DATA QUALITY REVIEW REPORT
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TABLE OF CONTENTS

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EXECUTIVE SUMMARY

This report presents findings of the Data Quality Review (DQR) delivered by IDEA International Institute as assigned by MCA-Jordan. This review aims at assessing improving the on-going data collection and reporting systems and procedures efforts along with recommending promoting future data gathering approaches and methodologies that will ensurebetter data quality.

The DQR Covered the period from the start of the Compact up to the date of the DQR, i.e., between January 2012 and December 2013 (Quarters 1 to 8). However, because of quality, maturity and consistency issues of data delivered, special emphasis was on data for the last year (Q5 to Q8). The DQR team assessed Compact performance indicators at outcome and output levels informed by administrative data for MCA-Jordan Projects as well as existing systems at data sources.

In addition, the DQR aimed at:

1. Verifying baseline and historical data for indicators based on information available (Chapter 4);
2. Verifying and review the mechanisms and approaches used to calculate and identify the targets set in each project (Chapter 4);
3. Recommending changes to indicators, data collection mechanisms and protocols as necessary (chapters 3 and 4);
4. Identifying where external data sources have been used and confirm their accuracy on the ground and/or between data sources or reports. If not confirmed, identify alternative local sources of data (Chapter 4);
5. Where new data is required, suggesting appropriate method of data collection and sources of the data (Chapter 4);
6. Identifying capacity needs for data collection and make recommendations on the most appropriate M&E structures and tools for MCA-Jordan and Implementing Entities (IEs), as well as training needs (Chapter 3).

To effectively deliver this DQR task, the DQR Team was involved in reviewing all major data sets generated, including:

- Administrative data provided by implementing entities;
- Administrative data provided by Project Management Consultant (PMC); and
- Other relevant data available at national level[1].

[1] Based on MCA-Jordan recommendation, survey data was not considered as part of this first round of data quality review.

DQR FINDINGS

Following is a summary of main findings of the data quality review.

MCA Level

M&E system

Overall, the M&E system at central level (MCA-Jordan) is rated as partly functional with a score of 2.1 over 3[2]. This means the system enables to report on M&E results through the ITT. However, it does not fully ensure timeliness and accuracy of data reported. In fact, all functional areas of the M&E system have been scored as moderately satisfactory, meaning improvements are needed in all the following areas to have a fully functional M&E system:

- M&E Structure, Functions and Capabilities;
- Reporting guidelines;
- Data Collection and Reporting Forms and Tools;
- Data Management Processes;
- Use of M&E results.

M&E functions and composition of the M&E Unit are described in the M&E Plan; however, positions indicated in the organization chart do not correspond, i.e., only two full-time positions are indicated in the M&E Plan (M&E Director and M&E Coordinator, whereas three positions are indicated in the organization chart (M&E Director, M&E Deputy Director and Evaluation Officer). This causes confusions in the roles and responsibilities of M&E Unit staff. The position of M&E Director is currently vacant, which leaves only two persons to ensure leadership of all activities related to M&E, which not sufficient. Current skills and competencies of M&E Unit staff ensure implementation of main M&E activities. Nevertheless, there is need for further training in indicator formulation (including baseline and targets), advanced analysis and interpretation of data and reporting.

Reporting guidelines at the moment are not conducive to ensuring timely and accurate data used to monitor and evaluate MCA-Jordan performance. There is an urgent need to develop clear written guidelines (or M&E manual) at MCA-Jordan level on indicators to be reported and their definition, how data should be reported (format), to whom they should be reported and when (submission deadlines and reporting period covered).

[2] Score of 2.6 to 3.0: System is fully functional
Score of 2.0 to 2.5: System is partly functional
Score of 1.0 to 1.9: System not functional

In most cases reporting formats used to report on M&E indicators are the ones already used by IEs for their internal reporting. The advantage is that it creates less additional workload for M&E focal points. However, the use of report formats used by the IEs reduces the chances that data is validated before submission to MCA (which can result in lower data quality). It also makes it more difficult for the M&E Unit to consolidate the data and to follow-up on late reports. For instance, in the case of WAJ-Zarqa, four different files are submitted as a "report". In addition, most reporting formats do not include information on specific date of report and reporting period covered.

Even though M&E Unit has documented data management processes such as data aggregation, analysis and manipulation steps in the Narrative indicator sheets. Other processes such as how to address late, incomplete inaccurate reports or data quality issues, and back-up procedures have not been systematically documented. In addition, supervisory field visits are not conducted systematically and internal data quality reviews have not been conducted given the lack of time.

The use of M&E results produced by the M&E Unit at MCA-Jordan level is currently mostly limited to reporting requirements from MCC. At the moment, MCA management's use of M&E information is mainly related to information on progress of works and financial implementation. However, it is understood that information on higher level indicators (outcome and impact) will eventually be useful for decision-making (i.e., towards the end of the Compact). This result emphasized the lack of feedback by the M&E Unit on M&E results at all levels, which could contribute to increasing the use of M&E results for decision-making.

Data quality

Four Compact-level outcome indicators informed through administrative data were included in this review; two of them informed by WAJ-Zarqa and two by WAJ-Central Finance Department. Overall data quality was assessed as moderately satisfactory. Areas where most improvements are needed are related to reliability, timeliness and precision of the data that informs these indicators. Specific improvements needed to Compact-level indicators reviewed include:

- Clarifying the definition of and calculation formulas of the outcome indicators reviewed;
- Avoiding the use of population estimates for the calculation of indicators related to water consumption per capita by informing this indicator through the survey (impact evaluation). Seriously contemplating replacing these two indicators by water consumption per customer;
- Updating baselines for Billed residential water consumption and Operating cost coverage, and requesting historical data (2007 to 2009) from WAJ-Central Financial

Department to inform the baseline for Outstanding debt.

- Discussing the relevance of Outstanding debt as an outcome indicator.
- Adding a new indicator on Total network consumption (m^3) which would be a cumulative indicator.

Water Network Project

M&E system

The Data Quality Review of the Water Network Project covered the activities of Water Network Project (WNP), WAJ-Zarqa, and system adopted by the PMC. As the contracts have been recently awarded and reports have not yet been issued by the PMC, all of the review relied on WAJ-Zarqa for NRW.

The system currently adopted to monitor the progress of the WNP scored 2.1 out of 3. The practices assessed that led to this score focused on the practices related to NRW. The Use of M&E Results and Data Collection and Reporting Tools obtained the highest scores. While Data Management Processes and Indicators Definitions and reporting Guidelines presented the areas with higher potential for improvement.

NRW Reports are received 100% on time according to the agreed intervals between WAJ-Zarqa and the M&E Unit although WAJ-Zarqa is facing difficulties in data processing for NRW calculation as a significant amount of the customers' consumption data missing and/or suspected and requires verification and no specific person is officially assigned this responsibility which raises a concern related to the accuracy and reliability of the data provided in these reports.. In addition, no written guidelines for managing data is available at WAJ-Zarqa, including feedback on data quality to original sources (Customer Services and Operations Departments).

In terms of the five dimensions of data quality (Validity, Reliability, Timeliness, Precision, and Integrity), the quality of the NRW indicators, which is the only indicator with data and reports readily available for assessment, is moderately satisfactory with a score of 2.2 over 3. This is a result of the assessment of the current practices of data management for NRW and, when available, actual data/reports that were collected. For output indicators, where data is not available, definitions and planned arrangements were reviewed for the purpose of providing recommendations related to best practices to be adopted in the future. More specifically, NRW data quality is satisfactory as regards validity, timeliness, and precision while reliability and integrity can be significantly enhanced. It is important to re-emphasize that output indicators had not been reported yet at the time of this DQR, since works had not started. Main recommendations on Water Project Indicators are presented hereunder.

Data quality

The quality of the outcome and output indicators reviewed is satisfactory with a score of 2.6 over 3. More specifically, data quality is satisfactory as regards validity, timeliness, and precision. It is important to note that output indicators had not been reported yet at the time of the DQR, since works had not started. Main recommendations on Water Project Indicators include:

- Reporting NRW at the level of targeted areas (aggregate site) which will be more indicative of the performance of the project. This will eliminate the effect of other projects/initiatives in areas other than those targeted by MCA-J on the NRW throughout the governorate.
- WAJ-Zarqa need to develop clear procedures for calculating NRW. These procedures need to clarify the sources of the data, sampling and random check instructions, instructions to eliminate any possibility of data changes after verification and authorization, and, whenever possible, data review by an independent party (internal or external).
- MCA-J Monitoring and Evaluation Unit need to make sure the calculation formula of NRW used by WAJ-Zarqa complies with the equation defined in the Narrative Description of the indicator and with the international definition of the IWA as the current formula adopted by WAJ-Zarqa is different than the formula adopted in the original baseline calculation sheet and they both do not comply with the IWA Definition as demonstrated in details in the indicators analysis (Section 5.2).
- Following are other indicators that can be investigated to inform on progress and results of the project. Most of the information required to calculate these indicators is readily available, mainly at WAJ Zarqa, while other required information will be generated during the course of the project. Still, formal definition (including clear formula) and reporting scheme needs to be developed.
    - Number of No-Water Complaints at each of the targeted areas;
    - Number of leakage complaints;
    - M^3 of lost water per km of secondary network;
    - M^3 of lost water per km of tertiary network;
    - Number of customer meters that were checked and found working properly;
    - Infrastructure Leakage Index (ILI).

Waste Water Network Project

M&E system

The analysis of the data management system in place to monitor the Waste Water Network Project translated in an overall score of 2.7 out of 3, which means the systemis functional. Highest scores were achieved in the dimensions related to data collection and reporting forms and data management processes. Functional dimensions of the M&E system that would require more attention are related to the use of M&E results and to the M&E structure, functions and capabilities.

Indicators informed by WAJ-Zarqa include sewer blockages incident numbers, volume of waste water collected, residential population connected to the sewer system, expansion, rehabilitation and reinforcement of the sewer network in the project area. The WAJ-Zarqa focal point used to report quarterly to the Project Director, but to facilitate reporting, WAJ-Z is now reporting directly to the M&E Unit.

At PMC level, the sources of information for the preparation of quarterly progress reports are separate templates for the ITT indicators. Monthly progress reports and they were found received 100% on time throughout the assessment period.

Supervisory site visits are also made every week by Project Director and M&E unit. The knowledge of the Project Director in the sector can be further utilized for data validation.

Once the Water Project contracts are launched, the PMC will need to make sure that enough people are allocated to consolidating and validating progress information received from all sites to ensure continued quality of the information reported. The same problem applies to WAJ-Zarqa Wastewater Division as number of available personnel is insufficient to ensure proper reporting for all stakeholders in MCA..

Although reporting requirements are well-known to the project focal points, no written reporting guidelines are available.

More effective communication is required in clarifying the linkages between the ITT and the reports issued by the focal points especially at WAJ-Zarqa Waste Water Division.

Performance in terms of data management processes varies greatly per entity depending on the structure reporting. Effective data management and reporting techniques are noticed at PMC level when compared to data management related to number incidents of sewage overflow at WAJ-Zarqa level which can be significantly enhanced.

The use of M&E results (mainly ITT report data at the moment) is very limited mainly because it is still premature to be useful for decision-making. Increased use of M&E results could be achieved with better presentation of the huge data collected on the work done.

Data quality

On average, data quality for the Waste Water Network Project indicates a score of 2.7 on a scale of 3, which reflects satisfactory quality of the data. However, the integrity of data is the area that needs most improvements. It is important to note that this overall score hides the fact that the indicator on Incidents of Sewer blockage events shows unsatisfactory data quality.

Main recommendations are thus mostly aiming at improving the quality of this indicator as it will inform on the outcome of the project:

- There is an urgent need to revise this indicator data flow from the customer to WAJ-Zarqa.
- A call center or software (as it is presently manual) could contribute to a vast improvement in quality of data reported.
- Duration of the blockages should also be informed.
- The use of a GIS system would be of great support to localizing and zoning of those incidents for any analysis or planning intensions, especially in the case of sewer blockages incidents.

As-Samra Expansion Project

M&E system

The reporting system for the As-Samra Expansion Project is rated as functional with a score of 2.6 over 3 with highest scores in Data Collection and Reporting Tools and Data Management Processes, while significant improvement can be achieved in the component related to the use of M&E Results.

Information reported to MCA-J M&E Unit through the MWI/PMU and JVA directly while data reported from the contractor is forwarded to the Authority Engineer for verification first prior to being sent to the M&E Unit. All reports are found to be reported on timely basis.

Project is followed up by a single person, Project Director. It is believed that supporting the project with other staff will assist in supervising the project and delivering site verification of

reported information. Though, it is PMU/AE responsibity, an extra personnel will support the continuity in monitoring and sustainability of the project, as well as avoid any inconveniences that might appear when the Project Director is absent.

Although reporting guidelines have been developed and agreed between the M&E Unit and the PMU, and data collection and reporting formats exist at all levels and are used consistently, not written guidelines are not available.

M&E unit is granted access to the effective data management system developed by the Project Directorate which does not allow for data deletion upon authorized upload. This contributes to increasing the integrity of information and data collected for the project, even though it is not used directly to report ITT data. This data management system includes data gathered from different parties including SPC and RSS.

Despite the availability of information, there is very limited use of this information through the M&E Unit, including information on temporary employment which was not been included as a process indicator for the As-Samra Expansion Project, while it provides relevant information. In addition, MWI and JVA do not receive any feedback on M&E results from the M&E Unit to put it in use.

Data quality

The quality of data for indicators for the As-Samra Expansion Project is satisfactory with an overall score of 2.9 over 3. However, there is need for improvements as regards validity and precision. Actions that could improve the quality of As-Samra Expansion project indicators include:

- Identifying a new outcome indicator after operation for the expansion of As Samra WWTP that is linked to contractual milestones.
- Identifying at least one output indicator to monitor and report on progress of works (% physical implementation for instance).

In addition, it is recommended to include temporary employment as a process indicator in the ITT as it is already available being reported the progress reports and since the As-Samra Expansion Project has a significant impact on temporary employment.

PRIORITY ACTIONS TO STRENGTHEN M&E

Following main findings and recommendations above, priority actions to be implemented to improve M&E include:

- MCA-Jordan:

- ✓ Revising the M&E plan based on DQR findings and recommendations, including clarifying roles and responsibilities of M&E Unit staff[3] and revising performance indicators when applicable (ITT);
- ✓ Developing comprehensive M&E guidelines with data quality review measures at MCA-Jordan level which include the following content:
    - Organizational chart (organogram) for M&E
    - Definition of roles, responsibilities and incentives for M&E (including responsibilities matrix);
    - Reporting requirements (submission dates and cut-off dates (i.e., reporting period covered) and procedures to address late, inaccurate or missing reports;
    - Record Retention Policy or requirements defining the duration, location for storage of all records (hard and soft copies, data bases), including written records on how data inconsistencies were solved when identified, and frequency of back-ups for all levels of reporting.
    - M&E Information flow;
    - M&E framework (revised ITT);
    - M&E processes (what, to whom, when and how);
    - Internal data quality insurance strategy, including supervisory field visits;
    - Reporting formats and tools;
    - M&E Work plan and budget.
- ✓ Developing comprehensive M&E guidelines for each project, including main processes at IE level;
- ✓ Providing training on M&E guidelines developed and internal data quality review at all levels of the M&E system (DCEO, Project directors, IEs and Project Management Consultants).
- ✓ Based on the training needs assessment, organizing and participating to trainings on:
    a. Internal data quality review for all stakeholders involved in the M&E system;
    b. Introduction to the use and interpretation of M&E results for decision-makers, including CEO, DCEO, Project Directors, top management of IEs;
    c. Advanced training on monitoring systems and evaluation methods for M&E focal points;

[3] • M&E Director for overall management and supervision of M&E activities, staff and consultants, validation of M&E data and reports, communication of M&E results to MCA-Jordan top management and relevant stakeholders, coordination of the development of M&E manuals for MCA-Jordan and at IE level, and to ensure leadership of the M&E Unit;
• M&E Deputy Director supporting the Director, dedicated to the supervision of evaluation works, especially the impact evaluation, in charge of ensuring the implementation of internal data quality reviews, and producing periodic M&E reports; and
• An M&E Officer dedicated mainly to the coordination of monitoring activities, including backstopping support to implementing entities, review and consolidation of M&E data submitted by implementing entities, and preparation of the quarterly ITT report.

d. Advanced training on analysis, interpretation and communication of M&E results for M&E focal points and Communication Specialist.

