and enable project managers to make confident decisions. The expected change being measured should be greater than the margin of error. Measurement error results primarily from weakness in design of a data collection instrument, inadequate controls for bias in responses or reporting; or inadequately trained or supervised enumerators.

Integrity: Data that are collected, analyzed and reported should have mechanisms in place to reduce the possibility that data are subject to erroneous or intentional alteration.

7.6.2. Conducting a Data Quality Review

MCC requires that an independent entity conduct the DQR, such as a local or international specialized firm or research organization, or an individual consultant, depending on the size of the Program or Project in review. The MCA-J is responsible for selecting, awarding and administering DQR contracts in accordance with MCC's *Program Procurement Guidelines*.

Data quality review on the indicators in the M&E Plan and the data reported against them will be commissioned at the end of year 1 for WAJ-Zarqa *utility*-related indicators, and years 2 or 3 for construction dependent indicators (subject to the starting date of the construction works). Data quality reviews will also be conducted on data and metadata obtained by surveys that will be used for evaluation purposes.

The reviews will be thoroughly documented in a report that will describe any weaknesses found in the a) data collection instruments, b) data sampling and/or collection methods, c) handling and processing of data by responsible entities, or d) reporting procedures. The report should also make recommendations for remedying those weaknesses where possible. Where a remedy is not technically possible or cost-effective, the report should identify replacement indicators or data sources that would be more accurate and efficient.

The M&E Director and other Officers within MCA Jordan, as appropriate, the Independent Impact Evaluator, and the IEs should also regularly check data quality. In doing so, MCA-J may hire individual data quality monitors to monitor data collection and quality, as needed. Besides independent DQRs, the MCA-J M&E Unit will also conduct field visits on a regular basis or whenever requested by MCC, to review the quality of the data gathered through this M&E Plan. This exercise will be done in coordination with the respective project stakeholders.

7.7. Gender Analysis

Relevant gender considerations are incorporated into the Jordan M&E Plan and M&E activities. **Table 5**: specifies which indicators will be disaggregated by gender at the household level. i.e. households headed by females.

In Jordan, targets are not required for the number of women or men being served by a Project or Activity as the project designs are not directly linked to performance to gender-specific outcomes.

The following indicators will be disaggregated by gender, age and/or income and will be reported as such:

Table 5: Indicators Disaggregated by Gender at the household level

Indicators
Water Network Project
Use of tanker water
Use of treatment shop water
Prevalence of waterborne disease
Dissatisfaction with supply service
Dissatisfaction with water quality
Water Smart Homes Activity
Number of people that received on-site training on residential water best management practices
Number of poor households with improved water and wastewater infrastructure
Number of households connected to the wastewater network as a result of the WSH project

Where feasible, the evaluations will identify additional indicators to be disaggregated by sex, age and/or income and methodologies to assess the impact of the project on women and children.

7.8. Reporting Performance Against the M&E Plan

The Disbursement Request and Reporting package is submitted by MCA-J to MCC on a quarterly basis. This includes the completed ITT, which displays performance targets (projections) and tracks progress against them (actual), as well as a corresponding narrative report which explains progress made and performance and any reasons for deviations from the targets when applicable.

The overall narrative report is the responsibility of all staff of MCA-J and provides a brief description of the previous quarter's performance and explains how requested funds will be used in the coming quarter. The narrative report, which is not a public document and is limited to five pages, includes the following:

- Status of implementation of activities planned during the previous quarter for each component of the program and provide explanations in case there are deviations from the plans,
- Challenges that might affect implementation and propose measures to address the challenges,
- Significant M&E activities that took place during the quarter such as data collection, M&E Procurements and results of any M&E studies.
- Analysis of data and information from the ITT

The quarterly reports are submitted from MCA-J M&E to MCA Project Directorates for review and approval before being submitted to MCA-J management. The quarterly progress reports are then submitted to MCC management for review. Additional guidance on reporting is contained in MCC's *Guidance on Quarterly MCA Disbursement Request and Reporting Package*.

8. Evaluation Component

Evaluation is an essential element of the Jordan Compact. While good program monitoring is essential for program management, it is not sufficient for assessing ultimate results. Programs must also undergo evaluations in order to better understand the effectiveness of the program.

Evaluations assess as systematically and objectively as possible the Program's rationale, relevance, effectiveness, efficiency, merits, sustainability and impact. The evaluations will strive to estimate the impacts on the targeted beneficiaries.

To the extent possible, evaluations should answer the following questions:

1. Were the Compact Goals, Objectives and Outcomes achieved? Why or why not?
2. What were the results of the intervention – intended and unintended, positive or negative?
3. Was the Project cost effective, analyzed through re-estimated economic rates of return, comparisons to original estimates, and assessment of differences?
4. Are there differences in impact of the program, be gender, age and income, if feasible?
5. What are the lessons learned and are they applicable to other similar projects?

The evaluation strategy will be based upon scientific models that ensure the advantages of neutrality, accuracy, objectivity and the validity of the information. These models will comprise experimental and quasi-experimental designs as well as statistical modeling. Methodologies will be selected considering cost-effectiveness.

The evaluations will provide MCC, MCA-Jordan and other stakeholders with information during the Compact on whether or not the intended outcomes are likely to be achieved and at the Compact's end on the impacts that are attributable to the Program. Evaluation results will be used by the Government of Jordan (Ministry of Health, Ministry of Water and Irrigation, a Ministry of Social Development, and Ministry of Water and Irrigation) and other donor agencies, to understand the real changes caused by the program in terms of health conditions, change in behavior towards water management practices and improvements in income. MCC and MCA-Jordan will consult with GoJ, civil society and other donor agencies to identify research questions and to assist in the prioritization of the projects and/or activities to be evaluated. It is anticipated that this coordination will help to better ensure that the results of the evaluations are incorporated into future related investments and relevant policies.

8.1. General Approach to Evaluation and Surveys

8.1.1. Mid-Course Evaluations

The term "Mid-Course Evaluations" is meant to include a wide range of possible evaluations and assessments, including interim activity reviews, mid-term reviews, mid-term evaluations, ad hoc evaluations, special studies, qualitative studies, and process evaluations.

Mid-Course Evaluations are not required for all Projects. However, MCC may decide to conduct such evaluations as necessary. MCA-J may also consider conducting Mid-Course Evaluations to review progress during implementation, compile lessons learned, and provide a qualitative context

for interpreting monitoring data. Mid-Course Evaluations can be used to improve the effectiveness and efficiency of implementation during the life of the Compact.

Depending on the type of Mid-Course Evaluation, it may be performed by a third party procured by either MCC or MCA-J or carried out directly by MCC or MCA-J staff.

8.1.2. Compact completion assessments

Upon completion of each Compact program, MCC will comprehensively assess three fundamental questions:

1. Did the program meet its objectives;
2. Why did the Compact program meet or not meet these objectives; and
3. What lessons can be learned from the implementation experience (both procedural and substantive).

MCA-J staff drafts the Compact Completion Report (CCR) in the last year of compact implementation to evaluate these fundamental questions and other aspects of Compact program performance. After MCA-J staff drafts the CCR, MCC staff then draft the Post-Completion Assessment Report (PCAR) within 6 months after the compact ends to evaluate these same fundamental questions and other aspects of Compact program performance.

8.1.3. Final Independent Evaluations

All independent evaluation reports are publicly available and posted to the MCC and MCA-J website to ensure transparency and accountability.

8.2. Evaluation Objectives

Final evaluations support two objectives derived from MCC's core principles: accountability and learning. Accountability refers to MCC's obligation to report on its activities and attributable outcomes, accept responsibility for them, and disclose these findings in a public and transparent manner. Learning refers to improving the understanding of: 1) the causal relationships between interventions and changes in poverty and incomes; and 2) the long-term value of their costs and benefits.

8.3. Evaluation Approaches

MCC advances the objectives above by selecting from a range of independent evaluation approaches. MCC currently distinguishes between two types of evaluations, impact and performance evaluations, as defined below. At the minimum, each project should have an independent performance evaluation for accountability reasons.

i. **Impact Evaluation –** A study that measures the changes in income and/or other aspects of well-being that are *attributable* to a defined intervention. Impact evaluations require a credible and rigorously defined counterfactual, which estimates what would have happened

to the beneficiaries absent the project. Estimated impacts, when contrasted with total related costs, provide an assessment of the intervention's cost-effectiveness.

ii. **Performance Evaluation** – A study that starts with descriptive questions, such as: what were the objectives of a particular project or program, what the project or program has achieved; how it has been implemented; how it is perceived and valued; whether expected results are occurring and are sustainable; and other questions that are pertinent to program design, management and operational decision making. MCC's performance evaluations also address questions of program impact and cost-effectiveness.