- ✓ Recruitment of an additional staff at M&E Unit as soon as possible to fill the vacant position of M&E Director to ensure the M&E Unit has sufficient staff to support the implementation of actions needed to strengthen the M&E system[4].
- ✓ Clarify roles and responsibilities of all M&E Unit staff in collaboration with the M&E Unit.

- WAJ-Zarqa:
  - ✓ WAJ-Zarqa management is advised to provide staff involved in reporting to MCA-Jordan with official assignments and clear mandates (allocating necessary time) and motivation and ensure they are competent enough to generate good quality data.
  - ✓ In addition to M&E guidelines at project level, M&E focal points at WAJ-Zarqa need to develop reporting guidelines at their level with the support of MCA M&E Unit to improve reporting and ensure data quality, and to train concerned staff in data management and reporting requirements, including Customer Service and Operations staff responsible for raw data generation.
  - ✓ WAJ-Zarqa needs to provide continuous guidance, training and awareness to water meter readers to enhance their performance and ensure the provision of good quality data that will be verified by the assigned team in accordance with the data quality assurance plan that is proposed to be developed at WAJ-Zarqa.
  - ✓

Additional actions to be implemented in the medium term to ensure full implementation of the M&E system include:

- MCA-Jordan:
  - ✓ Identify and provide incentives for M&E focal points (e.g., official recognition of their work, allocating time for M&E, access to trainings, equipment, etc.).
  - ✓ Ensure use of M&E results in decision-making through jncreased feedback on M&E results.
  - ✓ Develop a communication plan at MCA-Jordan level, including for M&E.
- WAJ-Zarqa:
  - ✓ Establish a diagnostic of the current state of the X7 system and discuss the best strategy to correct current problems (especially debugging) and ensure regular maintenance, and estimate budget implications.
  - ✓ Establish a call center to manage and systematize customer complaints.
  - ✓ Identify actions needed to ensure rehabilitation of the server room for proper data management and storage, and estimate budget implications.

[4] Although this action was not judged as a priority by all participants during the validation workshop, the DQR team feels it is needed to implement the M&E strengthening plan.

- ✓ Discuss financing possibilities with MCA-Jordan and other donors to ensure implementation of the above actions.

LIST OF ABBREVIATIONS AND ACRONYMS

AE	Authority Engineer
CEO	Chief Executive Officer
DCEO	Deputy Chief Executive Officer
DHS	Demographic and Health Survey
DOS	Department of Statistics
DQR	Data Quality Review
ERR	Economic Rate of Return
FA	Fiscal Agent
HBS	Household Budget Survey
IDEA	Institute for Development in Economy and Administration
IE	Implementing Entity
ITT	Indicator Tracking Table
IWA	International Water Association
JVA	Jordan Valley Authority
KM	Kilometer
L/C/D	Liter per capita per day
MCA	Millennium Challenge Account
MCC	Millennium Challenge Corporation
MIDAS	MCC Integrated Data Analysis System
M&E	Monitoring and Evaluation
MWI	Ministry of Water and Irrigation
MWI-PMU	Ministry of Water and Irrigation Project Management Unit
NRW	Non-Revenue Water
PKM	Project Communication Management System
PMC	Project Management Consultant
Q	Quarter
SCADA	Supervisory Control and Data Acquisition
SPC	Samra Project Company
TOR	Terms of Reference
WAJ	Water Authority of Jordan
WWNP	Waste Water Network Project
WNP	Water Network Project

1. INTRODUCTION

1.1. CONTEXT

The Government of the Hashemite Kingdom of Jordan and the Millennium Challenge Corporation (MCC) signed a Compact agreement to reduce poverty through economic growth in the country. This Compact Agreement aims to fund projects related to rehabilitation of, improvements to, and expansion of water and wastewater infrastructure within the Zarqa Governorate. MCA-Jordan is the Accountable Entity responsible for Compact implementation on behalf of the Government, and the latter plan to select the implementing entities and subsequently administering the contracts.

MCA-Jordan Compact supports three (3) major projects, namely: (1) the Zarqa Governorate Water Network Restructuring and Rehabilitation Project (Water Network Project); (2) the Zarqa Governorate Wastewater Network Reinforcement and Expansion Project (Wastewater Network Project); and (3) the As-Samra Wastewater Treatment Plant Expansion Project (As-Samra Expansion Project). With an overall goal of promoting economic growth to reduce poverty, the main objectives of the above projects are to:

- Increase Human productivity through reduced illness and additional added value;
- Reduce use of costly alternatives to network water by households;
- Increased water savings;
- Reduced use of freshwater in agriculture though increased use of treated wastewater in agriculture.

It is clearly outlined that results are a driving principle for the management of the MCA-Jordan funded projects, and monitoring and evaluation of its activities and results is a key component in ensuring efficiency and effectiveness of activities implemented, and greater accountability. Consequently, each implementing entity is responsible for collecting and reporting data on the indicators identified in the Monitoring and Evaluation Plan in coordination with the M&E unit and Project Directorates.

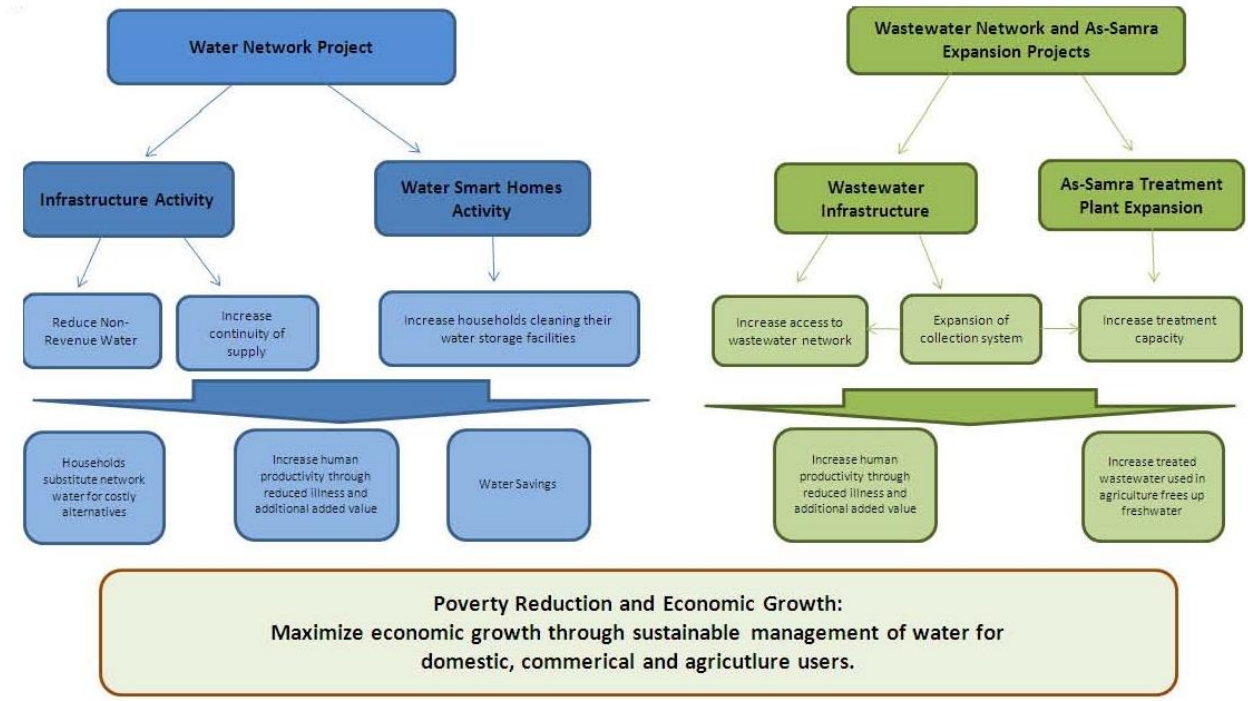
In reference to the Monitoring and Evaluation policy of MCC[5], Data Quality Review (DQR) is a vital component of the overall M&E framework, it contributes significantly to the efforts of MCA-Jordan and MCC as well to assess and capitalize on the functions of M&E. As a result, the review of the quality of the data collected, the instruments used to collect the data and the internal and external validity of the obtained data are some of the key concerns of a sustainable M&E process.

[5] MCC Policy for Monitoring and Evaluation of Compacts and Threshold Programs, May 1, 2012.

Data quality review (DQR) is a key process in promoting evidence-based decision making in development project and program management. It is critical to establishing whether the available data is fit for use, thus forging a space where data producers and users can confidently engage in performance measurement through a selection of indicators to track down progress made towards the achievement of intended results.

Figure 1.1 presents the MCA-Jordan program logic which is based on the results chain, where activities lead to outputs, which lead to outcomes if a number of critical assumptions are verified, and eventually to impacts on the beneficiaries.

Figure 1.1: MCA-Jordan Program Logic



Source: MCA-Jordan Monitoring and Evaluation Plan, March 2012.

1.2. OBJECTIVES OF DQR

The main objective of the DQR study is perform an independent review of the quality of the data used to monitor and evaluate the MCA-Jordan Compact in order to: (1) improve the on-going data collection and reporting efforts, and (2) improve future data gathering approaches and methodologies that will ensure good data quality.

The specific objectives of the DQR include:

1. Verifying baseline and historical data for indicators based on information available;

2. Verifying and review the mechanisms and approaches used to calculate and identify the targets set in each project;
3. Recommending changes to indicators, data collection mechanisms and protocols as necessary;
4. Identifying where external data sources have been used and confirm their accuracy on the ground and/or between data sources or reports. If not confirmed, identify alternative local sources of data;
5. Where new data is required, suggesting appropriate method of data collection and sources of the data;
6. Identifying capacity needs for data collection and make recommendations on the most appropriate M&E structures and tools for MCA-Jordan and Implementing Entities (IEs), as well as training needs.

This DQR involved reviewing all major data sets generated by the MCA-Jordan Compact, i.e., generated by IEs and reported by MCA-Jordan including (i) administrative data provided by implementing entities, (ii) administrative data provided by the Project Management Consultant (PMC), and (iii) other relevant data available at national level[6][7]. Since indicators informed through survey data will be reviewed based on the ongoing impact evaluation baseline survey, this report only provides an overview of the relevance of indicators informed through surveys. Therefore, this DQR assesses all MCA-Jordan Compact performance indicators at Goal, outcome and output levels informed by administrative data.

The DQR covered the period from the start of the Compact up to the date of the DQR, i.e., between January 2012 and December 2013 (Quarters 1 to 8). However, because of quality, maturity and consistency issues of data delivered, special emphasis was on data for the last year (Q5 to Q8). The DQR team assessed Compact performance indicators at outcome and output levels informed by administrative data for MCA-Jordan Projects as well as existing systems at data sources.

1.3. ORGANISATION OF THE REPORT

The DQR report includes two Volumes. This first volume represents the core of the report, while Volume II presents filled DQR tools used for the assessment.

[6] Based on MCA-Jordan request survey data was not considered as part of this first round of data quality review.

[7] As part of the DQR process, a Monitoring and Evaluation Workshop was organized by the DQR team in February which was attended by MCA-Jordan, WAJ-Zarqa, JVA, DOS and PMC staff.

This report presents, in addition to this introduction, the following chapters:

- Chapter 2: Methodology
- Chapter 3: Analysis of M&E systems
- Chapter 4: Indicator analysis
- Chapter 5: Main findings and recommendations
- Chapter 6: Proposal of M&E strengthening plan

2. METHODOLOGY

The methodology used to conduct this first DQR for MCA-Jordan enables a systematic and objective assessment of the quality of data used for monitoring the progress of Compact projects and results achieved, as well as the quality of data used for evaluating the performance of the overall Compact and specific projects.

The detailed approach and data collection tools used to conduct this exercise are presented in the following sections.

2.1. DQR APPROACH

The quality of MCA-Jordan M&E data was assessed against five widely recognized data quality criteria which are presented in Table 2.1 below. These criteria are aligned with the criteria which were initially suggested in the terms of reference (TOR) for this DQR.

Table 2.1: Data quality criteria and definitions

Criteria	Definition
a. Validity:	Data validity is the degree to which data clearly, directly, accurately and adequately represent the result that was intended to be measured, including: Are the indicators defined well, in other words, does the data reported match the indicator definition? In case of Outcome and Impact level indicators, does their definition match that nationally used? Do the indicators accurately represent reality (Closeness of data with true value of variable intended to be measured or extent to which it properly represents the intended results). It implies that error is minimized and negligible? Do they have a verifiable source? Is all necessary data present to fulfill the indicator's definition? Do actors among different levels of a decentralized data collection system have the same understanding of an indicator's definition? Can indicators be disaggregated by categories important to MCA-Jordan/MCC?
b. Reliability	Do data values give conflicting information? Is there: 1. Consistency: Is the data gathering process (including instrument and sampling process) same over time and across Projects/regions? Is the data internally consistent (totals equal sum of parts, etc.)? If an independent party were to carry out analysis using the same methodology and data, would they come up with the same results? 2. Quality Control: What are the procedures (data collection, maintenance and process) used to collect the data? How do the institutions guard against bias in the data collection and reporting process? How often are procedures reviewed? Are there random checks at each stage? 3. Transparency: Are the procedures in writing and are problems reported? 4. What technology and statistical software are used to collect, analyse, manage and report data? Is this technology adequate and is it compatible with external users of the data?
c. Timeliness:	Data are timely when they are up-to-date (current), and when the information is available on time. Timeliness is affected by: (1) the rate at which the program's information system is updated; (2) the rate of change of actual program activities; and (3) when the information is actually used or required. Practicality is also included under this dimension: Are data collected and reported as regularly as planned, and do collection periods take seasonality into consideration? Is reported data the most recent? Is the date of data collection clearly identified? Is the collection of data for the indicator a reasonably viable matter (human and financial resources are available)? Is it cost effective? Are there reasons that make data collection infeasible?
d. Precision:	Degree to which repeated measurements under unchanged conditions show the same results (reproducibility).Are systems in place to estimate a margin of error? Is the margin of error reported? Is the margin of error less than expected change in the indicator? Is the margin of error acceptable for decision-making, given cost/benefit? Does the target include margin of error?
e. Integrity:	Are data subject to political and/or personal manipulation? Is there independence in key data collection, management and assessment? Is there an impartial review of entire data gathering process? Is there integrity (between records)? Are data maintained in accordance with international or national confidentiality guidelines?

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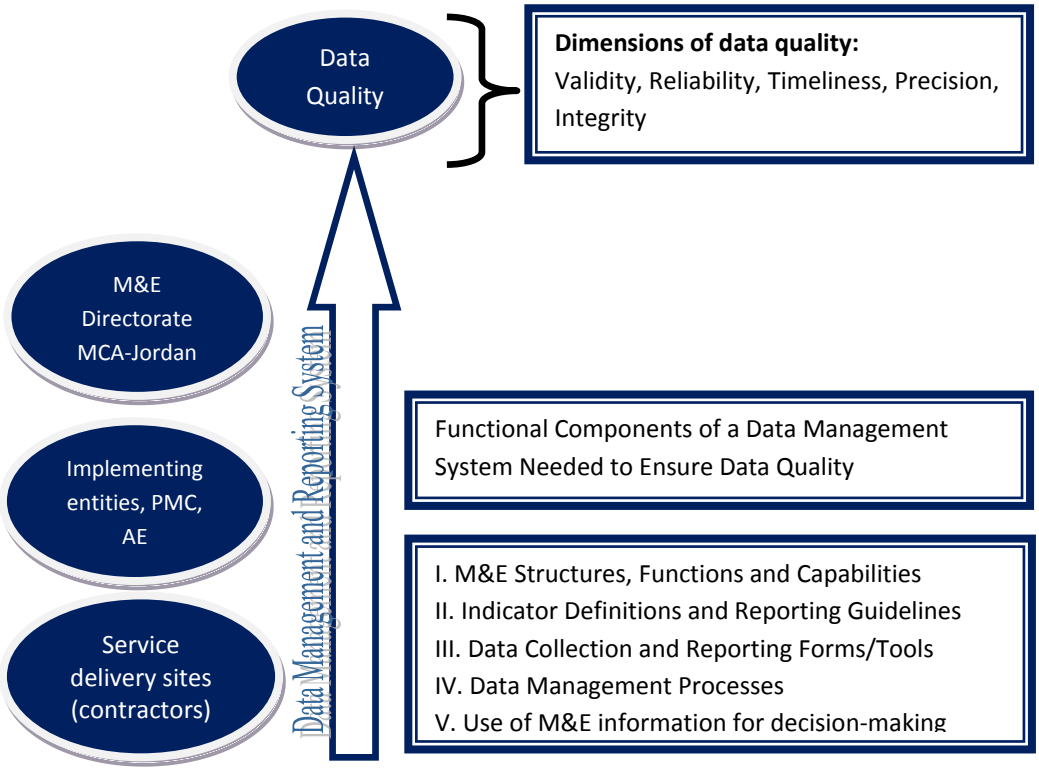
The conceptual framework presented in Figure 2 was used as a basis for conducting this DQR. It involves assessing at each level: M&E structures in place, indicator definitions and reporting guidelines, data management processes and data flows.