MCC balances the expected accountability and learning benefits with the evaluation costs to determine what type of evaluation approach is appropriate. Impact evaluations are performed when their costs are warranted by the expected accountability and learning. MCC and MCA-Jordan will consult with GoJ, civil society and other donor agencies to identify research questions and to assist in the prioritization of the projects and/or activities to be evaluated. Specific guidelines and standards for the selection, preparation, review and dissemination of performance and impact evaluations will be issued by MCC.

To ensure impact evaluations are of high quality and independent, MCC will directly contract independent evaluators to help design the methodology and data collection instruments for either impact evaluation or performance evaluation. The evaluators will be engaged before and during implementation to ensure that the process of beneficiary selection and data collection efforts will proceed as planned.

Whether a Project or Activity will undergo an impact evaluation or performance evaluation will be determined and included in a revised version of the M&E Plan in December 2012, prior to the start of Year 2. Taking into consideration accountability and the learning potential of evaluations, MCC and MCA-J in collaboration with GoJ, civil society and other donor agencies will prioritize the evaluations to be undertaken and help identify research questions.

Potential research questions and evaluations methodologies are put forth below (**Table 6, Table 7 and Table 8).** It is, however it is expected that these evaluation methodologies and questions will be further refined once an evaluator is contracted by MCC to advise on evaluation design methodologies.

Table 6: Evaluation of Water Network Project - Infrastructure Activity

Research Questions	Indicator(s)/Variable(s)	Source / Dataset
Did the infrastructure improvements affect the operational performance of the water utility?	• Operating income of utility • Non-revenue Water (NRW) • Physical portion of NRW* • Administrative portion of NRW* • Continuity of Supply (hours/week) • Water quality • Cost recovery of tariff	• Utility data • Household Survey
Did the infrastructure improvements reduce the cost of water supplied to households?	• Total household expenditure on water (public network, tanker water, treatment shop water, and bottled water) • Effective price of water price	• Household Survey
Did the infrastructure improvements increase the quantity of water consumed by households?	• Total household water consumption	• Household Survey
Did the infrastructure improvements reduce the incidence of diarrhea?	• Incidence of diarrhea • Cost of treating diarrhea • Mortality rates • DALY (to be calculated)	• Household Survey
Did the infrastructure improvements increase consumer satisfaction?	• Dissatisfaction with supply service • Dissatisfaction with water quality	• Household Survey
Did the infrastructure improvements contribute to increased household income?	• Household income • Expenditures • Time use • Asset values • *TBD*	• Household Survey

Evaluation Design

- *Utility Related Variables* – The Infrastructure Activity will affect Zarqa Water Directorate as a whole, therefore, comparisons are possible between the utility's performance before and after the intervention accounting for any apparent time trend. The utility could also be benchmarked relative to comparator utilities of varying size, context and populations.
- *Household Related Variables* – Neighborhoods outside of Zarqa Governorate or areas receiving improved service could serve as comparison groups under a rough matching strategy. To complement/back-up the matching strategy, a before and after strategy could be employed with the same data, however, issues of unobservable endogenous characteristics would need to be accounted for

Additionally, Zarqa Governorate is home to an estimated 50% of Jordan's small scale industry and at the moment it is not understood what, if any, impacts will be had on enterprises as a result of the intervention. During year one of the Compact, the M&E Team will conduct further due diligence on these commercial enterprises and the feasibility of undertaking an Enterprise Survey to better understand the impact and linkages of water available and quality with business outcomes.

Table 7: Evaluation of Water Network Project - Smart Water Homes Activity

Research Questions	Indicator(s)/Variable(s)	Source / Dataset
Did awareness of household storage on water quality increase?	*TBD*	• Household Survey • Potential qualitative methods to be explored
Did practices related to minimizing contamination storage at the household increase?	*TBD*	• Household Survey • Potential qualitative methods to be explored
Did actual water quality improve?	• Nephelometric turbidity • Coliform Microbial Density • Free Chlorine Residual	• Household Survey • Water testing (TBD)
Did household expenditure on water decrease because of the activity?	• Total household expenditure on water (public network, tanker water, treatment shop water, and bottled water) • Effective water price	• Household Survey
Did health outcomes improve?	• Incidence of diarrhea • Cost of treating diarrhea • Mortality rates • DALY (to be calculated)	• Household Survey
Did household income increase?	• Household income • Expenditures • Time use • Asset values • *TBD*	• Household Survey

Evaluation Design

National Aid Fund recipients are the target population for the WSH Activity; a before/after comparison of key indicators could be employed. If the activity were to be over-subscribed, a randomized control treatment design may be suitable, subject to cost-effectiveness of said strategy and the opportunity to learn and apply.

Table 8: Evaluation of Wastewater Network & As- Samra Expansion Projects

Research Questions	Indicator(s)/Variable(s)	Source / Dataset
Did water substitution take place?	• TBD	• TBD
How much value added is preserved/added in agriculture downstream of the As-Samara plant because of water quality and quantity changes associated with the intervention?	• Hectares under production • Cropping pattern • Productivity/income per hectare by crop	• JVA data • For crop specific incomes, investigations are required for best data source
What is the value of water made available for municipal as a result of substitution associated with the activities?	• Volume of effluent from As-Samra plant • Volume of water pumped from Jordan Valley to Amman • Value of water in municipal sector	• WAJ and JVA statistics • Existing estimates of value of m3 of water in Jordan (or independent analysis of Household Survey data)
Does the project lead to an increased rate of adoption of improved sanitation?	• Sanitation access	• Household Survey
By how much does the project reduce household expenditure on wastewater disposal?	• Cost of maintaining cesspits/septic tanks • Cost of using public sewage network	• Household Survey
Does the project reduce the incidence of disease?	• Incidence of diarrhea • Cost of treating diarrhea • Mortality rates • DALY (to be calculated)	• Household Survey
By how much does the project increase HH income?	• Household income • Expenditures • Time use • Asset values • *TBD*	• Household Survey

Evaluation Design

The methodology is a before/after comparison, taking into account pre-existing trends. Potentially an Agriculture Survey would need to be commissioned.

9. Implementation and Management of M&E

Implementation of MCA–J M&E activities will be done by MCA–J Project/Sector Directors/Managers and will be coordinated by the M&E Directorate. The M&E Director will be a part of MCA-J's key staff, composed of MCA-J leadership, Project Directors and other Directors. M&E Director will report directly to the MCA-J Deputy Director for Finance and Administration and maintain close cooperation with the Project Directors, and ESA and Gender Directors. Collaboration with procurement team will be very important to prepare and undertake procurements of M&E -related contracts as well as ensuring that other implementation contracts contain necessary data reporting provisions.

9.1. M&E Unit Structure and Responsibilities

The M&E Director will be responsible for overall monitoring and evaluation of the program, specifically:

- Manage all M&E-related staff, consultants and contracts,
- Develop and supervise an ongoing monitoring and evaluation strategy;
- Ensure that M&E Plan and Economic Rates of Return (ERR) analysis are modified and updated with improved information (updating indicators, baselines and targets upon the receipt of information from technical studies and in-take surveys), where any indicator, baseline and target revisions must be approved by MCC and follow revision procedures noted below;
- Establish the data collection, analysis, and reporting system for the overall program;
- Overseeing data collection from all sources (e.g. DoS, WAJ, JVA, and MWI) and the design of a data management system;
- Participate in the monitoring of performance of individual program components directly through project visits, reviewing project reports, and reviewing secondary data and analysis;
- Develop (with the Communication Unit and ESA/Gender officers) and implement a systematic dissemination approach to ensure participation of all the stakeholders, and to facilitate feedback of lessons learned into the compact implementation process;
- Participate in project monitoring through site visits, review of project reports, and analysis of performance monitoring and other data;
- Collaborate with the Procurement Director to prepare and conduct procurement of various M&E contracts (e.g., Monitoring System, Mid-term Evaluations, Data Quality Review(s), and Surveys).
- Organize and oversee data quality reviews (DQR) and ensure quality of data;
- Ensure development and execution of an Management Information System for all information related to the Projects M&E;
- Develop a schedule for Mid-term Evaluations and process for selecting independent evaluators;
- Cooperate with third party Impact Evaluation specialist(s) for the design, implementation and dissemination of the various evaluations;
- Publish periodical reports of the ongoing program monitoring and evaluation that are submitted to MCA-Jordan Board and MCC; and making them publicly available on the MCA-Jordan website;

- Develop and oversee the M&E budget.