Figure 2.1: Conceptual framework for Data Quality Review: Data Management and Reporting Systems, Functional Areas and data Quality



Source: Adapted from the Global Fund conceptual framework for DQR.

Given that data quality issues can be raised at different levels of this framework, keen interest was given to each level of the reporting system and to each dimension of data quality.

The DQR team worked in close collaboration with the MCA-Jordan M&E Unit throughout the mandate. The literature review and data verification was conducted through documents and record reviews; interviews with key staff from the M&E focal points in Implementing Entities and key informants of different institutions responsible for collecting and sharing information with MCA-Jordan.

2.2. TOOLS AND DOCUMENTATION

To ensure an objective and systematic assessment of the quality of MCA-Jordan data, various tools were developed based on IDEA's extensive experience in conducting this type of exercise. In addition to ensuring objectiveness in the evaluation process, these tools

described below and presented in Annex 3 of this report will eventually allow to measure progress regarding the reporting systems and data quality in the future, i.e., they can be updated to assess how they have evolved between two rounds of DQR.

1. Indicator Reference Sheet

Indicators Reference Sheets provide for each indicator the core information for evaluation purposes, i.e., metadata, baseline values, targets, available monitoring data, results of the recounting exercise and comments for amending the indicator. They were filled using the information in the M&E Plan, the Compact's Indicators Narrative (dated September 25th, 2012) and the Projects' Indicators Narratives (dated September 25th, 2012), and through interviews with all levels of reporting of the MCA-Compact. More specifically, for output indicators, the section of the indicator reference sheet on "recounting results" was used to verify the quality of data from service delivery sites to MCA-Jordan M&E Unit. The recounting for an indicator involves using data available at the service delivery site level, aggregating it or recalculating it, and comparing it to data available at the higher reporting level.

2. Reporting and System Assessment Protocols respectively at central, intermediary and decentralized levels

This tool was used to identify potential challenges to data quality linked to the data management and reporting systems and procedures at all levels through:

a) A desk review of available documentation;
b) Interviews with stakeholders and on-site assessments at all reporting levels.

Reporting performance between various reporting levels was assessed in terms of

i) Availability (% of expected reports available);
ii) Timeliness (% of reports available submitted on time); and
iii) Completeness (% of reports available with complete expected information or data).

For this DQR, the assessment of reporting performance mainly considered reports submitted from a lower reporting level to the next level and that are used to complete the quarterly ITT report. Overall reporting performance (in %) is presented for each dimension in Chapter 3 (availability, timeliness and completeness) for MCA-Compact and for each project.

Data management and reporting systems were assessed based on the following five functional areas:

1. M&E Structure, Functions and Capabilities;
2. Reporting guidelines;

3. Data Collection and Reporting Forms and Tools;
4. Data Management Processes;
5. Use of M&E results.

Table 2.2 presents a summary of questions by functional area that are used to assess the M&E system at the various reporting levels.

Table 2.2: Systems Assessment Questions by Functional Area

Functional Areas Position		Summary Questions	
I	M&E Structure, Functions and Capabilities	1	Are key M&E and data-management staff identified with clearly assigned responsibilities?
		2	Have the majority of key M&E and data-management staff received the required training?
		3	What are the gaps in terms of M&E capacities, expertise and number of staff?
II	Reporting Guidelines	4	Are there operational indicator definitions meeting relevant standards that are systematically followed by all reporting levels?
		5	Has the program/project clearly documented (in writing) what is reported to whom, how and when reporting is required?
		6	Is there a written policy stating how long source documents should be stored?
III	Data Collection and Reporting Forms and Tools	7	Are there standard data-collection and reporting forms that are systematically used?
		8	Clear instructions have been provided by the M&E Unit on how to complete the data collection and reporting forms/tools.
		9	Are source documents kept and made available in accordance with a written policy?
IV	Data Management Processes	10	Does clear documentation of collection, aggregation and manipulation steps exist?
		11	Are data quality challenges identified and are mechanisms in place for addressing them?
		12	Are there clearly defined and followed procedures to identify and reconcile discrepancies in reports?
		13	Is the preservation of electronic data and documentation ensured?
		14	Are there clearly defined and followed procedures to periodically verify source data?
V	Use of M&E results	15	Are M&E results used for planning and budgeting?
		16	Are M&E results used for accountability?
		17	Are M&E results used for decision-making and advocacy?

Each functional area was assessed using specific questions which were scored using a scale of 1 to 3; where a score of 1 means the condition is not met (or unsatisfactory) and that important improvements are needed to meet the condition, a score of 2 that the condition is partly met (or partly satisfied) and that further improvement are needed for the condition to be completely met, and a score of 3 that condition is completely met (or fully satisfied) and does not need improvements:

1:	No, not at all
2:	Partly
3:	Yes, completely
N/A	Not applicable

An overall score was calculated and scores by functional area are presented in Chapter 3 in the form of a spider graph for MCA Jordan (M&E unit) and for each project respectively. An overall score between 1.0 and 1.9 means that the reporting system is unsatisfactory and needs important improvements in most functional areas; whereas an overall score between 2.0 and 2.5 means that the reporting system is partly functional and that improvements are needed some functional areas, and an overall score between 2.6 and 3.0 means that the reporting system is fully functional and does not need further improvements.

It is important to note that specific questions on M&E capacities, roles and responsibilities, as well as strengths and weaknesses identified in other functional areas were also an important input for the development of the M&E strengthening plan presented in this report.

3. Indicator Data Quality Assessment Grid

The Indicator Data Quality Assessment Grid was used for assessing the data quality for each indicator under review based on the data collected through the previous tools. The grid was designed to score each indicator against the 5 data quality criteria (validity, reliability, timeliness, precision and integrity) on a scale of 1 to 3; whereas 1 translates as unsatisfactory data quality, 2 as moderately satisfactory, and 3 as satisfactory, based on specific questions related to sub-dimensions. Table 2.2 above shows a summary of questions for each criterion, whereas the complete list of questions is presented in Annex 3.

The score for each criterion is calculated by the average of scores for each question related to the given criteria. The scoring scale is used is the following:

1:	No, not at all
2:	Partly
3:	Yes, completely
N/A	Not applicable

It is important to emphasize that the exact numerical value of the score is not important. The scores are used to enable comparisons across quality criteria as a means to prioritizing data and system strengthening actions. That is, the scores are relative to each other and are most meaningful when comparing the performance of one quality dimension to another. For example, if the indicator scores an average of 2.5 for ‘validity’ and 1.5 for ‘integrity’, one

would reasonably conclude that resources would be more efficiently spent on strengthening of the 'integrity and data manipulation issues' rather than on the 'validity' of the indicator under study. Therefore the scores attributed by the DQR team should be interpreted within the context of the interviews, documentation made available and reviewed, data verifications and observations made during the DQR exercise. For each project, an overall score was calculated for each data quality criteria, which is presented in the form of a spider graph. In addition, average scores for each indicator are also available in summary tables presented in Chapter 4.

Data quality is judged satisfactory when the average score is between 2.6 and 3.0, moderately satisfactory for an average score between 2.0 and 2.5 and not satisfactory when the score is between 1.0 and 1.9.

3. ANALYSIS OF M&E SYSTEMS

This chapter presents (i) the flow of information needed to ensure proper implementation of monitoring and evaluation of projects under MCA-Jordan, (ii) the assessment of reporting performance, and (iii) the assessment of existing M&E systems at the level of MCA-Jordan (M&E Unit) and respectively for each project.

The analysis has been conducted through interviews with stakeholders and the use of Reporting and System Assessment Protocols presented in the previous chapter in order to identify potential challenges related to data management and reporting systems at various levels:

- MCA Jordan (M&E Unit and Project Directorates);
- Implementing Entity (M&E focal points);
- Intermediate Aggregation Site (PMC/Authority Engineer);
- Service delivery site level (contractors).

The analysis of M&E systems focused on the five functional areas presented above, including the capacities gaps and the use of M&E results for evidence-based decision making. Results of these analyses are presented below.

3.1 M&E UNIT

Before presenting reporting systems at project level, it is important to have an overall view of the MCA-Jordan M&E system. This section presents in details the information flow as well as the assessment of the overall reporting performance and M&E system at MCA-Jordan level.

3.1.1 CURRENT INFORMATION FLOW

The information used by the MCA-Jordan M&E Unit to inform the quarterly ITT (Indicator Tracking Table) is reported through the following channels depending on the type of information reported:

1) Progress on project's implementation is mainly reported by the Project Management Consultant (PMC) to Deputy CEO for Water Network and Waste Water Network projects, and by the Authority Engineer for the As-Samra Expansion project through the Ministry of Water and Irrigation Project Management Unit - MWI/PMU;

2) Performance indicators informed through administrative data are directly reported to the M&E Unit by the following Entities:
   - MWI-PMU;
   - WAJ-Zarqa;
   - WAJ-Central, Finance Department;
   - Jordan Valley Authority.

Progress reports submitted monthly by the PMC for the Water Network Project and Waste Water Network Project are reviewed and validated by the relevant Project Director, and shared with the MCA-Jordan M&E Unit. In addition, a quarterly report (Excel format) is submitted by the PMC directly to the M&E Unit for specific ITT indicators. Quarterly information received directly from Implementing Entities is reviewed by the M&E Officer in charge, validated by the M&E Unit Deputy Director and approved by the CEO before submission to MCC. It is important to note that Project Directors and the Deputy CEO are also involved in the validation of the ITT before submission to MCC.

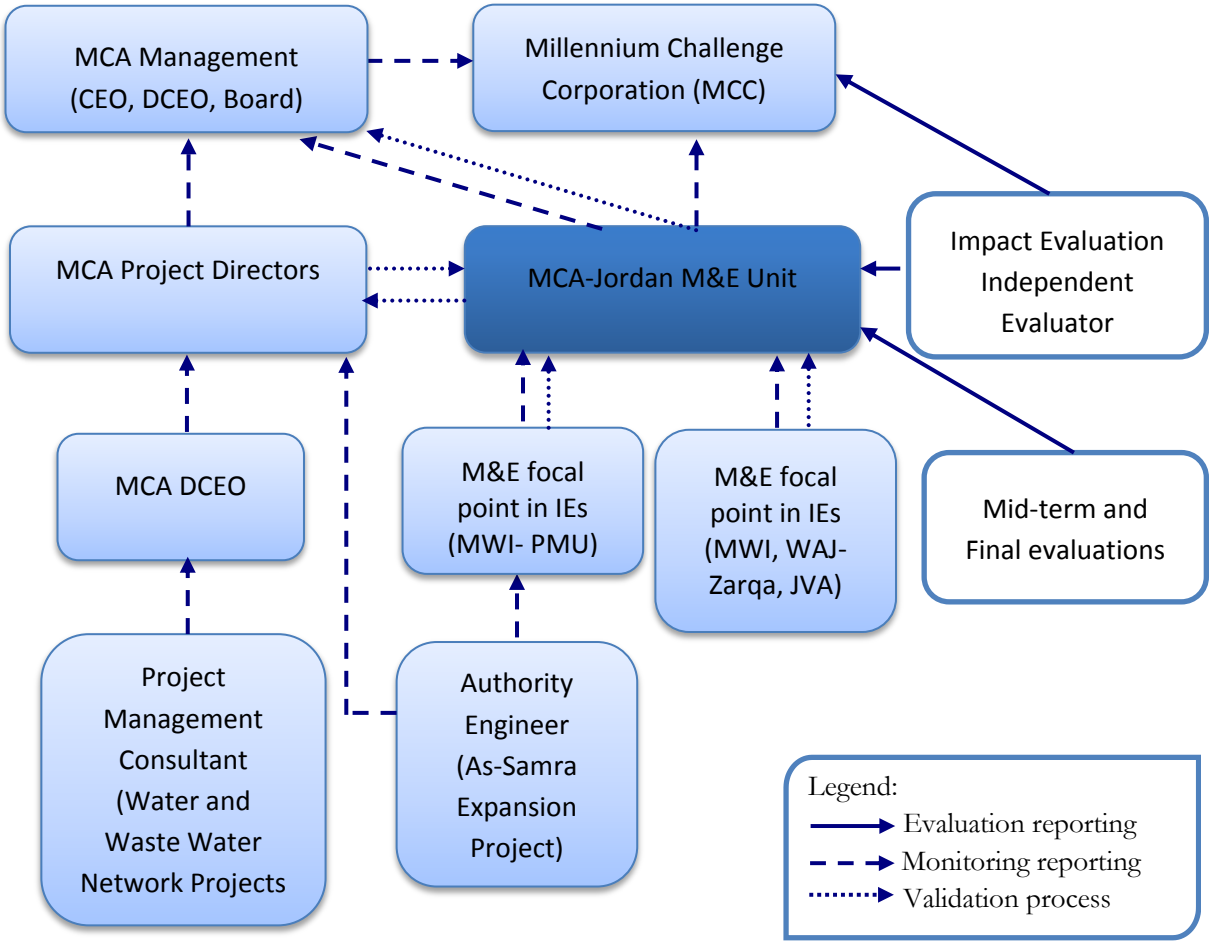
It is important to note that the ITT is submitted along with the narrative report and the Detailed Financial Plan (DFP) narrative report as part of the quarterly disbursement request. All these reports are submitted quarterly to MCC together as part of the disbursement request. MCC guidance on Disbursement Request Package (2009) provides the template for the narrative report. It clearly states that at the end of each Compact year (Q6, Q10 and Q14 disbursement requests), in addition to the ITT, an explanation should be provided by the M&E Unit whenever the gap between actual annual value and the annual target is 10% or more. Based on the review of narrative reports for Q5 to Q9, this has not been done yet, but was added as comment as part of the ITT. This analytical exercise is essential in ensuring the use of ITT information in decision-making, therefore the M&E Unit should make sure that this information is provided at least annually.

Evaluation is also part of the M&E system with a purpose to inform on the performance of the Compact as regards the implementation of the projects by MCA-Jordan, but also on the medium and long term outcomes and impacts of the Compact and each of the projects, as well as their sustainability. The M&E plan suggests implementing a mid-term evaluation, as well as a final evaluation of MCA-Jordan, even though it is not confirmed yet. These would be managed by the M&E Unit itself, whereas the impact evaluation, conducted by an Independent Evaluator is sponsored and managed by MCC[8]. However, it is important to

[8] Department of Statistics has been recruited only to conduct the surveys for the impact evaluation.

note that the results for the impact evaluation will also be used by the M&E Unit to inform on the performance of MCA-Jordan.

Figure 3.1: Current Information flow chart for the MCA-Jordan M&E Unit



3.1.2 Reporting performance

Reporting performance presented here was assessed based on an analysis of reports received by the MCA-Jordan M&E Unit, as specific project reporting performance is presented in the following sections. It is important to note that the reporting performance assesses the availability, timeliness and completeness of reports received by the M&E Unit as defined in section 2.2, not the quality of the data reported which is assessed in Chapter 4 "Analysis of indicators". It is also important to stress that "reports" refer here mainly to progress reports or reporting templates[9] submitted by various stakeholders to inform the quarterly ITT report, including:

[9] These can include Excel sheets, Word documents and in some instances scanned copies.

- Monthly progress report from Authority Engineer (As-Samra Expansion Project) through the MWI Project Management Unit (PMU);
- Quarterly report from PMC (Water Network and Waste Water Network projects) starting Q5;
- Quarterly report from WAJ-Zarqa;
- Quarterly report from MWI-PMU;
- Quarterly report from WAJ-Central, Finance Department;
- Quarterly report from Jordan Valley Authority.