An M&E Coordinator with an econometric background will support the M&E Director in performing the M&E activities, specifically:

- Assist the Director of Monitoring and Evaluation in the design of monitoring and evaluation plans for projects implemented;
- Support structures for monitoring and evaluation of the various entities under implementation in the establishment and management of such plans, including but not limited to the MIS system;
- Working with the Director of Monitoring and Evaluation in the preparation of periodic reports to monitor project performance;
- Assist the Director of Monitoring and Evaluation in the development of terms of reference for various evaluations;
- Assist the Director of Monitoring and Evaluation in the supervision of the evaluation studies conducted by the MCC.
- Work closely with the structures of monitoring and evaluation of implementing entities and experts from the MCC

Additionally, the M&E Unit will hire short-term support on an as needed basis. The M&E Unit will carry out, or hire contractors to complete the following and other related activities:

- Direct implementation of all activities laid out in the M&E Plan and ensure all requirements of the M&E Plan are met by MCA-J;
- Oversee development and execution of an M&E system (including data-collection, data-analysis and reporting systems) integrated with the Management Information System;
- Elaborate and document M&E Policies, Procedures, and Processes in an M&E Manual or other format, to be used by all MCA-J staff and project implementers;
- Ensure that MCA-J M& E and project staff, and their counterparts in the implementing entities have the skills and knowledge to conduct the activities specified in this plan.
- Communicate the M&E Plan and explain the M&E system to all key stakeholders involved in the Compact, particularly project implementers, to ensure a common understanding by all. This could take the form of orientation and capacity building sessions and could focus on issues as:
    - Explaining indicator definitions, data collection methods, and timing/frequency of data collection and reporting,
    - Data quality controls and verification procedures,
    - Impact evaluation questions and methodology, etc;
- Update the M&E Work Plan periodically;
- Contribute to the design of the impact evaluation strategy;
- Collaborate with the Procurement Director to prepare and conduct procurement of M&E contracts;

Seminars, workshops, elaboration, distribution and dissemination of M&E materials shall be conducted in close cooperation with the Communications Unit and other relevant MCA-J Units.

9.2. Implementing Entities

In accordance with the terms of the Compact, MCA-Jordan will be the Accountable Entity. As the Accountable Entity, it has the overall responsibility for implementation of all of the Projects and Activities. To carry out the management responsibilities related to the program, MCA-Jordan intends to request the assistance of other GoJ authorities. The major participants will include:

9.2.1. Water Authority of Jordan (WAJ)

WAJ is an entity of the Ministry of Water and Irrigation, which is Jordan's official body responsible for the overall monitoring of the water sector, including water supply and wastewater management. Relative to the Compact projects, WAJ can be considered as the original oversight agency. Because no Accountable Entity existed at the beginning of the preparatory works phase of the program, WAJ was designated as the responsible agency for selecting the original study consultants and As-Samra Expansion Project Technical Advisor, followed by administration of those contracts.

Following designation of the Accountable Entity, WAJ's primary role in the implementation of the Compact projects shifted to support MCA-Jordan in overseeing the implementation of the Compact program. WAJ has entered into an Implementing Entity Agreement with MCA-Jordan that outlines WAJ's responsibilities during the Compact, as they pertain to M&E issues:

- Cooperate with MCA-Jordan, its officers, consultants, and contractors in all matters related to the implementation of the Projects;
- Assist in implementation of the Projects through sending letters, direct interference, facilitating meetings, or any other way of communication with other governmental departments, local authorities or municipalities;
- Enable MCA-Jordan and its officers, consultants, contractors, and any visitors and monitoring parties assigned by it or by MCC to freely enter any premises related to the Projects;
- Cooperate with all requests for information or action by MCA-Jordan and its agents, officers and directors in the performance of its responsibilities;
- Update MCA-Jordan about the progress in implementation of the other projects to rehabilitate and expand the waste water pumping stations in Zarqa Governorate.

9.2.2. Zarqa Governorate Water Administration

The Zarqa Governorate Water Administration is a subsidiary agency of WAJ. It is responsible for water transmission and distribution and wastewater collection and conveyance throughout the Zarqa Governorate.

The GoJ is looking into the possibility of corporatizing this agency through formation of the Zarqa Water Company. The resulting water company and its Management Contractor would have limited direct involvement in implementation of the Compact projects, with their primary roles and responsibilities being as follows:

- Provide input as requested by contractors

- Provide staff for required training by contractor
- Coordinate commissioning of the new facilities at interfaces with existing facilities.
- Participate in facility commissioning and final inspection.

9.2.3. Program Management Consultant (PMC)

The PMC services during Compact Implementation are divided into three general activities. First, the PMC will provide general program management services for the Water Network Project and the Wastewater Network Project. In addition, given that these projects will be performed using the Federation Internationale des Ingenieurs-Conseils (FIDIC) Conditions of Contract, along with MCC's Conditions of Particular Application, the PMC will also serve as the Engineer, as defined by FIDIC, for both the Water Network Project and the Wastewater Network Project. The Engineer serves as the Employer's (MCA-Jordan) representative during construction.

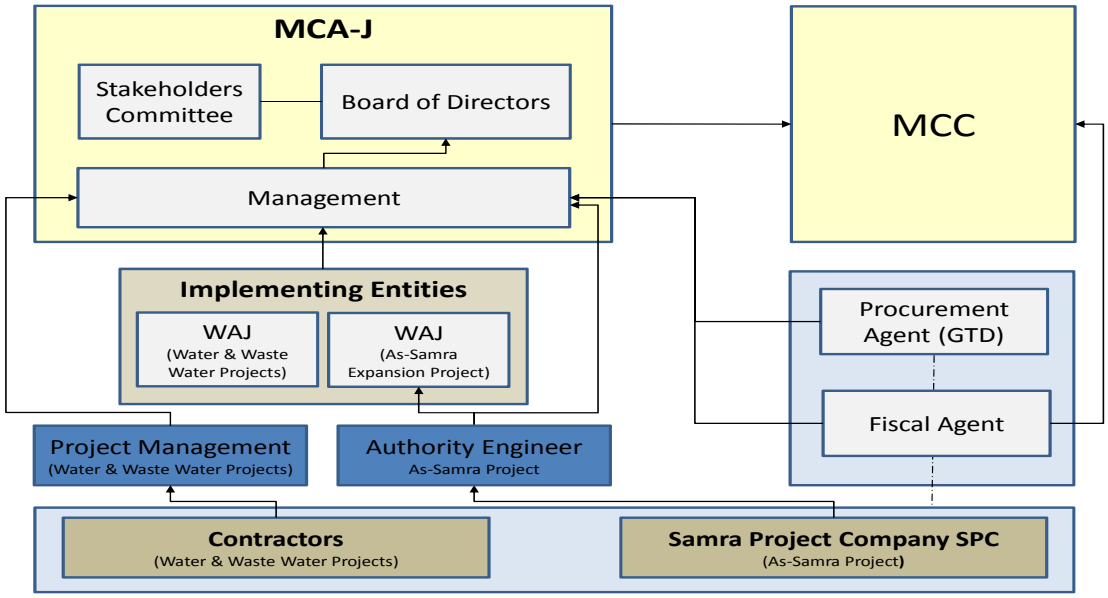
As the party providing assistance to the MCA-J for the implementation of the Compact projects, the PMC's primary role and responsibility as they pertain to M&E is to prepare and submit progress reports in a form compatible to MCA-Jordan's Management Information System to assist in meeting MCC's reporting requirements; monthly, quarterly and annual reports. These reports shall include:

- A description of work completed during the preceding month.
- A forecast of major work elements to be undertaken in the coming month.
- A discussion of anticipated problems/issues.
- A review of the program schedule, specifically showing actual progress on the project versus planned progress.
- Description of the principal quarterly activities done by PMC and their accomplishments (including progress against Compact outcome targets and progress indicators).
- Description of work and interventions by the PMC in the activity of other consultants and contractors, including a summary of the project budgets and timeline, and covering needed remediation steps.
- Updated planned activities for upcoming quarter with a description of the major activities as detailed in the approved work plans. Explanations of any significant modifications or changes to the approved work plans and detailed budgets should be provided.
- Updated Risk Management Report including an analysis of project progress, risks, timeline and explanations of any significant flaws and deviation or modifications from the work plans and timelines. The PMC shall make recommendations for corrective or mitigation measures, as necessary.
- A performance evaluation of the entire program, with adequate concise narrative and graphic depiction of the annual performance metrics compared with baseline work plans and other data, as appropriate.

9.3. Reporting/Data Flow Structure of MCA-Jordan Compact:

The contractors for the Water Network Project and the Waste Water Network Project shall report through the Project Management Consultant and then through to the MCA-J Management and Board of Directors. The Samra Project Company (SPC) reports to the Authority Engineer and goes through the Water Authority which subsequently flows through to the MCA-J, as shown in the Figure 3.

Figure 5: Reporting/Data Flow Structure of Jordan Compact



9.4. M&E Work Plan

One of the key instruments of this M&E Plan is the M&E Work Plan, which establishes the timeline for all Monitoring and Evaluation activities. Since the work plan is a planning tool in a dynamic Compact implementation environment, annual or quarterly revisions are expected, and such revisions will be discussed with MCC.

9.5. Management Information System

Monitoring and evaluation (M&E) is an integral component of any successful project. Results of the M&E help MCA-J, its Board of Trustees, Stakeholders Committee, Auditor, and Management Team, Implementing Entities which include the Ministry of Water and Irrigation, Water Authority of Jordan, Water Authority of Jordan – Zarqa, Jordan Valley Authority and the Department of Statistics, beneficiaries, and other stakeholders know the progress being made toward the achievement of outcomes and results.

It is expected that a comprehensive Management Information System (MIS) will be developed for all of MCA-J. The MIS that will assist in the collection, analysis and dissemination of information on targets and outcomes specific to the Compact. As planned, M&E MIS needs will be met through this system. The system will allow:

- regular and quick flow of data between the various MCA-Jordan divisions and that of Monitoring & Evaluation;
- data collection on the evolution of the activities and all of the indicators;
- compatibility with existing and new data bases (e.g. PMC, WAJ, MWI);
- production of clear, relevant and accessible status reports;
- receipt of and response to information requests;
- updated availability to all stakeholders of current information on the program's progress for compliance, management and decision tracking.

The system should have the following criteria:

1. Web Interface and Streamlined Data Reporting
2. Generation of Reports
3. M&E Analytics: Charts, reports and maps, and applications as: MS Word, MS Excel, MS Project and Adobe PDF
4. Transparency, Accountability and Security

The M&E Director will be responsible for ensuring that M&E needs are addressed during the development of the comprehensive system.

Until a comprehensive MIS is developed and functional, the M&E Director will be responsible for establishing and maintaining a basic MIS to meet the requirements of the MCC M&E Policy.

9.6. Capacity Building

The MCA-J M&E unit will continuously familiarize stakeholders, including MCA-J and Implementing Entities staff, on how program performance will be measured. Specific training on M&E may be required for implementers to comply with the M&E plan. Additionally, in order to ensure stakeholders understand how M&E activities will be implemented, the MCA-J M&E Plan will be updated and circulated to relevant stakeholders.

9.7. M&E and Transparency

MCC is committed to transparency and making information available to the public. MCA-J is required to post the M&E Plan on their websites after it has been approved by MCC. In addition, MCC and MCA-J will regularly publish results and M&E information such as ITT indicators on its website.

MCC is committed to publicly sharing evaluation plans and methodologies, final evaluation reports, baseline reports, datasets and metadata financed through MCC resources, and analytical reports. The data sharing is meant to ensure potential replication of evaluations assessing the impact of MCC's Projects and to inform future data-gathering and research efforts. For more information see MCC's *Guidelines for Public Use Data* (forthcoming).

9.8. Review and Revision of the M&E Plan

9.8.1. MCC Peer Review and Approval of Initial M&E Plan

The M&E Plan must be formally approved by MCC. The M&E Plan will undergo peer review within MCC before formal approval. Prior to its submission to MCC, the initial M&E Plan must be approved by the MCA Board of Directors.

9.8.2. Modifying M&E Plan

The M&E Plan will be revised as needed during the life of the Compact to adjust to changes in the Program's design and to incorporate lessons learned for improved performance monitoring and measurement. The M&E Plan may be modified or amended without amending the Compact. However, any such modification or amendment of the M&E Plan by MCA-J must be approved by MCC in writing and must be otherwise consistent with the requirements of the Compact and any relevant Supplemental Agreements. With notice to MCA-J, MCC may make non-substantive changes to the M&E Plan as necessary. Some examples of non-substantive changes could include revising units to correspond to MCC's approved list of units of measurement or standardizing indicator names.

10. Budget

The budget for the implementation of the proposed M&E activities for the five-year term of the Compact is US$ 2.8 million. The line items of this budget will be reviewed and updated as the program develops, on annual or quarterly basis, when the respective quarterly detailed financial plan is submitted to MCC with the quarterly disbursement request.

The M&E budget does not include the M&E staff in the MCA-Jordan Management Unit whose salaries are included in the administrative budget of the Compact. The budget should not exceed the total amount over the five years, but the distribution of funding between line items and years may be adjusted according to the results of the M&E Plan's annual reviews or quarterly if needed.

Table 9: M&E Budget per Activity over the Compact Period

Activity	Budget (in USD Thousands)	
	Original	Mar-12
Development and implementation of an M&E information system (including equipment, ongoing support, and training)	$300	$300
M&E Training	$30	$60
Performance Indicator Monitoring: Compiling & Analysis, Data Quality Review	$199	$199
Collecting Data and Surveys: Household surveys, special studies/consultancies	$1,842	$1,812
Midterm and Final Evaluations	$350	$350
Communication	$89	$89
Total	**$2,810**	**$2,810**

Please refer to Annex 2 to see the modifications to the budget as originally presented in Compact document.

11. Annexes

Annex 1: Indicators Tracking Tables: Indicator Names + Definitions, Baseline and Targets, Source, Methodology of Data Collection and Timing/Frequency of Data Collection

Table 1: Compact Program Goal and Outcome Indicators

Origin of Indicator: Annex III, New, Common	Result	Indicator Name	Definition	Unit	Classification	Targets						Source	Methodology of Data Collection	Timing/Frequency of Data Collection
						Baseline	Year 1 2012	Year 2 2013	Year 3 2014	Year 4 2015	Year 5 2016			
Program Goal Level														
Annex III	Poverty Reduction and Economic Growth	Poverty rate in Zarqa Governorate	Official poverty rate in Zarqa Governorate.	Percentage	Level	11.2% [1]						Department of Statistics	Household Income and Expenditure Survey	TBD
Program Outcome Level: Cross-cutting Results														
Annex III	Effective supply of water increased through improvement in water delivery, extension of waste-water collection, and expansion in waste-water treatment	Network water consumption per capita (residential and non-residential)	For Zarqa Governorate: [Annual billed residential and non-residential (in m3)] / [population of governorate] * 1000 / 365 (l/c/d).	l/c/d	Cumulative	65	65	67	70	83	96	WAJ-Zarqa	Subscriber Directorate - Administrative Reprots	Quarterly
Annex III & Common WS-14		Total residential water consumption	Billed residential network water consumption + tankers, treatment shops, and bottled water (l/c/d).	l/c/d	Cumulative	62	62	64	67	79	89	WAJ-Zarqa; Department of Statistics	Subscriber Directorate - Administrative Reprots; Household Survey	Year 4 TBD & Y5
New	Effective supply of water increased through improvement in water delivery, extension of waste-water collection, and expansion in waste-water	Billed residential water consumption	Billed residential network water consumption (l/c/d).	l/c/d	Cumulative	57	57	59	62	73	88	WAJ-Zarqa	Subscriber Directorate - Administrative Reports	Quarterly
New & Common: WS-10	Improve financial sustainability	Operating cost coverage	Total quarterly operational revenues divided by total quarterly operating costs. Calculation: OPC = R/C where: OPC = Operational Cost Coverage R = Total Quarterly Operationa Revenue C = Total Quarterly Operational Cost (including maintenance)	Percentage	Level	TBD	81%	83%	98%	100%	100%	WAJ Amman Financial Reports	WAJ Zarqa adminstrative reports	Annually
New	Improve financial sustainability	Outstanding Debt	Account receivable compared with annual sales.	Percentage	Cumulative	TBD	TBD	TBD	TBD	TBD	TBD	WAJ Zarqa Financial Reports	WAJ Zarqa adminstrative reports	Quarterly

[1] Poverty Baseline is from the Department of Statistics 'The Status Report of Poverty in Jordan: Based on Household Income and Expenditure Survey 2008'; July 12,2010.