In the period reviewed, i.e. quarter 5 to quarter 8 (January 2012 to December 2013), a total of 28 reports were expected from all structures presented above as shown in Table 3.1 below.

Table 3.1: List of reports expected (and agreed on) by MCA-Jordan M&E Unit from entities and submission dates (Q5 to Q8)

Source	Report format	Project Indicators			Frequency	Submission date
		Water	Waste Water	As-Samra expansion		
WAJ-Zarqa	NRW sheet	✓			Quarterly	Between 25th and 30th previous month
	Consumption sheet	✓				
	Complaints Sheet		✓			
	Subscription sheet	✓	✓			
PMC (through Wastewater Director)	Progress report (in Excel format)	✓*	✓		Quarterly	Between 25th and 30th previous month
Ministry of Water and Irrigation – Project Management Unit	As-Samra Treatment Plant Data Report / multi-sheets (influent, effluent, quality)			✓	Monthly	Between 25th and 30th previous month
Jordan Valley Authority	Excel sheets and scanned copies			✓	Quarterly	Between 25th and 30th previous month
WAJ-Central (Finance Department)	Cost recovery rate sheet Outstanding debt sheet	Compact level indicators			Quarterly for Q1 to Q8, Yearly starting Q9	Between 25th and 30th previous month
MCA-Finance Director**	Data on financial progress (contracts valued, disbursements)	✓	✓	✓	Quarterly	Between 25th and 30th previous month

* PMC will report on Water Network Project starting Q9.

** Not included in the analysis of reporting performance since it does not inform output, outcome or impact level indicators.

Source: MCA-Jordan M&E Unit

All reports expected (between Q5 and Q8) were available at MCA-Jordan M&E Unit upon request[10], except for reports from WAJ-Central Finance Department. In fact, of the four quarterly reports that were to be submitted to the MCA M&E Unit, only one was submitted on Quarter 7 (for year 2012). This means that for the period reviewed (Q5 to Q8), 25 reports out of the 28 expected were available (representing 89% of the total number of reports expected).

This performance in terms of availability of reports is mainly due to the frequency of reporting which was not adapted to the availability of financial data at WAJ-Central, since this information is based on audited financial statements which are available only once a year. Based on discussions between MCA and WAJ-Central Finance Department, it was agreed that reporting on indicators under their responsibility would be annual starting year 3 (Q9).

As regards the timeliness of reporting, performance is lower as only 15 out of the 28 reports (54% of reports) were submitted before the agreed submission date (i.e., between the 25th and 30th of previous month) to the M&E Unit by the various entities as presented in Table 3.2. It is important to stress that in most cases (except PMU reports), close follow-up by M&E Unit (mostly email and phone) is needed to ensure reports are available in time to prepare the quarterly ITT report for submission to MCC by the 10th of the month following the end of the quarter.

Table 3.2: Dates of submission of expected reports by main entities to MCA-Jordan M&E Unit

	Q5	Q6	Q7	Q8
WAJ-Zarqa	Mar 6th, 2013	Jun 4th, 2013	Sep 5th, 2013	Dec 4th, 2013
MWI-PMU	*Between 20-25 of every month*			
JVA	Mar 6th, 2013	Jun 3rd, 2013	Sep 4th, 2013	Nov 27th, 2013
PMC (Waste Water Project)	Mar 3rd, 2013	May 30th, 2013	Sep 1st, 2013	Nov 28th, 2013
WAJ-Central Finance Department	N/A	N/A	Submission date was not specified	N\A

Source: MCA-Jordan M&E Unit.

In terms of completeness of reports, the majority of reports (24 out of 25 reports available) that were submitted to the MCA M&E Unit by the entities presented all the data that was

[10] The Complete list of reports availed by MCA-Jordan M&E Unit to DQR team is presented in Annex 1.

expected (i.e., data informing performance indicators). However, there is one case identified where the quarterly report from WAJ-Zarqa was missing information because of problems of maintenance with their Management Information System (X7). This issue will be further discussed in the section on the analysis of indicators.

Reporting performance for reports received at MCA-Jordan M&E Unit level is satisfactory in terms of availability and completeness. However, timeliness of reporting needs to be improved to ensure the quality of data reported to MCC through the ITT. The fact that most reports are received only a few days before the submission date of the ITT to MCC could have an important impact on the quality of data reported, since it does not allow enough time to the MCA-Jordan M&E Unit to review and validate the data received from the entities before reporting on indicators in the ITT.

This low performance in terms of timeliness of reporting to the MCA-Jordan M&E Unit is due in part to a lack of clarification or understanding of reporting deadlines to M&E focal points in the entities (this will be discussed in more details in the next section), but mostly to the lack of incentives (positive or negative) to enforce timely submission of reports to MCA-Jordan M&E Unit.

3.1.3. M&E Systems Assessment

As identified earlier, the M&E system was assessed at MCA-Jordan M&E Unit level against the following five areas:

- M&E Structure, Functions and Capabilities;
- Reporting guidelines;
- Data Collection and Reporting Forms and Tools;
- Data Management Processes;
- Use of M&E results.

An analysis of each of these functional areas of the MCA-Jordan M&E system at M&E Unit level is presented below and is followed by an assessment of its overall performance.

M&E Structure, Functions and Capabilities

M&E structure at MCA-Jordan M&E Unit was first assessed based on the existence of a documented organization structure and clear definition of roles and responsibilities for

M&E. This first element was rated as partly met (2 over 3)[11] in the Reporting and system assessment protocol at central level based on the following:

- MCA-Jordan's organizational chart (dated November 2013) presents key positions at the M&E Unit. It also shows that the M&E Unit falls directly under the responsibility of the Chief Executive Officer (CEO). This should represent an advantage in guaranteeing leadership of the M&E Unit in coordinating M&E activities and the use of M&E results, since it is structured as to ensure a direct communication channel between the M&E Unit and top management. This will be discussed below under "Use of M&E results".
- The M&E Plan describes specific functions and composition of the M&E Unit. The Compact Agreement also defines the mandate of MCA-Jordan in terms of M&E, but without specifying staff arrangements. However, even though the M&E Plan describes responsibilities of M&E Unit staff in section 9.1 of the M&E Plan (M&E Director and M&E Coordinator), positions described do not correspond to the positions stated in the MCA-Jordan organizational chart and with the job descriptions provided to the DQR team (M&E Director, M&E Deputy Director and M&E Officer. This creates some confusion in the specification of roles and responsibilities of M&E Unit positions. Specific recommendations regarding the composition and roles and responsibilities of M&E Unit staff are presented below.

As part of this functional area, capacities of the M&E Unit were also assessed in terms of human resources at M&E Unit based on filling of positions planned for M&E, as well as adequateness of current human resources to ensure good quality M&E in terms of their quantity and skills.

In terms of quantity, capacities were scored as partly met (2 over 3) in the Reporting and system assessment protocol at central level based on the following:

- As per the organizational chart (November 2013), planned positions dedicated to M&E at MCA-Jordan include:
  - Monitoring and Evaluation Director;
  - Monitoring and Evaluation Deputy Director;
  - Monitoring and Evaluation Officer.
- However, the position of M&E Director has been vacant since June 2013 and in the interim the Deputy Director is currently in charge of managing the M&E Unit.
- Given the current M&E Unit composition (2 staffs), the M&E Officer is currently in charge of reviewing the quality of all data received and used to prepare the ITT,

[11] See DQR Report Volume II: Filled DQR Tools, April 2014.

including checking for inconsistencies in numbers and trends, while the M&E Deputy Director is in charge of approving the ITT report before submission to MCC[12], in addition to facilitating and supporting the evaluation work (impact evaluation), as well as working with DOS on surveying within the Implementing Entity Agreement.

- However, this leaves very little time to achieve other key duties of the M&E Unit such as developing M&E manuals (or guidelines) for each project, reviewing Economic Rates of Return (ERR) analysis, performing internal data quality reviews, producing periodic M&E reports, and above all supporting implementing entities to ensure good and timely M&E information.

Now that works will shortly be fully started in all three projects[14] and given the fact that there is need to ensure that the M&E Unit can fulfill all its role and responsibilities properly, there is need to fill the three positions at the M&E Unit to ensure good quality M&E:

- M&E Director for overall management and supervision of M&E activities, staff and consultants, validation of M&E data and reports, communication of M&E results to MCA-Jordan top management and relevant stakeholders, coordination of the development of M&E manuals for MCA-Jordan and at IE level, and to ensure leadership of the M&E Unit;
- M&E Deputy Director supporting the Director, dedicated to the supervision of evaluation works, especially the impact evaluation, in charge of ensuring the implementation of internal data quality reviews, and producing periodic M&E reports; and
- An M&E Officer dedicated mainly to the coordination of monitoring activities, including backstopping support to implementing entities, review and consolidation of M&E data submitted by implementing entities, and preparation of the quarterly ITT report.

Overall, the capacity of the M&E Unit in terms of skills and competencies was scored as partly met (2 over 3) in the Reporting and system assessment protocol. The Deputy Director[15] and M&E Officer profiles enable them to supervise, coordinate and implement M&E activities in general. However, some areas where there would be need for enhancement of capacities of M&E Unit are:

- Formulating indicators, setting baselines and targets;

[12] It is important to note that both the Deputy CEO and Project Directors are also involved in the validation process.

[14] In Waste Water Network and As Samra Project works have already started, but Water Network Project contracts are just started and the first reporting will be next ITT (Q9).

[15] The M&E Deputy Director also joined the Evaluator Institute for two courses on impact evaluation methodologies.

- Economic Rate of Return (ERR) analysis;
- Internal data quality review and quality control techniques;
- Data collection (mostly through surveys);
- Data analysis and interpretation;
- Evaluation approaches.
- Enhancement of interpretation and reporting skills would greatly contribute to increasing the use of M&E results at the level of MCA-Jordan and by IEs. This will be discussed further under the analysis of the functional area "Use of M&E results".

Other components of the functional area "M&E Structure, Functions and Capabilities" are the clear identification of person or structure responsible for reviewing aggregated numbers prior to the submission/release of reports by the M&E Unit, as well as the designation of staff responsible for reviewing the quality of data received from implementing entities. These two dimensions have been rated as completely met as the M&E Officer is in charge of reviewing data submitted by implementing entities and other stakeholders (in collaboration with Project Directors), and Deputy Director is in charge of reviewing the ITT report in collaboration with DCEO, CEO and Project Directors before submission to MCC.

An important responsibility of the M&E Unit as stated earlier is to accompany and support organizations and staffs involved in the monitoring and reporting of projects' results, including the enhancement of capacities for monitoring and evaluation, especially of IEs. This implies, among others, the elaboration of a training plan at all levels. For the moment, no training plan has been developed and for this reason, this component has been rated as unmet (1 out of 3) in the Reporting and system assessment tool at central level (MCA-Jordan). However, it is important to note that as this has already been recognized as an important activity by MCA-Jordan, the identification of capacity needs (including training) for M&E has been included as a specific task to be implemented as part of this DQR exercise.

The last component regarding the specific area of M&E structure, functions and capacities was related to the training of all staff in M&E as well as on data management processes and tools. In this area, only a short (3-days) M&E training was organized by MCA-Jordan and offered by Social Impact in June 2013. This training was offered to all MCA-Jordan staff and key M&E focal points.

Even though this training was a good introduction to the MCC M&E policy and guidelines and to various M&E tools[16], its duration was too short and a lot of new concepts (some of them quite technical such as ERR and Impact evaluation) were presented. This resulted in limited appropriation of concepts and tools imparted. Given the very limited training received by stakeholders involved in M&E, this component was rated as partially met (2 over 3).

Based on the above analysis, the total score for the functional area related to M&E structure, functional and capabilities is 2.1 over 3, i.e., this area is partially functional as it needs further improvements.

Reporting Guidelines

Clear reporting guidelines are needed to ensure proper implementation of the M&E system. This functional area was assessed in relation to the following components: (i) the documentation and sharing of indicator definitions, (ii) the clear articulation of indicators with projects' activities and results to be measured (e.g., logical framework), and (iii) the existence of a written policy stating how long source documents and reporting forms need to be retained, a written guidelines on reporting requirements and deadlines, as well as operational guidelines for the reporting of each indicator (what? How? To whom? When?).

As regards the first two components, the M&E Plan presents the logic of the program and its projects, as well as the indicators identified to assess performance at each level of the results chain[17]. It also provides a definition of M&E indicators (Indicator Tracking Table) along with some information on metadata such as unit, baseline and targets, source, methodology of data collection and frequency. This information is complemented by the Narrative indicator sheets available for MCA-Compact level indicators and indicators for each project which provide important information on metadata for all MCA-Jordan performance indicators. For these reasons, the definition of indicators as well as the presentation of the logic of the program and its projects received a score of 3 over 3.

[16] The training program was developed following a training needs assessment undertaken by Social Impact prior to the training. The objectives of this training were to: (i) "Share a common understanding and use of MCC M&E concepts and terminology with all their colleagues within the Compact; (ii) Adopt a variety of effective M&E tools in their day-to-day activities; (iii) Identify opportunities and address challenges associated with M&E data collection and analysis; and (iv) Understand the rationale behind the Compact Economic Rate of Return (ERR)". In addition, a whole day of training was dedicated to Impact Evaluation.

[17] It is important to note that the Compact and project logical models have been reviewed as part of the process of designing the impact evaluation methodology. However, the revision of the logical models was not part of this DQR objective. Only the logic between indicators and results to be measured (relevance) was assessed as part of the analysis of indicators (Chapter 4).

However, while the M&E plan has been shared with all stakeholders, the Narrative indicator sheets have not been yet disseminated to the implementing entities. The M&E unit was waiting to update the M&E plan based on the DQR recommendations and the baseline evaluation before sharing them. Even though a review of the M&E Plan was planned, it would have been important to share the information in the Narrative indicator sheets to ensure that all stakeholders have the same understanding of the indicators. In fact, there were few cases where the calculation formula used by the implementing entities did not correspond to the calculation formula stated in the indicator sheets (see Chapter 4 for a detailed discussion). This could have been prevented with the sharing of detailed information on the indicators with all stakeholders. For these reasons, the sharing of indicator definitions have been scored as partly met with a score of 2 over 3.

As regards clear written reporting guidelines, at the moment there is no specific document describing reporting guidelines and requirements at each level of the reporting system such as an M&E manual. There is some reference to reporting requirements in the IE agreement, but it does not clearly state how M&E should be implemented or how long source documents should be retained, and it does not provide specific reporting requirements and deadlines. It is important to note that the M&E plan does not clarify this either. As mentioned above, the M&E Plan clearly identifies what IEs and other stakeholders involved in M&E need to report on (indicators). Even though reporting requirements have been agreed based on discussions with IEs and are known by most M&E focal points, there is need for written guidelines in terms of how (format), to whom and when (submission dates) they should report. It would also be useful to specify the corresponding reporting period since this seems to vary depending on the structure reporting. Written guidelines would clarify further reporting requirements and enable to improve further reporting performance and the quality of data reported. For these reasons, the third component related to the functional area “reporting guidelines” has been scored as partially met with a score of 2 over 3.

Overall, existing reporting guidelines are partly functional with a score of 2.2 over 3; meaning there is need for clear written guidelines, such as M&E manuals, to ensure full implementation of the M&E system.

Data-collection and Reporting Forms and Tools

The assessment of this functional area was based on (i) the existence of standard reporting forms or tools for all reporting levels; (ii) the use of these reporting forms or tools across entities and of the same reporting timelines; (iii) the consistent use of reporting forms by

each entity; (iv) the provision of clear instructions by the M&E Unit on how to complete data collection tools or use the reporting forms and; (v) the availability of all source documents and reporting forms relevant for measuring the indicators for auditing purposes. Main findings related to this functional area are the following:

- At the moment, there is no standard reporting format used at all levels as shown in Table 3.1 above. The reporting formats were identified by the M&E Unit based on discussions with IEs and, in most cases, the reporting format used is the one used internally by the IEs; therefore, the reporting format varies across entities. Nevertheless, reporting forms are consistently used within each specific entity.
- As discussed above, entities need to report between the 25th and 30th of previous month. However, the period reported varies according to entity, consequently, the specific period reported is stated in the ITT (notes column). This could be important information to provide in written guidelines to ensure that for a given entity, the period being reported is consistent across time.
- At the level of the M&E Unit (MCA-Jordan), all source documents received by the entities and used to inform the ITT were available for review and upon request. The same holds for all other documentation related to M&E, except for the ERR studies which were not available.