Table 2: Water Network Project Outcome, Output and Process Indicators

Origin of Indicator: Annex III, New, Common	Result	Indicator Name	Definition	Unit	Classification	Targets						Source	Methodology of Data Collection	Timing/Frequency of Data Collection
						Baseline	Year 1 2012	Year 2 2013	Year 3 2014	Year 4 2015	Year 5 2016			
Outcome Level														
Annex III	Decrease cost to households of meeting subsistence water needs	Use of tanker water	Annual average quantity of tanker water consumed per person (l/c/d) in Water Network Project areas[1].	l/c/d	Level	4.7				2	1.2	Department of Statistics	Household Survey	Year 4 TBD & Y5
		Use of treatment shop water	Annual average quantity of treatment shop water consumed per person (l/c/d) in Water Network Project areas[2].	l/c/d	Level	0.4				0.25	0.2	Department of Statistics	Household Survey	Year 4 TBD & Y5
Annex III & Common Indicator: WS-16	Increase human productivity	Incidence of diarrhea	The percentage of individuals reported as having diarrhea in the two weeks preceding the survey.	Percentage	Level	TBD				TBD	TBD	Department of Statistics & Ministry of Health	Household Survey	Year 4 TBD & Y5
New & Common Indicator: WS-16		Incidence of diarrhea, under age five	The percentage of individuals reported as having diarrhea in the two weeks preceding the survey under age five.	Percentage	Level	9%				8%	7%	Department of Statistics & Ministry of Health	Household Survey	Year 4 TBD & Y5
Annex III	Improve satisfaction of network water delivery	Customer Dissatisfaction with supply service	Percent of water utility customers "very dissatisfied" or "quite dissatisfied" with frequency, duration, and pressure of supply (average of the three dimensions) in Water Network Project areas[3].	Percentage	Level	34%				30%	26%	Department of Statistics	Household Survey	Year 4 TBD & Y5
		Customer Dissatisfaction with water quality	Percent of water utility customers "very dissatisfied" or "quite dissatisfied" with potability of network water in Water Network Project areas[4].	Percentage	Level	60%				48%	40%	Department of Statistics	Household Survey	Year 4 TBD & Y5
Annex III & Common Indicator: WS-8	Improve efficiency of network water delivery	Non-revenue water	Difference between water supplied including water imported and water sold including exported (i.e., volume of water "lost") expressed as a percentage of water supplied including water imported. [(Production + Imports) - (Exports + Accounted Water)] / (Production + Imports)	Percentage	Level	50%	48%	46%	44%	36%	35%	WAJ Zarqa; PMC	WAJ Zarqa adminstrative reports; PMC administrative reports	Quarter
Annex III [7]		Continuity of supply time	Hours of supply/week (during the summer)[5].	Hours per week	Level	36	36	36	48	57	70	WAJ Zarqa; PMC	WAJ Zarqa adminstrative reports; PMC administrative reports	Annual
Annex III	Condition of household water systems improved	Households cleaning their water storage facilities	Percent of households cleaning their domestic water storage facilities in Water Smart Homes Activity area[6].	Percentage	Level	56%				62%	65%	Department of Statistics	Household Survey	Year 4 TBD & Y5

[1] The baseline figure refers to all of urban Zarqa. The target will be measured only against areas planned for assistance under the Compact. If the update to the baseline survey reveals a significant difference between the figure for all of urban Zarqa and the areas planned for assistance under the Compact, an adjustment to the baseline and target will be noted in the M&E Plan ensuring that the magnitude of the improvement by Year 5 remains consistent with that of the Compact.

[2] Ibid.

[3] Ibid.

[4] Ibid.

[5] Ibid.

[6] Ibid.

[7] Per MCC Common Indicator WS-9, continuity of supply time is measured in hours per day, given the particular nature of water deivery in Jordan, number of hours per week, at this moment this indicator will not feed into MCC's Common Indicators.

Origin of Indicator: Annex III, New, Common	Result	Indicator Name	Definition	Unit	Classification	Targets						Source	Methodology of Data Collection	Timing/Frequency of Data Collection
						Baseline Value	Year 1	Year 2	Year 3	Year 4	Year 5			
Water Network Project - Smart Homes Activity Output Level														
New	Raise awareness about water best management practices	Number of people that received on-site training on residential water best management practices	This includes the individuals that received training and education on residential best management practices as a result of the Water Smart Homes -infrastructure activity.	Number	Cumulative	0	0	0	1,300	2,600	3,500	TBD; Oct. 2012	Administrative report	Quarterly
		Number of females that received on-site training on residential water best management practices	This includes the females that received training and education on residential best management practices as a result of the Water Smart Homes Activity - infrastructure activity.	Number	Cumulative	0	0	0	TBD; Oct. 2013	TBD; Oct. 2014	TBD; Oct. 2015	TBD; Oct. 2012	Administrative report	Quarterly
New	Improve water and wastewater network inside households	Number of National Aid Fund households with improved water and wastewater network	National Aid Fund households that conducted maintenance and rehabilitation of their water and wastewater plumbing infrastructure as a result of receiving direct assistance as part of the Water Smart Homes Activity Project. This includes construction of proper connections from the house to the water meter and/or wastewater collection system, new, repair and/or replacement of exposed broken pipes, water tanks and plumbing fixtures.	Number	Cumulative	0	0	0	1,300	2,600	3,500	TBD; Sept. 2013	Administrative report	Quarterly
		Number of National Aid Fund households with improved water and wastewater network, female headed households	Female headed National Aid Fund households that conducted maintenance and rehabilitation of their water and wastewater plumbing infrastructure as a result of receiving direct assistance as part of the Water Smart Homes Activity Project. This includes construction of proper connections from the house to the water meter and/or wastewater collection system, new, repair and/or replacement of exposed broken pipes, water tanks and plumbing fixtures.	Number	Cumulative	0	0	0	TBD; Sept. 2013	TBD; Sept. 2013	TBD; Sept. 2013	TBD; Sept. 2013	Administrative report	Quarterly
		Number of National Aid Fund households connected to the wastewater network as a result of the Water Smart Homes Activity	National Aid Fund households that have new wastewater connections as a result of the Water Smart Homes Project.	Number	Cumulative	0	0	0	TBD; Sept. 2013	TBD; Sept. 2013	TBD; Sept. 2013	TBD; Sept. 2013	Administrative report	Quarterly
		Number of National Aid Fund households connected to the wastewater network as a result of the Water Smart Homes Activity, female headed households	Female headed National Aid Fund households that have new wastewater connections as a result of the Water Smart Homes Project.	Number	Cumulative	0	0	0	TBD; Sept. 2013	TBD; Sept. 2013	TBD; Sept. 2013	TBD; Sept. 2013	Administrative report	Quarterly

Origin of Indicator: Annex III, New, Common	Result	Indicator Name	Definition	Unit	Classification	Targets						Source	Methodology of Data Collection	Timing/Frequency of Data Collection
						Baseline Value	Year 1	Year 2	Year 3	Year 4	Year 5			
Water Network Project - Infrastructure Activity														
Output Level, Ruseifa High Distribution Area (DA) and Ruseifa Low (DA)														
New	Improve efficiency in the water network	Restructure and rehabilitate primary and secondary pipelines	Restructuring of the water distribution network involves the overall sub-division of the network into Water Supply Areas, Distribution Areas and District Meter Areas. Rehabilitation of primary and secondary pipelines involves renovation or replacement of an existing pipeline.	Km	Cumulative	0	0	6.6	15.7	26.2	26.2	PMC	Administrative report	Quarterly
		Restructure and rehabilitate tertiary pipelines	Restructuring and rehabilitation of tertiary pipelines by replacement, reinforcement or renovation of an existing pipeline.	Km	Cumulative	0	0	67.8	203.5	339.2	339.2	PMC	Administrative report	Quarterly
		Replacement of customer meters	Replacement of defective domestic customer water meter.	Number	Cumulative	0	0	2,310	11,548	23,095	23,095	PMC	Administrative report	Quarterly
		Construct new pumping station	Construct new pumping station and 500 m3 reservoir at Al-Basateen Area.	Percentage	Cumulative	0	0	0.0	50.0	100.0	100.0	PMC	Administrative report	Quarterly
		Restructure and construct District Meter Areas (DMA's)	Restructuring and construction of District Meter Areas, isolating DMA's and contructing DMA's connection points.	Number	Cumulative	0	0	3.0	7.0	11.0	11.0	PMC	Administrative report	Quarterly
Output Level, Batrawi DA														
New	Improve efficiency in the water network	Restructure and rehabilitate primary and secondary pipelines	Restructuring of the water distribution network involves the overall sub-division of the network into Water Supply Areas, Distribution Areas and District Meter Areas. Rehabilitation of primary and secondary pipelines involves renovation or replacement of an existing pipeline.	Km	Cumulative	0	0	10.7	25.7	42.9	42.9	PMC	Administrative report	Quarterly
		Restructure and rehabilitate tertiary pipelines	Restructuring and rehabilitation of tertiary pipelines by replacement, reinforcement or renovation of an existing pipeline.	Km	Cumulative	0	0	68.6	205.7	342.9	342.9	PMC	Administrative report	Quarterly
		Replacement of customer meters	Replacement of defective domestic customer water meter.	Number	Cumulative	0	0	2,305	11,525	23,050	23,050	PMC	Administrative report	Quarterly
		Restructure and construct District Meter Areas (DMA's)	Restructuring and construction of District Meter Areas, isolating DMA's and contructing DMA's connection points.	Number	Cumulative	0	0	3.0	7.0	14.0	14	PMC	Administrative report	Quarterly

Origin of Indicator: Annex III, New, Common	Result	Indicator Name	Definition	Unit	Classification	Targets						Source	Methodology of Data Collection	Timing/Frequency of Data Collection
						Baseline Value	Year 1	Year 2	Year 3	Year 4	Year 5			
Water Network Project - Infrastructure Activity														
Output Level, Zarqa High DA and Strategic Infrastructure (SI)														
New	Improve efficiency in the water network	Restructure and rehabilitate primary and secondary pipelines	Restructuring of the water distribution network involves the overall sub-division of the network into Water Supply Areas, Distribution Areas and District Meter Areas. Rehabilitation of primary and secondary pipelines involves renovation or replacement of an existing pipeline.	Km	Cumulative	0	0	2.7	6.4	10.7	10.7	PMC	Administrative report	Quarterly
		Restructure and rehabilitate tertiary pipelines	Restructuring and rehabilitation of tertiary pipelines by replacement, reinforcement or renovation of an existing pipeline.	Km	Cumulative	0	0	26.1	78.4	130.6	130.6	PMC	Administrative report	Quarterly
		Replacement of customer meters	Replacement of defective domestic customer water meter.	Number	Cumulative	0	0	757	3,786	7,572	7,572	PMC	Administrative report	Quarterly
		Restructure and construct District Meter Areas (DMA's)	Restructuring and construction of District Meter Areas, isolating DMA's and contructing DMA's connection points.	Number	Cumulative	0	0	3.0	7.0	7.0	7	PMC	Administrative report	Quarterly
		Install strategic meters on key water transfer pipes	Install strategic bulk water meters on key water transfer pipes at 32 locations in Zarqa Governorate.	Number	Cumulative	0	0	7.0	33.0	65.0	65	PMC	Administrative report	Quarterly
		Install SCADA / Telemetry monitoring system	Install outstations for SCADA/Telemetry monitoring system at Zarqa Governorate strategic water infrastructure and District Meter Area connection points.	Number	Cumulative	0	0	10.0	49.0	98.0	98	PMC	Administrative report	Quarterly

Indicator: Annex III, New, Common	Result	Indicator Name	Definition	Unit	Classification	Targets						Source	Methodology of Data Collection	Timing/Frequency of Data Collection
						Baseline Value	Year 1	Year 2	Year 3	Year 4	Year 5			
Process Level														
Common: WS-3	Finance construction activities - Water Network Project	Value of signed water construction contracts - Water Network Project	The value of all signed construction contracts for reconstruction, rehabilitation, or upgrading of water works using compact funds.	US $	Cumulative	0	$93,375,000	$93,375,000	$93,375,000	$93,375,000	$93,375,000	PMC	Administrative Reports	Quarterly
Common: WS-4		Value disbursed of water construction contracts - Water Network Project	The value disbursed of all signed construction contracts for construction, reconstruction, rehabilitation, or upgrading of water works.	US $	Cumulative	$0	$ 14,006,250	$ 37,350,000	$ 70,031,250	$ 88,706,250	$ 93,375,000	PMC	Administrative Reports	Quarterly
Common: WS-3 (TBD)	Finance construction activities - Water Smart Homes Activity	Value of signed water construction contracts - Water Smart Homes Activity	The value of all signed contracts for the consultancy and works under scope in the Water Smart Homes Activity using compact funds.	US $	Level	$0	$6,490,000	$6,490,000	$6,490,000	$6,490,000	$6,490,000	WSH Consultant	Administrative Reports	Quarterly
Common: WS-4 (TBD)		Value disbursed of water construction contracts - Water Smart Homes Activity	The value disbursed contracts for the consultancy and works under scope in the Water Smart Homes Activity using compact funds.	US $	Cumulative	$0	TBD	TBD	TBD	TBD	$6,490,000	WSH Consultant	Administrative Reports	Quarterly
New	Finance supervision activities	Value of supervision contract	The value of the supervision contract for both water and wastewater projects.	US $	Cumulative	$0	$14,000,000	$14,000,000	$14,000,000	$14,000,000	$14,000,000	PMC	Administrative Reports	Quarterly
		Value disbursed of supervision contract	The value disbursed of the supervision contract for both water and wastewater projects.	US $	Cumulative	$0	$2,100,000	$5,600,000	$9,800,000	$13,300,000	$14,000,000	PMC	Administrative Reports	Quarterly
Common: WS-5	Increase temporary employment	Temporary employment generated in water and sanitation construction	The number of people temporarily employed or contracted by MCA-contracted construction companies to work on construction of water or sanitation systems.	Number	Cumulative	0						PMC	Administrative Reports	Quarterly
		Temporary employment generated in water and sanitation construction, Female	The number of females temporarily employed or contracted by MCA-contracted construction companies to work on construction of water or sanitation systems.	Number	Cumulative	0						PMC	Administrative Reports	Quarterly

Table 3: Waste Water Network Project Outcome, Output and Process Indicators

Origin of Indicator: Annex III, New, Common	Result	Indicator Name	Definition	Unit	Classification	Targets						Source	Methodology of Data Collection	Timing/Frequency of Data Collection
						Baseline	Year 1 2012	Year 2 2013	Year 3 2014	Year 4 2015	Year 5 2016			
Outcome Level														
Annex III	Incidents of sewage overflow reduced	Sewer blockage events	Annual number of blockages that occurred in sewers network per year (pumping station blockages shall not be included) [1].	Number	Level	8,500	8,500	8,500	7,000	6,000	2,000	WAJ-Zarqa Directorate	Administrative Reports	Quarterly
Annex III	Quantity of wastewater collected from Zarqa Governorate increased	Volume of wastewater collected	Total volume of wastewater collected through the sewer system and pumped via West Zarqa, East Zarqa and West Ruseifa pumping stations.	Cubic Meters/year (Millions)	Level	24	24	24	25	27	31	WAJ-Zarqa Directorate	Administrative Reports	Quarterly
Annex III & Common: WS-13	Access to wastewater network increased	Residential population connected to the sewer system	Zarqa Governorate wastewater subscribers as a percent of water subscribers; each connection serves three subscribers and all subscribers will connect to the new network.	Percentage	Level	72%	72%	72%	73%	74%	82%	WAJ-Zarqa Directorate	Administrative Reports	Quarterly

[1] If during the Compact Term sewage blockages become part of the GIS database, this indicator should be updated to better measure blockages by type and location.