Based on the previous analysis, the functional area related to data collection and reporting forms and tools was scored as partly functional with a score of 2.2 over 3. The main weakness identified is the fact that no reporting form was designed by M&E Unit to ensure consistency in reporting. Although this was done mainly to avoid adding more workload on M&E focal points, the lack of adequate reporting forms makes it more complicated to follow-up on late reports.

The development of a standardized reporting form could increase the quality of data reported by clarifying indicators to be informed along with their definition, preventing calculation errors (with an Excel format with protected cells for instance), and facilitating data consolidation and validation. It would also allow the M&E Unit to provide written guidelines to entities on how to fill reporting forms and to ensure data quality, as well on specific period to be reported for each submission date (e.g., each quarter).

Data Management Processes

The functional area of the M&E system related to data management processes at the MCA-Jordan M&E Unit level has been assessed based on: (i) the existence of clear documentation of data aggregation, analysis and/or manipulation steps performed at each level of the

reporting system; (ii) systematic feedback to IEs on the quality of their reporting; (iii) the existence of written back-up procedures and appropriateness of backup frequency; (iv) the existence of written procedures to address late, incomplete, inaccurate or missing reports and the documentation of inconsistencies and; (v) the demonstration that regular supervisory site visits have taken place and that data quality has been reviewed. Main findings are presented below.

The M&E Unit has documented data aggregation, analysis and manipulation steps at their level. The Narrative indicator sheets developed for Compact indicators and each project present the calculation formulas for each indicator (when necessary), whereas, important information on calculations is presented in the ITT. Changes to the ITT are also indicated in the form of notes directly in the ITT report (Excel sheet). Since the Excel sheets (ITT) are protected, M&E Unit needs to justify all changes made. For this reason, this element was scored as completely met (score of 3 out of 3).

Feedback is provided to reporting entities whenever data quality issues are identified. However, as there is no specific written format to document this process, the feedback is usually provided by email or through phone calls, and in some instances visits are required to discuss issues. Given the difficulty in tracing the feedback process, this element was scored as partly met (2 over 3).

In addition, there is no written procedure to address late, incomplete, inaccurate and missing reports, including following-up with IEs on data quality issues, even though follow-up is done whenever needed by email, visits or calls as stated above. Given the absence of written procedures, this element has been scored as unmet (1 over 3).

At M&E Unit level, whenever data discrepancies have been uncovered in reports from IEs, and changes in the ITT were needed, the M&E Unit has documented how these inconsistencies have been resolved in the form of notes in the ITT. This element has thus been scored as completely met (3 over 3).

There is no computerized M&E system used to report from lower levels (IEs) to the M&E Unit. Reports are sent by email to the M&E Unit which monitors data on indicators using the ITT Excel sheets. For quarters 1 to 4, the ITT format was used to report quarterly to MCC. These Excel sheets allow control for calculation errors since they include protected cells to ensure that formulas are correctly applied. However, there are no integrated controls to prevent data entry errors. Starting Quarter 5, the M&E Unit has been reporting the ITT report to MCC using a new system called the MCC Integrated Data Analysis System (MIDAS).

This integrated reporting system allows for reporting across MCC business areas (Management information system for MCC). This system will certainly facilitate data management and reporting between the M&E Unit and MCC.

Even though M&E documentation was readily available to the DQR team upon request, it was found that there is no written backup procedure to ensure safeguarding of electronic documentation and M&E data. M&E staffs make regular backups of their files and keep copies of all emails and all documents for each quarter and per source. Back-up is done on laptop and flash disk. However, no systematic and regular back-up is done on the MCA-Jordan server. For this reason this element has been scored as partly met (2 over 3).

Finally, site visits and supervisory work is being done regularly as much as possible by the M&E Unit, even though there are no specific site visit schedules or supervision reports. Even though visits were organized, it has not been possible for the M&E Unit up to now to undertake planned internal data quality reviews given the high number of data sources and lack of time. Consequently, in order to ensure the quality of data reported, data quality is discussed regularly with the entities (i.e., how good they feel about the data). This element has thus been scored as partly met (2 over 3) given the lack of systematic supervision.

Based on the analysis above, the functional area related to data management processes received an overall score of 2.1 over 3 at MCA-Jordan M&E Unit level.

Use of M&E results

The use of M&E results at MCA-Jordan level was assessed on the basis of interviews with M&E Unit, CEO and Deputy CEO, Project Leads, as well as Communication and Gender specialists. The analysis was based on the use of M&E results for (i) planning; (ii) budgeting; (iii) assessing performance; (iv) supporting evidence-based decision-making and (v) advocacy.

What transpired through our discussions with MCA management (CEO, DCEO and Project Directors) is that M&E results, i.e. the ITT report, are currently seen as an MCC request. For decision-making purposes, what is mostly needed, given the current level of implementation of MCA projects, is information on their physical and financial progress. Thus, the progress reports submitted by PMC, Authority Engineer and contractors are the main reference. Nevertheless, it is well understood that once the physical implementation of projects is well advanced, data informing on outcome and impact indicators will be important for decision-making.

It is important to note however that some indicators (mostly process level indicators) are linked to quarterly disbursements by MCC and as such are used for budgeting purposes at the level of MCC. In addition, the ITT report is an important input to MCC to assess the performance of MCA-Jordan.

With regards to advocacy (done mainly through press releases), some information on progress of projects is used by the Communication Specialist, but it mostly comes from the Project directors, not from the ITT report.

Given the analysis of use of M&E results at MCA-Jordan level above, this functional area was scored as partly met (2 over 3).

One of the reasons for the limited use of M&E results is probably the lack of communication of M&E results within MCA-Jordan[18] and with key stakeholders for decision-making, as well as with the target population and the population in general for advocacy purposes. The monitoring and evaluation concepts and function are quite new for the senior managers who do care about engineering/civil work largely, but might not see for the moment the usefulness of M&E information. As stated earlier, there is thus need to enhance capacities in reporting and interpreting M&E reports. There is also need to:

- Raise awareness at management level on the usefulness of M&E.
- Identify user's needs adapt and communicate M&E results in a clear, useful, concise and comprehensive format. The ITT is useful for accountability purposes, but there is need to identify specific reporting formats tailored to the needs of decision-makers within and outside MCA-Jordan. Some suggestions would be the preparation of fact sheets, progress reports, annual performance report, and annual summary of achievements.
- Clarify communication channels within MCA so that everybody knows what information is available and where to look for it.

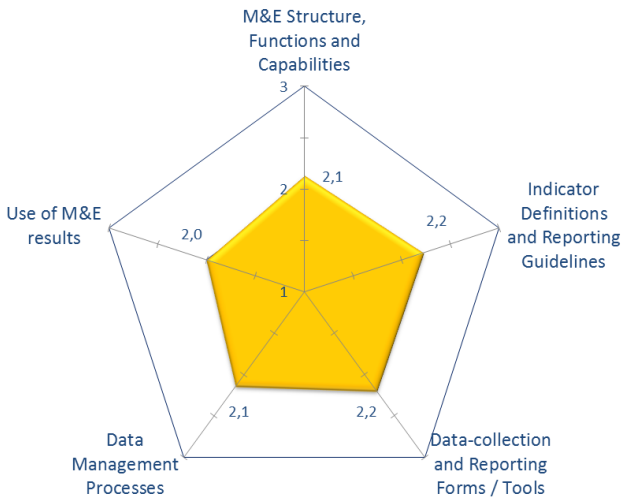
In addition, all stakeholders at MCA-Jordan need to know the feedback on the ITT sent by MCC, the loop should be closed and feedback or reports from MCC on MCA-Jordan M&E should be circulated back to all MCA-Jordan.

[18] Within MCA there used to be bi-weekly meetings in which each section's head would present challenges and results. But this has stopped since May 2013 due to unavailability of people.

Overall M&E system performance

Overall, the M&E system at central level, i.e. at MCA-Jordan M&E Unit, is rated as partly functional with a global score of 2.1 over 3, meaning improvements are needed to have a fully functional M&E system. As shown in the figure 3.2 below, there is need for improvements in all functional areas which have been scored between 2 and 2.2 over 3.

Figure 3.2: Data Management System Assessment
MCA-Jordan M&E Unit



Note: Score of 2.6 to 3.0: Area is fully functional
Score of 2.0 to 2.5: Area is partly functional
Score of 1.0 to 1.9: Area is not functional

3.2 WATER NETWORK PROJECT

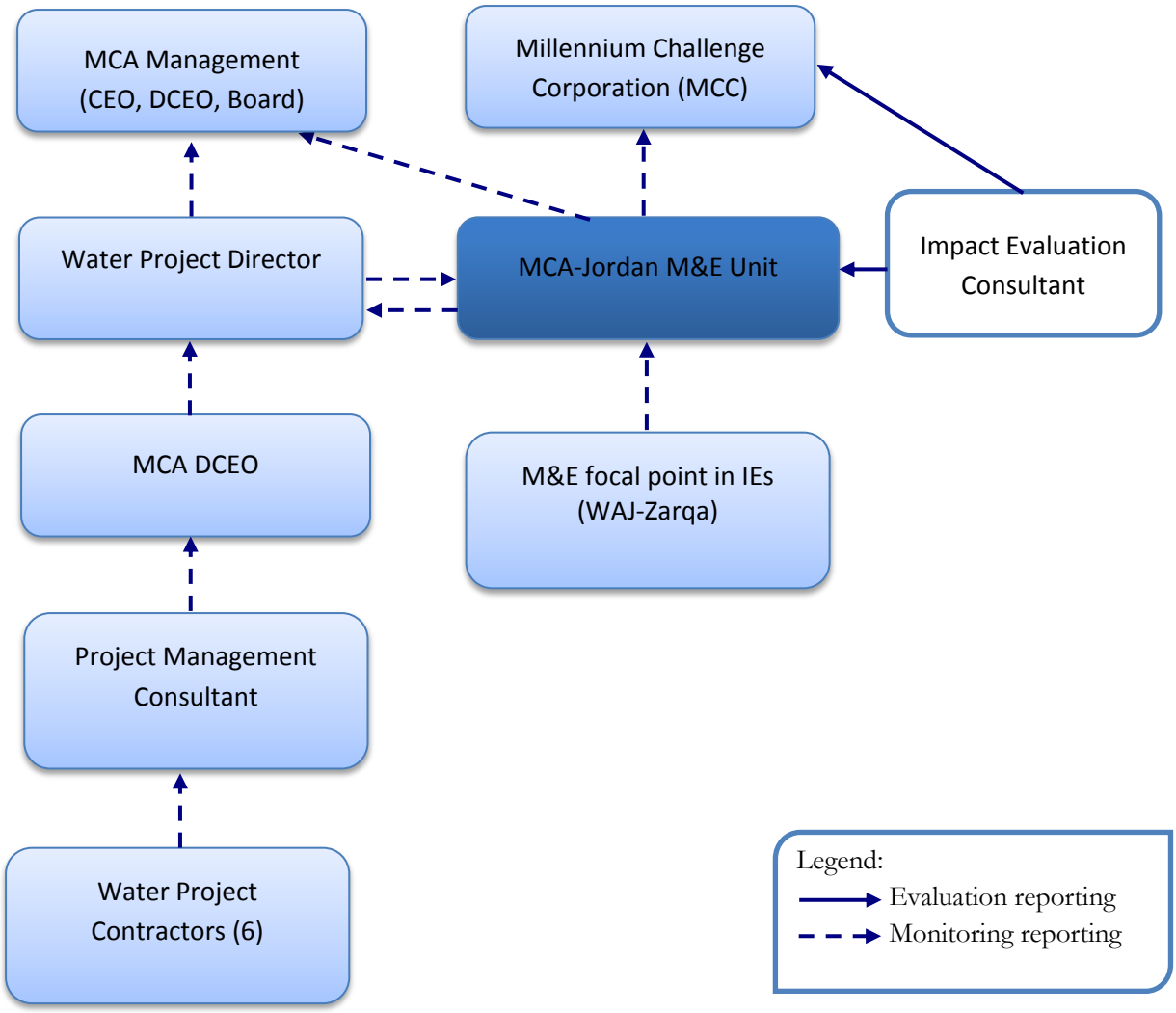
3.2.1 CURRENT INFORMATION FLOW

As shown in Figure 3.3, M&E indicators are currently being reported to the M&E unit through two contact points:

1. WAJ-Zarqa for NRW. This indicator is reported directly to the M&E Unit as WAJ-Zarqa is doing all data collection and analysis of NRW and sending reports in pre-agreed format (adopting the IWA guidelines).
2. MCA-J Water Project Directorate for other indicators. These indicators are reported through the Project Management Consultant (PMC) after receiving and processing the data obtained from the contractors on a monthly basis. Data is forwarded to the

Water Project Directorate (on monthly, quarterly and annual basis) for review and approval prior to being sent to the M&E Unit (quarterly progress report).

Figure 3.3: Information flow chart for the Water Network Project



No official feedback is yet formulated to be sent from M&E Unit to WAJ-Zarqa (related to NRW results) nor to the Water Project Directorate (concerning other indicators) after evaluating the data received from these entities and highlighting data validation results and any comments/feedback on projects progress and/or linkages between the different indicators. This should also include the discussion of NRW results received from WAJ-Zarqa with the Water Project Director.

3.2.2 Reporting performance

All Non-Revenue Water (NRW) Reports issued by WAJ-Zarqa and forwarded to MCA-J M&E Unit on a quarterly basis are received on time, given the agreed lag of one quarter to be reflected in the ITT. Reports are usually received within the first six weeks of quarter start and reflect the processed information and data of the previous quarter. It is recommended to maintain the NRW reporting through WAJ-Zarqa directly to the M&E Unit as it reflects the progress in water network project contracts execution.

As for other indicators, MCA-J has recently awarded the water network contracts. No progress reports have yet been issued. These reports shall be originated by the contractor on monthly basis and sent to the PMC where data will be analyzed against contract work plan and summary reports to be forwarded to MCA-J Water Project Directorate. Upon review and approval, the Water Project Directorate shall send the updated results of the agreed indicators to the M&E unit on Monthly and Quarterly basis.

Table 3.3: List of Reports Received by the M&E Unit for Water Network Project (Q5-Q8)

Type of Report	No. of Expected Reports	No. of Reports Received on Time	No. of Reports Received Complete
NRW (from WAJ-Zarqa)	4	4	4
Other Indicators (from WNP Directorate)*	-	-	-

As of Q8, reporting on other indicators had not started yet, since the project had not started.

3.2.3. M&E Systems Assessment

The Water Network Project M&E system, adopted by the MCA-Jordan and implemented by WAJ-Zarqa and the PMC, was assessed against the five areas presented above. An analysis of each of these functional areas of the MCA-Jordan M&E system at M&E Unit level is presented below and is followed by an assessment of its overall performance.

A key factor that needs to be taken into account in the assessment findings is that the Water Project contracts have only been recently awarded and, therefore, no reports demonstrating the progress of works are available. For this part, the assessment was based on the plans and intentions of the Water Project Directorate towards monitoring contracts progress and achieving planned results, the existing system at WAJ-Zarqa to inform on NRW, as well as the system adopted by the PMC in contracts management and project and

contracts information available. It is important to note that PMC is already monitoring the Waste Water Project, and as such, has already implemented the system that will be used to monitor the Water Network Project. The performance of the existing reporting system at PMC is therefore analyzed under the Waste Water Project following this section.

Detailed demonstration of each of these functions is provided hereafter.

M&E Structure, Functions and Capabilities

At aggregate level, WAJ-Zarqa, the NRW Directorate and support staff are taking the initiative of reviewing the data collected from the system through checking some suspected customers consumption extracted from Customer Services database, X7 Software. However, and although a focal point is designated for purposes of correspondence with MCA-J, no person has the official mandate of reviewing data quality, including data verifications and checks. This quality control initiative is delivered upon availability of the staff but no person is officially designated for this control. In addition, no official data management training was provided. WAJ-Zarqa should internally define these responsibilities (e.g. in Job Description Cards, or Assignment Letters) and ensure the provision of suitable competencies and/or training for the people who will manage these responsibilities.