Table 3: Waste Water Network Project Outcome, Output and Process Indicators														
Origin of Indicator: Annex III, New, Common	Result	Indicator Name	Definition	Unit	Classification	Targets						Source	Methodology of Data Collection	Timing/Frequency of Data Collection
						Baseline	Year 1 2012	Year 2 2013	Year 3 2014	Year 4 2015	Year 5 2016			
Output Level														
New	Improved efficiency in the wastewater network	Expand Network - West Zarqa	Expansion of the network entails the installation of new pipes for the connection of new households to the wastewater network(households were not previously connected to waste water network).	Km	Cumulative	0	3	20	40	60	73	PMC	Administrative Reports	Quarterly
		Reinforce and rehabilitate network - West Zarqa	Reinforcement entails upgrades to existing pipelines. Rehabilitation entails replacement of existing pipelines.	Km	Cumulative	0	0	0	0	1	1	PMC	Administrative Reports	Quarterly
		Expand Network - East Zarqa	Expansion of the network entails the installation of new pipes for the connection of new households to the wastewater network(households were not previously connected to waste water network).	Km	Cumulative	0	3	20	40	50	60	PMC	Administrative Reports	Quarterly
		Reinforce and rehabilitate network - East Zarqa	Reinforcement entails upgrades to existing pipelines. Rehabilitation entails replacement of existing pipelines.	Km	Cumulative	0	0	0	1	3	3	PMC	Administrative Reports	Quarterly
		Expand Network - West Ruseifa	Expansion of the network entails the installation of new pipes for the connection of new households to the wastewater network(households were not previously connected to waste water network).	Km	Cumulative	0	3	20	30	37	37	PMC	Administrative Reports	Quarterly
		Reinforce and rehabilitate network - West Ruseifa	Reinforcement entails upgrades to existing pipelines. Rehabilitation entails replacement of existing pipelines.	Km	Cumulative	0	1	5	9	12	12	PMC	Administrative Reports	Quarterly

Table 3: Waste Water Network Project Outcome, Output and Process Indicators

Origin of Indicator: Annex III, New, Common	Result	Indicator Name	Definition	Unit	Classification	Targets						Source	Methodology of Data Collection	Timing/Frequency of Data Collection
						Baseline	Year 1 2012	Year 2 2013	Year 3 2014	Year 4 2015	Year 5 2016			
Process Level														
Common: WS-3	Finance construction Activities	Value of signed sanitation construction contracts	The value of all signed construction contracts for reconstruction, rehabilitation, or upgrading of sanitation works using compact funds.	US $	Cumulative	0	$46,000,000	$46,000,000	$46,000,000	$46,000,000	$46,000,000	PMC	Administrative Reports	Quarterly
Common: WS-4		Value disbursed of sanitation contracts	The value disbursed of all signed construction contracts for construction, reconstruction, rehabilitation, or upgrading of sanitation works.	US $	Cumulative	0	$6,900,000	$16,100,000	$34,500,000	$43,700,000	$46,000,000	PMC	Administrative Reports	Quarterly
New	Finance supervision activities	Value of supervision contract	The value of the supervision contract for both water and wastewater projects.	US $	Cumulative	0	$14,000,000	$14,000,000	$14,000,000	$14,000,000	$14,000,000	PMC	Administrative Reports	Quarterly
		Value disbursed of supervision contract	The value disbursed of the supervision contract for both water and wastewater projects.	US $	Cumulative	0	$2,100,000	$5,600,000	$9,800,000	$13,300,000	$14,000,000	PMC	Administrative Reports	Quarterly
Common: WS-5	Increase temporary employment	Temporary employment generated in water and sanitation construction	The number of people temporarily employed or contracted by MCA-contracted construction companies to work on construction of water or sanitation systems.	Number	Cumulative	0						PMC	Administrative Reports	Quarterly
		Temporary employment generated in water and sanitation construction, Female	The number of females temporarily employed or contracted by MCA-contracted construction companies to work on construction of water or sanitation systems.	Number	Cumulative	0						PMC	Administrative Reports	Quarterly

Table 4: The As-Samra Expansion Project Objective, Outcome, Output and Process Indicators

Origin of Indicator: Annex III, New, Common	Result	Indicator Name	Definition	Unit	Classification	Targets						Source	Methodology of Data Collection	Timing/Frequency of Data Collection
						Baseline	Year 1 2012	Year 2 2013	Year 3 2014	Year 4 2015	Year 5 2016			
Outcome Level														
Annex III	Substitution of freshwater for treated wastewater increased	Treated wastewater used in agriculture	Treated wastewater[1] used for irrigation in Northern and Middle Jordan Valley as a percent of all water used for irrigation in Northern and Middle Jordan Valley.	Percentage	Cumulative	61.0%	62.5%	64.0%	65.5%	67.5%	70.0%	Jordan Valley Authority	Administrative Reports	Yearly
Annex III	Existing agriculture protected from untreated wastewater	Quality of As-Samra effluent meets standard	Number of days during the past quarter when effluent does not meet the applicable standard set out in the As-Samra Project Agreement.	Days	Level	0	0	0	0	0	0	MWI/JVA	Administrative Reports	Quarterly
Annex III	Quantity of treated wastewater for agriculture use and substitution increased	Volume of waste water effluent discharged from the As-Samra plant per year	Annual volume of wastewater treated to at least secondary level (measured as annual volume of wastewater effluent discharged from the As-Samra plant, million cubic meters per year).	Cubic meters	Cumulative	65,000,000	65,000,000	65,000,000	70,000,000	85,000,000	99,000,000	MWI/JVA	Administrative Reports	Quarterly
		Agriculture use of treated wastewater	Agriculture land in the Middle and Northern Jordan Valley using treated wastewater for at least part of their irrigation water.	Hectares	Cumulative	13,700	14,000	14,400	14,800	15,200	15,900	Jordan Valley Authority	Administrative Reports	Quarterly
[1] "Treated wastewater" includes rainwater runoff mixed with treated wastewater in King Talal Dam reservoir.														
Output Level														
New		The actual 'substitution calculation'	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
New	Expansion of As-Samra	Expansion of As-Samra Treatment Plant	TBD; April 2012	TBD; April 2012	TBD; April 2012	TBD; April 2012	TBD; April 2012	TBD; April 2012	TBD; April 2012	TBD; April 2012	TBD; April 2012	TBD; April 2012	TBD; April 2012	Quarterly
Process Level														
Common: WS-3	Finance construction Activities	Value of signed construction contracts; MCC contribution	The value of all signed construction contracts for the expansion of As-Samra Treatment Plant using compact funds.	US $	Cumulative	0	$93,375,000.0	$93,375,000.0	$93,375,000.0	$93,375,000.0	$93,375,000.0	Authority Engineer	Administrative Reports	Quarterly
Common: WS-4		Value disbursed of signed construction contract; MCC contribution	The value disbursed of all signed construction contracts for expansion of As-Samra Treatment Plant using compact funds.	US $	Cumulative	0	$24,153,000	$69,952,000	$90,202,000	$93,375,000	$93,375,000	Authority Engineer	Administrative Reports	Quarterly
New	Finance construction Activities	Total EPC cost of As-Samra Expansion	Total cost of expansion of As-Samra Treatment Plant, this includes both the MCC contribution and outside financing.	US $	Cumulative	0	$184,350,000.0	$184,350,000.0	$184,350,000.0	$184,350,000.0	$184,350,000.0	Authority Engineer	Administrative Reports	Quarterly

Annex 2: M&E Budget Modification Memo (to M&E Plan)

To: For the Record

CC: MCC Jordan Transaction Team & MCA-Jordan Management

From: Amjad Attar, MCA-Jordan M&E Director

Date: February 28, 2012

Subject: Annex 2: M&E Budget Modification Memo (to M&E Plan)

This M&E Budget modification memo comes at the onset of the MCA-Jordan's M&E Plan submission and reflects changes on budget line items for Year 1. Changes are due to proposing new tasks which were not reflected before, e.g., conducting of M&E training and capacity building to MCA-Jordan staff and Implementing Entities.

Monitoring and Evaluation Budget

Activity	Original (Thousands)	Mar-12 (Thousands)
Development and implementation of an M&E information system (including equipment, ongoing support, and training)	$300	$300
M&E Training	$30	$60
Performance Indicator Monitoring: Compiling & Analysis, Data Quality Review	$199	$199
Collecting Data and Surveys: Household surveys, special studies/consultancies	$1,842	$1,812
Midterm and Final Evaluations	$350	$350
Communication	$89	$89
Total	**$2,810**	**$2,810**

Annex 3: Modifications to the M&E Plan

To: For the Record

CC: MCC Jordan Transaction Team & MCA-Jordan Management

From: Amjad Attar, MCA-Jordan M&E Director

Date: February 28, 2012

Subject: M&E Plan Modification Memo, documentation of changes from Annex III of Compact Document

Summary:

This M&E Plan modification memo comes at the onset of the MCA-Jordan's M&E Plan submission and reflects changes between Annex III of the Compact Document, signed on 25 October 2010 and this M&E Plan. Changes are due to various reasons, for example new information has become available, to be in accordance with MCC M&E Policy and/or MCC Guidance on Common Indicators.

It is of importance to note that these changes have been incorporated into the ITT presented in Annex 1. **New** indicators identified in Annex as part of the M&E Plan Version 1 are not referenced in this modification memo. The memo documents changes and the reason for the changes made between the *Compact Document Annex III 'Description of Monitoring and Evaluation Plan'* and this first version of the M&E Plan.

Indicator Modification Form	
Date	March 2012
Project/Activity	Compact wide
Indicator	Official Poverty rate nationwide
Modification Type	Indicator deletion
Justification	It is recommended to delete this indicator as the link between the projects and national poverty rate will be weak. In addition, we will not be able to attribute any change in national poverty rate level to MCC investments; we will only be able to attribute change in outcome indicators of interest in the event that a rigorous impact evaluation is incorporated into the project (TBD).

Indicator Modification Form	
Date	March 2012
Project/Activity	Compact wide
Indicator	Network water consumption per capita (residential and non-residential)
Modification Type	Delete indicator from the objective level and insert it as outcome
Justification	'Objective' indicators to be replaced with 'Outcome' to simplify terminology; Outcome indicators measure the intermediate effects of an Activity or set of Activities and are directly related through the Program Logic to the output indicators.

Indicator Modification Form	
Date	March 2012
Project/Activity	Compact wide
Indicator	Total residential water consumption
Modification Type	Delete indicator from the objective level and insert it as outcome
Justification	'Objective' indicators to be replaced with 'Outcome' to simplify terminology; Outcome indicators measure the intermediate effects of an Activity or set of Activities and are directly related through the Program Logic to the output indicators.

Indicator Modification Form	
Date	March 2012
Project/Activity	Water Network Project
Indicator	Use of tanker water
Modification Type	Delete indicator from the objective level and insert it as outcome
Justification	'Objective' indicators to be replaced with 'Outcome' to simplify terminology; Outcome indicators measure the intermediate effects of an Activity or set of Activities and are directly related through the Program Logic to the output indicators.

Indicator Modification Form	
Date	March 2012
Project/Activity	Water Network Project
Indicator	Use of treatment shop water
Modification Type	Delete indicator from the objective level and insert it as outcome
Justification	'Objective' indicators to be replaced with 'Outcome' to simplify terminology; Outcome indicators measure the intermediate effects of an Activity or set of Activities and are directly related through the Program Logic to the output indicators.

Indicator Modification Form								
Date	March 2012							
Project/Activity	Water Network Project							
Indicator	Prevalence of water borne disease							
Modification Type (#1)	Indicator title change, definition change							
Modification Type (#2)	Disaggregation by Age							
Justification	To be in accordance with MCC 'Guidance on M&E Common Indicators', forthcoming							
Modification Type (#3)	Delete indicator from the objective level and insert it as outcome							
Justification	'Objective' indicators to be replaced with 'Outcome' to simplify terminology; Outcome indicators measure the intermediate effects of an Activity or set of Activities and are directly related through the Program Logic to the output indicators.							
Indicator	**Indicator Definition**	**Unit**	**Baseline**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Original								
Prevalence of waterborne disease	Percent of children under age five who had diarrhea in the two weeks preceding the survey	Percentage	9%					7%
Modified (#1)								
Incidence of diarrhea	The percentage of individuals reported as having diarrhea in the two weeks preceding the survey.	Percentage	TBD					TBD
Modified (#2)								
Incidence of diarrhea, under age five	The percentage of individuals reported as having diarrhea in the two weeks preceding the survey under age five.	Percentage	9%					7%

Indicator Modification Form	
Date	March 2012
Project/Activity	Water Network Project
Indicator	Dissatisfaction with supply service
Modification Type (#1)	Change of indicator name
Justification	The indicator name has been changed to: Customer dissatisfaction with water service. It is noted that the 'Result' is modified from 'Improve efficiency of network water delivery' to 'Improve satisfaction of network water delivery' to be in accordance with definition; it is further noted that the source of information for this indicator is the household survey and as such personal perception better captures satisfaction and not efficiency in the network.
Modification Type (#2)	Delete indicator from the objective level and insert it as outcome
Justification	'Objective' indicators to be replaced with 'Outcome' to simplify terminology; Outcome indicators measure the intermediate effects of an Activity or set of Activities and are directly related through the Program Logic to the output indicators.

Indicator Modification Form	
Date	March 2012
Project/Activity	Water Network Project
Indicator	Dissatisfaction with water quality
Modification Type (#1)	Change of indicator name
Justification	The indicator name has been changed to: Customer dissatisfaction with water quality. It is noted that the 'Result' is modified from 'Improve efficiency of network water delivery' to 'Improve satisfaction of network water delivery' to be in accordance with definition; it is further noted that the source of information for this indicator is the household survey and as such personal perception better captures satisfaction and not efficiency in the network.
Modification Type (#2)	Delete indicator from the objective level and insert it as outcome
Justification	'Objective' indicators to be replaced with 'Outcome' to simplify terminology; Outcome indicators measure the intermediate effects of an Activity or set of Activities and are directly related through the Program Logic to the output indicators.

Indicator Modification Form	
Date	March 2012
Project/Activity	Water Network Project
Indicator	Non-revenue water as % of Governorate system input
Modification Type (#1)	Indicator title change
Justification 1	Changing the title of the indicator from 'Non-revenue water as % of Governorate system input' to 'Non-revenue water' in order to be in compliance with MCC 'Guidance on Common Indicators', forthcoming.
Modification Type (#2)	Changing the baseline; the baseline is changed from 47% to 50% to be in accordance with the information presented in the Financial Plan that was submitted to MCC in December 2011. This change is due to the fact that 47% was based on 2010 estimates and the Financial Plan submitted reflects 2011 data; this is in accordance with the Cost Recovery Plan submitted by Basim Telfah (Program Management Unit at Ministry of Water and Irrigation) to the MCC to full fill Condition Precedent for Entry Into Force (Table 8, page 16).
Justification 2	The Financial Plan that was submitted based the calculation on the assumption that EIF will take place year earlier

Indicator	Indicator Definition	Unit	Baseline	Year 1	Year 2	Year 3	Year 4	Year 5
Original								
Non-revenue water as % of Governorate system input	Difference between water supplied including water imported and water sold including exported (*i.e.*, volume of water "lost") expressed as a percentage of water supplied including water imported. [(Production + Imports) - (Exports + Accounted Water)]/(Production + Imports)	Percentage	47%					35%
Modified (#2)								
Non-revenue water	Difference between water supplied including water imported and water sold including exported (i.e., volume of water "lost") expressed as a percentage of water supplied including water imported. [(Production + Imports) - (Exports + Accounted Water)]/(Production + Imports)	Percentage	50%					35%

Indicator Modification Form								
Date		March 2012						
Project/Activity		Wastewater Network Project						
Indicator		Volume of wastewater collected						
Modification Type		Indicator definition change						
Justification 1		'West Ruseifa' incorporated to the definition to reflect the geographical area where the project is implemented.						
Indicator		**Indicator Definition**						
Original								
Volume of wastewater collected	Total volume of wastewater collected through the sewer system and pumped via West Zarqa and East Zarqa pumping stations (million cubic meters/year)	**Unit**	**Baseline**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Modified								
Volume of wastewater collected	Total volume of wastewater collected through the sewer system and pumped via West Zarqa, East Zarqa and West Ruseifa pumping stations.	Cubic Meters/year (Millions)	24					31

Indicator Modification Form	
Date	March 2012
Project/Activity	The As-Samra Expansion Project
Indicator	Treated wastewater used in agriculture
Modification Type	Delete indicator from the objective level and insert it as outcome
Justification	'Objective' indicators to be replaced with 'Outcome' to simplify terminology; Outcome indicators measure the intermediate effects of an Activity or set of Activities and are directly related through the Program Logic to the output indicators.