On the other hand, at Water Project Directorate Level, a well-established organizational structure is available demonstrating the different levels and functions of the directorate staff. Currently, the Directorate is considering hiring another Project Engineer/Supervisor to assist in the direct supervision of project's execution on-site.

Despite the high qualification of the project staff, once reporting scheme and templates are developed and approved by the WNP Directorate, the PMC and the Directorate should train all concerned parties (contractors, PMC Staff, and WNP Directorate Staff) on the use of these templates and data verification and validation techniques should be developed and discussed with the M&E Unit as no training plan is currently available to build the capacity of the related staff members on data collection, analysis, and interpretation techniques. Responsibilities related to data review, interpretation, and validation responsibilities at all levels should be documented.

Reporting Guidelines

Currently, there are no written procedures/policies demonstrating the responsibilities, frequency, and methods of data collection, data review and checking, data verification and

processing, and authorization and reporting requirements and procedures. Information available within the Narrative Definition of the indicators provides clear information about calculation of the indicator but these procedures/policies shall demonstrate the complete cycle of raw data processing. In coordination with the M&E Unit, WAJ-Zarqa should develop such procedures for NRW while the WNP Directorate and the PMC should develop these procedures for other indicators.

For other indicators, MCA-Jordan has provided clear definition of the indicators that are to be reported by the PMC to the Water Network Project Directorate. Most of the indicators are related to direct measurement of contracts progress against the work plans (e.g. length of primary and secondary pipelines extended, number of water meters replaced and others). Still, reporting templates are not yet developed as the contracts have been recently awarded.

There is a need to ensure that clear reporting guidelines are being developed and demonstrated to all concerned parties (contractors, PMC, and Water Project Directorate) to ensure timely issuance of the agreed ITT indicators.

Data Collection and Reporting Forms and Tools

WAJ-Zarqa has developed a clear table for NRW calculation in accordance with the definition agreed with the M&E Unit. This table allows for final data checking and re-calculation. It demonstrates the different quantities of produced, imported, exported, billed, and authorized unbilled water. Raw data used for NRW calculation are extracted from X7 (for billing quantities) and operations reports (for production, import, and export quantities). WAJ-Zarqa, in coordination with the M&E Unit should develop clear guidelines/procedures for data processing, review, and verification after being collected from Customer Service and Operations Departments.

Although other indicators' definitions are well-established by the M&E Unit (e.g. length of primary and secondary networks, length of tertiary water network, number of replaced meters and others), no indicators reporting templates/forms are yet developed for indicators reported by the Water Project Directorate as the contracts have recently been awarded. The PMC shall define reporting scheme for the contractors and shall take into consideration time required by contractors to send their reports for verification by PMC prior to sending to MCA-J. This should also include the definition of data and records retention duration and location to ensure data availability for future auditing activities.

Data Management Processes

There is no systematic approach for providing feedback to Customer Service and Operations Departments of WAJ-Zarqa on the quality of the data collected from their side to calculate the NRW. Feedback is provided only in case of serious data quality issues (like significant drop or increase in water production). In addition, no specific instructions are provided for rechecking and controlling the quality of data re-entry from the paper-based forms into the system except for apparent mistakes in data entry. System administrators can access the data through WAJ-Central servers. However, no back-up or data transfer is done from WAJ-Zarqa servers to WAJ-Central Servers. Only random local back-up (to local computers within the same server room) is delivered as an initiative from IT staff and backup media is kept within the same server room. There is no emergency/contingency plans in case of connection failure with WAJ-Central. The server room at WAJ-Zarqa needs complete rehabilitation including proper maintenance of the electrical wiring, cooling system, and firefighting arrangements as the current status puts all customer services data at high risk of losing this data in case of fire or system breakdown.

Data related to WNP output indicators (other than the NRW) is being maintained at several levels. These include raw data being managed by the contractors, data managed and maintained by the PMC, and progress reports maintained by the Water Project Directorate. However, no actual reports have yet been issued as the contracts are recently awarded.

Although data review and analysis responsibilities are clear to Water Network Project staff, these responsibilities are not documented in a manner that eliminates possible interference amongst responsibilities. In addition, no documented procedures for data management at all locations are in place. These procedures should ensure that feedback is systematically provided to all reporting levels on the quality of their reporting (i.e., accuracy, completeness and timeliness). In addition, quality controls should be in place wherever data from paper-based forms are entered into a computer. Proper data back-up arrangements should be ensured once data generation starts. These arrangements should ensure that data is being maintained securely for the defined retention period and can be made readily available for auditing at any stage of project progress.

Use of M&E results

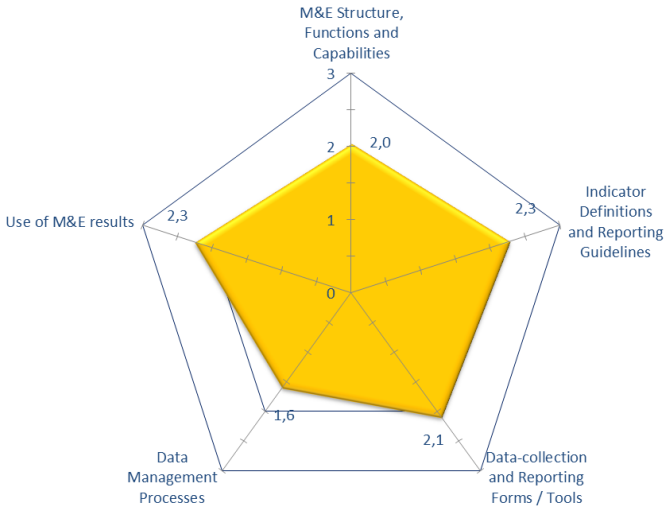
Since the Water Project contracts have recently been awarded and no reports are yet generated, there is no clear link between the different indicators that will be monitored to utilize and better plan compact activities (e.g. Primary and Secondary network rehabilitation/restructuring will affect other indicators like NRW level). Progress in contracts

shall be monitored through the monthly reports which will be used for financial control and release of installments. Monitoring results of contracts progress shall be used for adjusting work plans as a contractual requirement.

Overall M&E system performance

Overall, the M&E system is partly functional with a score of 2.1 over 3; however, there is need for improvements in most areas, specifically in terms of data management processes, M&E structure, functions and capacities, and data collection and reporting tools. Figure 3.4 presents the Water Network Project M&E system's assessment for the different functions that fall within the scope of the DQR.

Figure 3.4: Data Management System Assessment
Water Network Project



Note: Score of 2.6 to 3.0: Area is fully functional
Score of 2.0 to 2.5: Area is partly functional
Score of 1.0 to 1.9: Area is not functional

3.3. WASTE WATER NETWORK PROJECT

3.3.1 CURRENT INFORMATION FLOW

Figure 3.5 below shows the data flow for the Waste Water Network Project. Indicators informed by WAJ-Zarqa include sewer blockages incident numbers, volume of waste water collected, residential population connected to the sewer system, expansion, rehabilitation and reinforcement of the sewer network in the project area. WAJ-Zarqa focal point used to

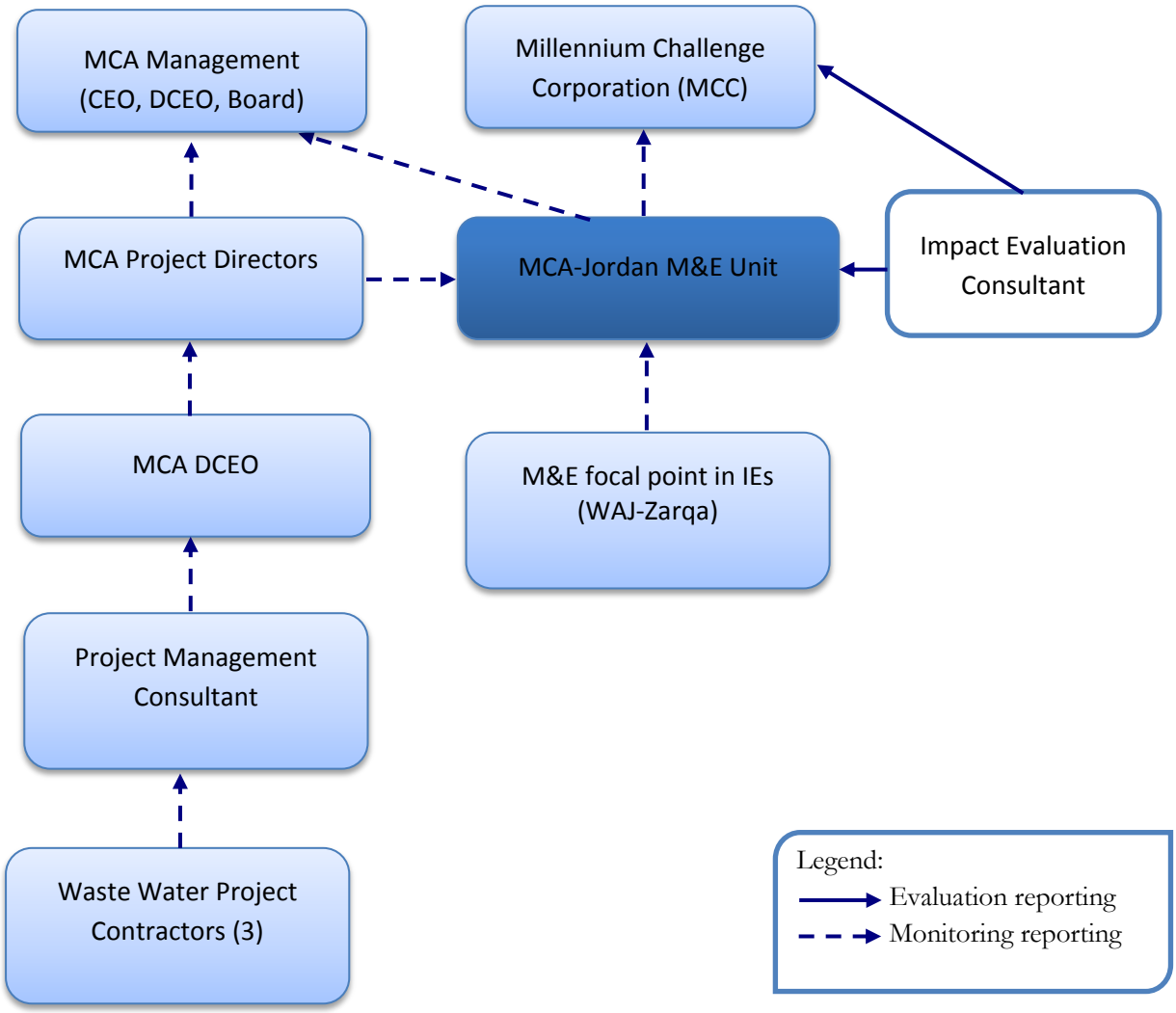
report quarterly to the Project Director, but to facilitate reporting, WAJ-Z is now reporting directly to the M&E Unit.

The Project Director informs on indicators related to the progress of works based on progress reports submitted by the PMC through the MCA Deputy CEO. PMC reports on work progress, complains, payments to the contractors, health and safety issues. PMC submits monthly, quarterly and annual reports. Once validated, quarterly progress reports are transmitted to the M&E Unit by the Project Director.

The M&E unit has good linkages with WAJ-Zarqa as stated in the M&E plan. Though PMC have no written commitment to report to M&E Unit, PMC reports upon request to the M&E unit as stated by PMC director while meeting with the DQR team.

It is important to note that the primary source of information on temporary employment is the contractors' monthly report directly submitted to PMC and informed in the PMC monthly and quarterly reports. Given that this indicator was not part of the DQR exercise, the contractors' data management systems were not assessed here.

Figure 3.5: Information flow chart for the Waste Water Project



3.3.2 REPORTING PERFORMANCE

Reporting performance for the Waste Water Project is highly satisfactory in terms of availability, timeliness, completeness. This performance illustrates the availability of the reports; on the other hand, M&E unit often needs to send WAJ-Zarqa a reminder to meet the submission deadlines. As shown in Tables 3.1 and 3.2 above regarding the submission dates.

It is important however to note that this assessment does not include WAJ-Zarqa's reporting performance as it is now reporting directly to the M&E Unit and therefore has been assessed in the first section of this chapter.

At PMC level, the primary sources of information for the preparation of quarterly progress reports are the monthly progress reports. Since there are three contracts for this project, there have been 36 monthly reports for Quarters 5 to 8.

3.3.3. M&E Systems Assessment

Each functional area of the Waste Water Network Project M&E system is discussed hereunder.

M&E Structure, Functions and Capabilities

At the level of the Project Directorate, there is the Director as the only staff. However, there would be need for and additional staff (mid-experienced Engineer) to ensure proper supervision of the project. Job descriptions for the Junior Engineer were not available at the time of the DQR. However, in terms of personnel and capacities in terms of ITT reporting needs, we believe that the Director needs a personnel support to follow up the work, evaluate reports and send written feedbacks since it requires a lot of time now despite the fact that WAJ-Zarqa is currently reporting directly to the M&E Unit.

The Project Director reviews and provides feedback on all reports submitted by the PMC. Supervisory site visits are also made on weekly basis. However, the Project Director is now involved in the validation of data received from WAJ-Zarqa only when needed. His knowledge of the project and of the sector could be useful in ensuring that data reported by WAJ-Zarqa on Waste Water Project indicators are valid.

The Project Director also attended the Social Impact M&E training. However, enhancing M&E skills would be recommended.

As for the PMC, monthly and quarterly progress reports are prepared by the Program Administrator (PMC). Main sources used to prepare these reports are both daily reports submitted by the three resident Engineers (one for each contract) as well as their monthly reports. The information is validated by the Program Administrator and Construction Manager, as well as during monthly progress meetings.

Reporting on the three Waste Water Network Project contracts is time consuming, although it is still manageable. However, when the Water Network Project works start and reach full speed, workload might become unmanageable for just one person with seven new contracts to supervise. PMC will need to make sure enough people are allocated to consolidate and

validate progress information received from all sites to ensure continued quality of the information reported.

The Wastewater division at WAJ-Zarqa in charge of informing on various Waste Water Network Project indicators has very limited personnel. For instance, for some indicators like sewer outflow incidents, existing personnel is insufficient to ensure proper reporting, consequently the only information available is on the number of incidents or the number of waste water complains numbers as stated in WAJ Zarqa reporting format. It should be clearly formulated whether complaints correspond to Sewer Outflow incidents to make sure the indicator is properly reported. There is thus urgent need for additional personnel to validate and review data for reporting. Under the existing condition there is for example no personal or unit to validate the data of Sewer outflow incidents. This is where some controversial numbers were noticed between the ITT and WAJ-Zarqa reports (WAJ-Zarqa report forms April-September 2013 a total number of 3486. According to the ITT it should report July-September). In year 1 also, it was noticed that the total of 9190 sewer out flow incidents is higher than the target which is 8500. Another case is the volume of wastewater collected which is reported by MWI for instance, in Year 1 total 28.2 MM3, while the target is 24MM3.

In terms of skills, there would be need for training in data quality review and monitoring. WAJ-Zarqa billing division also lack resources like training on maintenance of billing system X7. Working environment and promotion for the staff involved could be improved in different ways to assure full commitment and reporting efficiency.

Reporting Guidelines

All stakeholders involved in informing ITT indicators are aware of the information they need to report on and to whom they need to report. They also agreed on a reporting format with MCA-Jordan. However, submission deadlines are vaguely known. There is still need for the M&E Unit to remind WAJ-Zarqa Waste Water Department prior to the submission date to ensure timeliness of reporting. Even though submission dates are known by focal points, there are no written guidelines in this regard. Written guidelines to be developed should also be describing reporting procedures (i.e., who does what and when). It is also urgently recommended to produce a job description for focal points at WAJ-Zarqa. Those written guidelines will enable to avoid any inconveniences that might show up as a result of changes in personnel that can come so often at WAJ-Zarqa for instance, and consequently lead to difficulties while ensuring the sustainability of the M&E system and support to establish a long lasting functional system.

Data Collection and Reporting Forms and Tools

In terms of tools available for data collection and reporting, these are available and used by all reporting levels (PMC and WAJ-Zarqa). However, the ITT and the link between reporting needs and the ITT report is not known by all actors, especially in the case of the Waste Water division at WAJ-Zarqa.

It is worth to mention that for example for sewer out flow incidents indicator no written guidelines or agreed procedures are there. No validation for the data is done anddata are also recorded at different places even if stored at WAJ-Z. Complains are received at different destinations like municipality, governorate, or even the police. A unified system would be an urgent need for data collection in this regard as sewer out flow incidents is an important indicator in the ITT. This moderately efficient system of data collection can affect the assessment of project performance as the data received lacks precision and reliability.

On the other hand, at PMC level, data collection and reporting tools are very well defined and used and no further improvements are needed. However, the site contact points in Zarqa would need training in English as stated by meeting with PMC director.

Data Management Processes

As for the previous functional area, performance in terms of data management processes varies greatly depending on the structure reporting:

- PMC data management processes are well defined and fully implemented. The only aspect that would need improvement is to make sure that whenever discrepancies are uncovered in reports received, that there is documentation on how these inconsistencies have been resolved.
- At WAJ-Zarqa level, performance depends on the type of indicator informed as the source of information is not the same for all indicators. For indicators informed through the WAJ-Zarqa's X7 billing system (e.g., number of waste water subscribers), data management processes are not performing quite well. For the indicator related to number of incidents of sewage overflow, the data management system needs further improvements, such as written back-up procedures and systematic quality control.

Use of M&E results

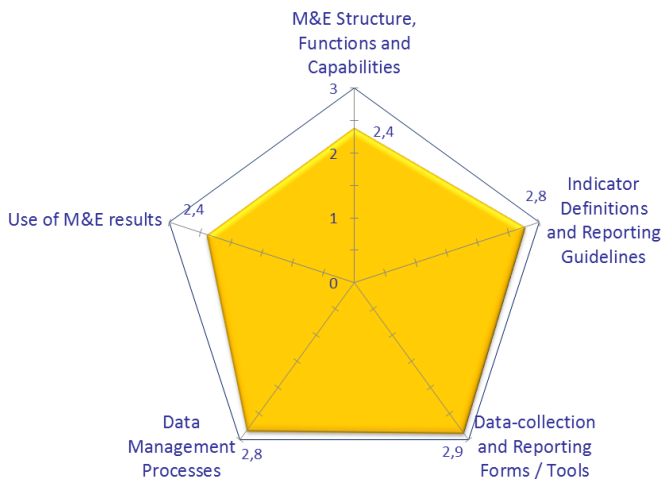
The use of M&E results has been assessed here for the Project Directorate level. Overall, the use of M&E results (mainly ITT report data at the moment) is very limited, since the information needed to monitor progress of works is already available in the PMC reports, while, main results (outcome and impacts) will show up mostly at the end of the Compact or even after.

In addition, in many cases, the Project Director is the one providing the data to M&E Unit, like the waste water project. M&E results might also be useful in time to budget for the connection of other sites (out scaling options). For example, a short briefing of two pages highlighting challenges or accomplishments or address urgent issues would create more feedback from stakeholders. This is recommended since the stakeholders indicated that they rather prefer short form of the project progress activities.
Other reasons for limited use of M&E results are that data are too premature to be useful for decision-making. In addition, some stakeholders do not like long detailed reports and ITT report is not very user-friendly. Increased use of M&E results could be achieved with better presentation of the huge data collected on the work done.

Overall M&E system performance

Overall, the reporting system for the Waste Water Network Project is rated as functional with a score of 2.7 over 3. However, specific areas for improvement lay in the areas of M&E structure, functions and capabilities, indicator definitions reporting guidelines, and use of M&E results as shown in Figure 3.6.

Figure 3.6: Data Management System Assessment
Waste Water Network Project



Note: Score of 2.6 to 3.0: Area is fully functional
Score of 2.0 to 2.5: Area is partly functional
Score of 1.0 to 1.9: Area is not functional

3.4. AS-SAMRA EXPANSION PROJECT

3.4.1 CURRENT INFORMATION FLOW

Information reported through MCA-J M&E unit is gathered through the implementing entities focal points at Ministry of Water and Irrigation (Project Management Unit) and Jordan Valley Authority (JVA). Data reported from the contractor to the Authority Engineer is verified and validated by the MCA M&E unit staff before submission of the ITT to MCC.

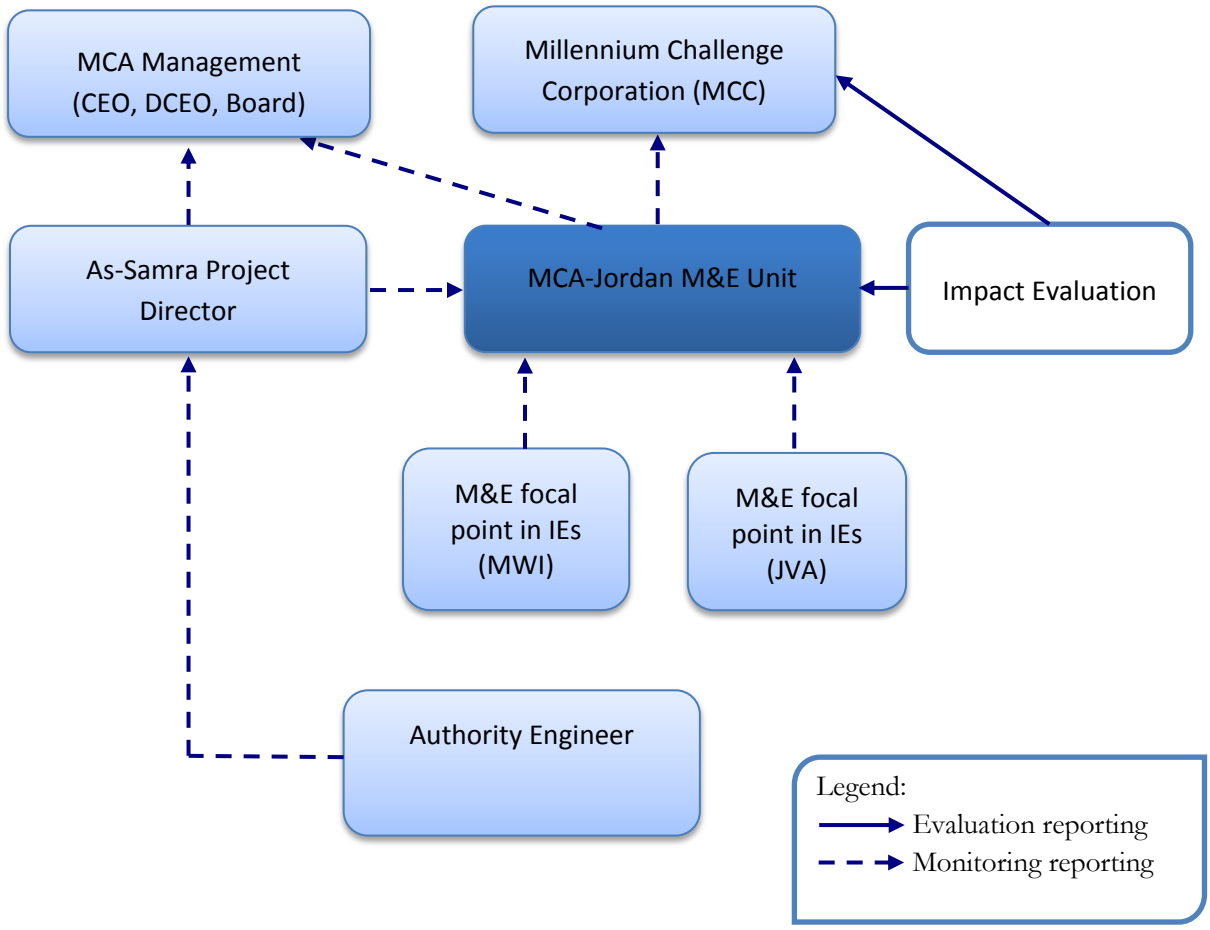
The Authority Engineer submits three reports:

- The monthly report (Progress Report) which is a very detailed report on the work progress for 72 structures, design of mechanical and civil work, procurement, delivery, factory shipments, and the percentage accomplished for the construction works with detailed explanations.
- The Biweekly report (H&S Report); and
- Special reports upon request from MCA-Jordan or MWI, such as when sludge problems are identified.

Figure 3.7 shows the data flow concerning the As-Samra Expansion Project where data flows vary depending on the type of information. For information on progress, data come from the Authority Engineer (acting as project management consultant) to MWI, the Project Director and M&E Unit (for process indicators).

The reporting is conducted on a quarterly basis for the following indicators: Quality of As-Samra effluent meets standard, and Volume of waste water effluent discharged from the As-Samra plant per year, reported by MWI, Agriculture use of treated wastewater, reported by JVA. The indicator "Treated wastewater used in agriculture" is also reported annually by JVA. Reports on these indicators are directly sent to the M&E Unit.

Figure 3.7: Information flow chart for the As-Samra Expansion Project



3.4.2 Reporting Performance

As indicated in Figure 3.10, reporting performance is highly satisfactory in terms of availability, timeliness and completeness with all monthly reports (12 for the review period) received on

time. However, it is important to note that this analysis only includes reports submitted to the Project Directorate by the Authority Engineer as other reports are directly submitted to the M&E Unit and, therefore have been assessed under section 3.1.2 above.

3.4.3. M&E Systems Assessment

A discussion on each functional area of the As-Samra M&E system is presented below.

M&E Structure, Functions and Capabilities

Performance in this functional area varies depending on the reporting structure:

- At the Project Directorate level, the Director is presently the only staff. He is based on site thus ensures closer supervision of works. It is planned however to recruit an assistant in the upcoming months. The Director reviews and validates progress reports submitted by the implementing contractor. In terms of skills and capacities, the Project Director participated in the M&E workshop organized by the M&E Unit.
- At the MWI PMU, an M&E focal point has been identified to report to the M&E Unit on data quality indicators. PMU is managing various projects and would therefore need more staff to ensure better supervision (financial, legal, and technical staff as well as engineers). The MWI PMU would also need further M&E skills, namely in the analysis, interpretation, presentation and reporting of M&E data. More specifically, how to adapt the format to stakeholders, share their experience with wider public, and publish papers.
- As for Jordan Valley Authority, current staff is sufficient and has necessary skills to report on the indicators related to the use of treated water for irrigation purposes.

Reporting Guidelines

As per the other projects, guidelines for reporting on progress of works (progress report) have been developed and agreed between MCA and the Authority Engineer. Written guidelines for reporting on M&E indicators do not exist however to date even if they were discussed and agreed with MWI and JVA. It is important to document written guidelines for the reporting process to attain sustainability of the project.

Data Collection and Reporting Forms and Tools

Data collection and reporting formats exist at all levels and are used consistently. However, for JVA, reports format varies from Word, Excel sheets, to scanned copies. Clear format

design that shall meet MCA needs in cooperation with JVA would be recommended. Written guidelines to the M&E reporting needs from JVA would be an asset to ensure data reliability and accuracy.

Data Management Processes

The Project Directorate has implemented a document management system with secured access, including a management information system, which enables to store and secure all information related to the project. The M&E Unit also has access to this system. Completed forms are uploaded by MCA after approval. All data uploaded are secured and cannot be deleted. However, new data can be uploaded. Both hard and soft copies are saved with weekly backup. A third party, a German private firm is revising the technical function of the data and the data quality and reports' contents. All stakeholders of the contract have access to the data through the PKM software. Monthly reports are submitted one week before MCA meeting. The main objective of the meeting is to discuss the report for further approval by MCA. Once approved, the report is uploaded in the database where MWI, JVA and MCC have an open access. This report has a summary prepared by both the Authority engineer and the implementing company.

The data management processes implemented at MWI to report on the quality of As-Samra effluent are well implemented and ensure good data quality. Data for this indicator is reported by SPC; however it is validated using data from the Royal Scientific Society with which MWI has an agreement for daily, weekly and yearly reporting. It is important to note that Ministries of Environment, Health and Agriculture also monitor this indicator. Data on Volume of Water is informed also by SPC; however, as for the previous indicator there are two other sources of information for validation.

Use of M&E results

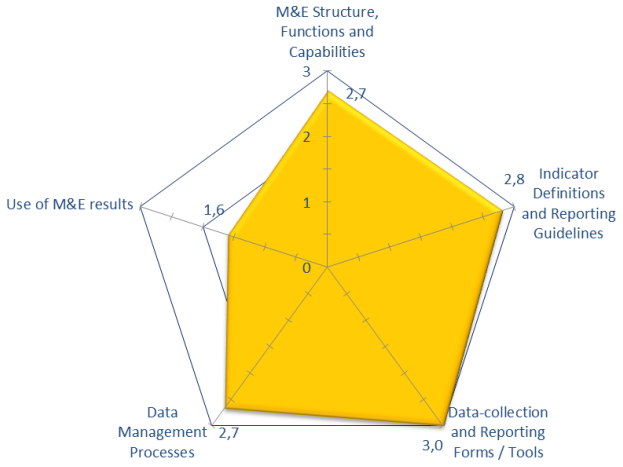
M&E results are mainly used to plan and budget project activities. However, information is solely provided by progress reports submitted directly to MCA Project Director by the Authority Engineer. There is very limited use of information reported in the ITT through the M&E Unit. Interesting information would be the information on temporary employment; unfortunately this process indicator has not been included for the As-Samra Expansion Project, despite the fact that it is available in the progress report.

Since MWI and JVA do not receive any feedback from the M&E Unit (ITT report for instance), this M&E information is not put to use. However, progress reports from SPC are used for decision-making by MWI to monitor and supervise progress of works.

Overall M&E system performance

Overall, the reporting system for the As-Samra Expansion Project is rated as functional with a score of 2.6 over 3. However, the use of M&E results is very limited and there is need to improve reporting guidelines as shown in Figure 3.8.

Figure 3.8: Data Management System Assessment
As-Samra Expansion Projet



Note: Score of 2.6 to 3.0: Area is fully functional
Score of 2.0 to 2.5: Area is partly functional
Score of 1.0 to 1.9: Area is not functional

4. INDICATOR ANALYSIS

This chapter presents the analysis of M&E indicators as well as the results of data verifications on selected indicators for MCA-Jordan Compact and each of the three projects respectively. As detailed under the methodology section, data quality analysis for each indicator was conducted based on the following five quality criteria: Validity, Reliability, Timeliness, Precision, and Integrity assessed using the Data Quality Assessment Grid presented in Annex 3, where a score of 1 to 1.9 translates as unsatisfactory, 2 to 2.5 as moderately satisfactory, and 2.6 to 3 as satisfactory data quality, based on an aggregation of scores given to specific questions related to each data quality criteria.

4.1 COMPACT INDICATORS

Overall, the M&E Plan includes one goal and five outcome indicators at MCA-Jordan Compact level; the goal indicator and one outcome indicator are informed through surveys and are therefore not included in the analysis presented below which presents results for four outcome indicators. Table 4.1 presents responsible entities and data sources for each of these indicators.

Table 4.1: MCA-Jordan Compact level indicators assessed by the DQR, responsible entity and data source

Indicators	Outcome level			
	Network water consumption per capita (residential and non-residential)	Billed residential water consumption	Operating cost coverage	Outstanding debt
Responsible entity / Data source	WAJ-Zarqa / DOS[1]	WAJ-Zarqa / DOS	WAJ-Central, Finance Department	

[1] For population figures.

4.1.1 ANALYSIS OF DATA QUALITY BY INDICATOR

Table 4.2 presents detailed results for each Compact level indicator assessed and the quality of data for each indicator is discussed hereafter.

Table 4.2: Assessment of Data Quality for indicators at MCA-Jordan Compact level

Criteria	Outcome				Overall Average by Criteria
	Network water consumption per capita (residential and non-residential)	Billed residential water consumption	Operating cost coverage	Outstanding debt	
1. Validity	2.7	2.6	2.8	2.3	2.6
2. Reliability	2.2	2.2	2.5	2.2	2.3
3. Timeliness	2.6	2.6	2.1	2.0	2.3
4. Precision	2.0	2.0	3.0	2.0	2.3
5. Integrity	2.6	2.6	2.7	2.8	2.7
Average score	2.4	2.4	2.6	2.3	2.4

Note: Score of 2.6 to 3.0: Satisfactory
Score of 2.0 to 2.5: Moderately satisfactory
Score of 1.0 to 1.9: Not satisfactory

Network water consumption per capita (residential and non-residential)

This indicator is informed on a quarterly basis and is calculated as [Annual billed residential and non-residential network water consumption (in m3)] / [population of governorate] * 1000 / 365. Consumption data (numerator) is reported quarterly by WAJ-Zarqa to MCA-Jordan M&E Unit through the consumption sheet, while population data (denominator) is informed through population estimates published by the Department of Statistics (DOS) based on growth rate estimates. Specific findings and recommendations are presented below for WAJ-Zarqa and MCA-Jordan M&E Unit respectively.

WAJ-Zarqa

Consumption data is collected from the field (mechanical water meters) by water meter readers using hand-held units. However, there are instances where missing data (e.g. defective hand-held unit or closed house) is estimated by the water meter reader. In this latter case, reports are submitted from the field and data is entered manually, while data from hand-held units is directly transferred to the X7 system (WAJ's Oracle-based information system). Batches are run on a daily basis to check data consistency. The estimation of consumption can affect the precision of data. However, since the reading is eventually corrected, the impact on overall consumption data is negligible.

There have been issues in the past of lack of commitment from meter readers that have resulted in some data quality issues. However, WAJ-Zarqa implemented new guidelines

where collectors need to do 20 readings per day and report to their supervisor. There is thus need to continue ensuring close supervision of water meter readers and to implement internal data quality processes (at all levels) at WAJ-Zarqa to ensure the quality of consumption data.

Data verifications were conducted using quarterly reports on water consumption (residential and non-residential) submitted by WAJ-Zarqa to the M&E Unit from quarters 4 to 8. These included verifying the evolution of water consumption (residential and non-residential) for each area (Zarqa and Ruseifa) from one quarter to the other, calculating the average growth rate in consumption between Q4 and Q8, and calculating central tendency (mean) and dispersion (standard deviation and coefficient of variation) measures. Detailed results are presented in Annex 5.

Results show that there are important seasonal variations that translate in strong variations in consumption (residential and non-residential) between quarters. Quarterly variations in residential consumption between Zarqa and Ruseifa are similar, which supports the idea that these are mostly due to seasonal variations. However, variations in non-residential consumption between Zarqa and Ruseifa are not comparable. Non-residential consumption in Zarqa is much more stable across quarters (coefficient of variation of 8.4%) than in Ruseifa (13.8%). However, given that the non-residential consumption in Ruseifa represents a small proportion of the total non-residential consumption (Zarqa + Ruseifa), the overall coefficient of variation for total non-residential consumption is of 8.4%.

Given the seasonal variation in total water consumption, the growth rate between quarters 4 and 8 was calculated as it enables to compare the same reporting periods (July-September 2012 with July-September 2013). For residential consumption, the growth rate between Q4 and Q8 was 21.6% for Zarqa and 23.7% for Ruseifa, with an overall growth rate for Zarqa Governorate of 22.2%. Quite strangely, the growth rate between Q4 and Q8 for non-residential water consumption has been negative for both Zarqa (-18.9%) and Ruseifa (-8.2%). This result in non-residential water consumption will affect the achievement of targets for the indicator on Network water consumption per capita.

MCA-Jordan M&E Unit

Data verifications also involved recalculating indicators based on information provided by WAJ-Zarqa, population estimates from DOS and information reported in the ITT (see Annex 5). Data verifications show that consumption data (both residential and non-residential) reflected in the ITT report (Q8) correspond to the data provided by WAJ-Zarqa for each quarter.

However, as regards population data used in the calculation of the indicator "Network water consumption per capita (residential and non-residential)", population figure used for Q2 to Q6 is 931,000, do not correspond to the population estimated by DOS by the end of year 2011 (934,100), even though the source of data identified by the M&E Unit is DOS. Yet, in the case of Q7 and Q8, population data used for the calculations in the ITT correspond to population estimates for 2012 from DOS (951,800). It is also important to consider that there is a lag in the availability of population estimates; for instance, up to this date, population estimates for year 2013 are not available on DOS website. This should be taken into account and corrected in the ITT once the correct information is available, e.g., the change in population from 931,000 to 951,800 was only applied starting Q7. However, this should have been corrected once the data for end of 2012 was available, i.e., starting Q5.

Detailed data, formulas and assumptions used to calculate baseline and target is presented in the file named "M&E indicators". The baseline for this indicator was calculated for year 2009 by dividing Total water consumption in liters per capita per day (l/c/d) by the total population in WAJ-Zarqa. Main sources of information used were WAJ-Zarqa billing data (residential and non-residential) and population estimates by DOS for 2009. It is important to note that two sets of billing data were provided to the analysts by WAJ-Zarqa. The two data sets presented slight differences, but it was decided to use the most disaggregated data, which is logical. Overall, there were no specific problems encountered with baseline data for this indicator.

Calculations of targets were based on the ERR model (P1-B ERR model). However, the baseline used in the ERR model was for residential consumption only, thus it was estimated to 56 l/c/d (see "Water Billing" sheet in M&E indicators.xls). The ERR model calculated that the residential consumption in the targeted population would be of 88 l/c/d and calculated that the non-targeted areas would see a lower increase (half) in their consumption. Given that residential consumption represented 88.4% of total consumption, the target was calculated by dividing the target (2015) for residential consumption by 88.4%, which resulted in a total consumption of 95 l/c/d. Taking into account the MWI Policy Statement target of 100 l/c/d in urban Zarqa and 80 l/c/d in rural Zarqa, the target was set to 96 l/c/d during negotiations using the formula indicated in the narrative indicator sheet. Given the information available, estimations of targets for this indicator are acceptable based on the information available.

The M&E plan states that this indicator is cumulative; however, it cannot be summed up as it is consumption per day. This can be seen in the calculation of % achievement of targets (% complete) which is calculated using the mean of quarters in a given year. This indicator should thus be updated as a level indicator in the M&E Plan.

There is also need to review the definition and calculation formula as it is calculated based on quarterly data, not annual data. The calculation formula would then be: [billed residential and non-residential network water consumption in previous quarter (in m3)] / [population of governorate] * 1000 / 90. This will help clarify this indicator and avoid misinterpretations.

It is recommended to MCA-Jordan to replace this indicator by "Network water consumption per customer (both residential and non-residential)", since population data might be misleading. As indicated above, the most recent census was conducted by DOS in 2004, there is thus a good chance that population estimates are not reliable. For instance, growth rates used by DOS to estimate population do not factor for the recent immigration from Syria[19], which represents an important population influx in the Zarqa Governorate. In addition, the population variable used to calculate this indicator is beyond the influence of the project and can be affected by external conditions. In this specific case, the performance of the project will probably be underestimated. Using consumption per customer rather than consumption per capita would result in a direct increase in precision.

In addition to Network consumption per capita or per customer, it would be important to inform also on Total network consumption in the ITT to complement it. Since consumption per capita or per customer can be both affected by higher consumption and increases in population or number of customer, information on total consumption would provide additional information to understand the factors affecting per capita (or per customer) network consumption.

This indicator would be calculated as [Annual billed residential consumption (in m3) + non-residential network water consumption (in m3)]. As this information is already being reported quarterly in the Consumption report, it would not add an additional burden on WAJ-Zarqa and on the M&E Unit to report it. Information on baseline and targets is also already available in the M&E Indicators Excel sheet.

In the case, MCA-Jordan decides to keep Network consumption per capita, this indicator would need to be informed through the impact evaluation surveys (baseline and end line) to ensure its precision.

Based on the analysis above, the data quality for this indicator is moderately satisfactory as relates to most criteria with a score of 2.4. Main concerns in terms of data quality are related to reliability and precision of data, which received a score respectively of 2.2 and 2.0 over 3 (Table 4.2 above). The implementation of recommendations above should enable to improve the quality of this indicator, especially as regards its reliability and precision.

[19] This has been clearly indicated in the Statistical Yearbook 2012 .

Billed residential water consumption

This indicator is informed quarterly by WAJ-Zarqa through the Consumption sheet and is calculated using the following formula: [average percentage of residential customers]*[network consumption per capita]. Network water consumption data used to calculate this indicator is informed through the same process as the previous indicator, consequently results of data verifications and recommendations regarding consumption data hold for this indicator also. Additional findings and recommendations for this indicator, mainly directed to the M&E Unit, are presented below.

There is need to review the definition of this indicator and its name as it is currently misleading. If the information is per capita, the indicator name should state as such.

The formula used to calculate this indicator is not straightforward. Since data on residential billed consumption is available, this information should be directly used to calculate this indicator. This would reduce manipulations and consequently reduce the possibility of calculation errors. Verifications of data received from WAJ-Zarqa and data presented in the ITT enabled to discover problems in the calculations in the ITT. Instead of using total billed consumption as per the formula, billed residential consumption was used; therefore underestimating billed residential water consumption. New calculations for this indicator are presented in Annex 5.

The baseline for this indicator should be revised to 56 l/c/d as it has been estimated at 56 l/c/d in the M&E indicator sheet, while it is stated as 57 l/c/d in the ITT. The target was calculated using the same assumptions as were used to estimate total consumption above and was estimated at 88 l/c/d, which corresponds to the target set in the ITT.

For the same reasons discussed for the previous indicator as regards the use of population data, this indicator should be replaced by “Billed residential consumption per customer”, given that population data might be misleading. This would result in a direct increase in precision for this indicator.

As per the previous indicator, the M&E plan states that this indicator is cumulative; however, it cannot be summed up as it informs on consumption per day. This should be updated in the M&E Plan.

Based on the analysis above, the quality of data for this indicator is moderately satisfactory with a score of 2.4. As for the previous indicator, the quality dimensions that need to be most improved are reliability and precision. The implementation of recommendations above should enable to improve the quality of this indicator, especially as regards its reliability and precision.

Operating cost coverage

This indicator is defined as "Total quarterly operational revenues divided by total quarterly operating costs" and calculated using the following formula: [Total Quarterly Operational Revenue] / [Total Quarterly Operational Cost (including maintenance)].

Operating cost coverage is informed by WAJ-Central, Finance Department. It was previously stated that this indicator would be informed quarterly, but as audited statements are used to inform it, it was agreed that it would be reported annually starting Quarter 9. It is important to note that for the purpose of this DQR, the initial reporting frequency (quarterly) was used for the assessment of data quality as the DQR covered Q5 to Q8.

Main findings and recommendations regarding this indicator are presented below for WAJ-Central Finance Department and MCA-Jordan M&E Unit respectively.

WAJ-Central Finance Department

Data verifications of reports sent by WAJ-Central to M&E Unit did not show any inconsistencies across reporting levels. However, it is important to note that financial audited statements which are the source of information for this indicator were not reviewed. Although there were no errors encountered, it would be important to implement a data quality control at the level of WAJ-Central Finance Department in order to ensure that there are no errors when transcribing the information from the financial statements in the report to be sent to M&E Unit.

It is important to note that the information used by WAJ-Central Finance Department to calculate this indicator relates to operation and minor maintenance costs. As a result, the cost of capital (to service the capital finance invested) and the capital maintenance costs (to ensure fixed assets remain serviceable) are not included in the calculation of this indicator. It is thus important to clarify the indicator definition, as even if a cost recovery ratio of 100% is achieved, WAJ-Zarqa might not ensure adequate revenues for sustainability of the network.

MCA-Jordan M&E Unit

Operating cost coverage is MCC common indicator used for similar projects in other MCA countries. Based on MCC guidance on common indicators, this indicator "focuses on financial performance of the utility to make a determination if the utility is financially viable and can cover its costs. Each country should clearly define how depreciation and maintenance are incorporated into the financial calculation". Based on MCC guidance and findings above related to the costs included in the calculation of this indicator, it is needed

to clarify specific costs that are included in the calculation of operational costs and to update the M&E Plan accordingly.

Given that the frequency of reporting agreed is now annual, the formula for this indicator should be updated as: [Total Annual Operational Revenue] / [Total Annual Operational Cost (including maintenance)]*100.

There is need for the M&E Unit to specify in written form new reporting requirements (annual submission dates) to ensure the timeliness in the reporting of this indicator.

All these clarifications should be provided in a revised reporting format which should be developed by the M&E Unit in close collaboration with WAJ-Central Finance Department.

Baseline value for this indicator (i.e. for year 2009) is not informed in the ITT. This should be clarified in the M&E Plan as the information should be easily available from WAJ-Central. For instance, data provided by WAJ-Central Finance Department reported Operating cost coverage to be 75% for 2011. On the other hand, data provided (WAJ-Zarqa financial indicators) calculated this indicator to be 87% in 2009 and 88% in 2008. Baseline should thus be updated in the M&E plan accordingly using the 2009 data (87%).

The target for this indicator has been set to 100% by 2015. However, there is no rationale provided behind this target. Maintenance costs might decrease due to new investments in the network; however, to achieve full operating cost coverage, there is also need for other actions such as increased tariffs and/or increased number of clients.

Data quality for this indicator is satisfactory with a score of 2.6. Most data quality criteria received a high score given that audited financial statements are used to calculate this indicator, which provides more confidence in the information. However, timeliness has been scored as moderately satisfactory (2.1 over 3) as reports were missing for 3 out of 4 quarters for the period reviewed. The modification in frequency of reporting from quarterly to annually, along with clarification of reporting deadlines, should help improve timeliness of reporting for this indicator.

Outstanding debt

This indicator is informed by WAJ-Central Finance Department. It is defined as “Account receivable compared with annual sales” and calculated using the following formula: “[Account receivable] / [annual sale]”.

Main findings and recommendations regarding this indicator are presented below for WAJ-Central Finance Department and MCA-Jordan M&E Unit respectively.

WAJ-Central Finance Department

This indicator has been informed by WAJ-Central only for Q7 (for year 2012), while it was not informed in the ITT for other quarters (even though the frequency of reporting was quarterly), even though the data can be available at WAJ-Central Finance Department. Although the frequency of reporting has been modified to annual reporting, values for Q2 should have been informed. There is thus need for M&E Unit to discuss with WAJ-Central and check why the information has not been reported. It is also important to underline that while this indicator is informed by WAJ-Central Finance Department, the information is also available directly at WAJ-Zarqa from the central billing system (X7)

Data verifications performed on data for this indicator showed discrepancies when recalculated for Q6 (second quarter of 2013): ((Account receivable at the start of the period (in the file provided corresponds to 01/01/2013)) + (Sales for the period (Q1+Q2 in the file provided)) – (Collections for the same period (Q1+Q2 in the file provided)))/ (Sales for the period (Q1+Q2 in the file provided)). Information is also available for the first three quarters of 2013. The same discrepancy was found when recalculating account receivable at the end of the period. It was not possible to check whether the 2.5% figure provided in the ITT is correct, since the data was not provided to the DQR team. However, when making assumptions about the evolution for the last quarter of 2013 based on trends (assuming sales of 2.5 million for Q4 of 2013 and collections of 2 million), the outstanding debt is estimated to be around 103%. This is very far from the 2.5% figure reported in the ITT. In addition, it was not possible to find this figure in all documents related to this indicator which were submitted to the DQR team. There is thus need to clarify the definition of this indicator as suggested below, to recalculate the value for Q2, and to provide a reporting format with integrated formulas for calculations to avoid such discrepancies.

Another strange thing noted in the file when verifying data is that when calculating for Q1+Q2, what is called “Account receivable” in the initial sheet (called Financial Indicators For Al Zarqa) corresponds to what is called “collections” in the second sheet (also called Financial Indicators For Al Zarqa) for financial indicators.

Although no additional data was received for the other quarters as requested, the DQR team met with the WAJ-Central Finance Department to discuss further these discrepancies. One explanation for the discrepancies was that WAJ-Zarqa updated their water Sales when a customer paid his invoice after say 12 months. However, there is little chance that this caused the discrepancies. Eventually the DQR team together with WAJ-Central Finance Department M&E focal point managed to get an original sheet that WAJ-Finance receive from the X7 (Customer Service system). After many manual re-calculations, figures added up correctly. Data sent to M&E Unit is usually re-entered manually by WAJ-Central Finance Department which could lead to discrepancies. However, this still does not explain why the

figure reported is so low compared to our estimations based on available data. There is need to request data from WAJ-Finance for Q2 and Q6 and recalculate this indicator using the calculation formula: ((Account receivable at the start of the period (or end of previous year) + (Sales for the period (end of current year)) – (Collections for the same period (end of currend year)))/ (Sales for the period (end of current year)).

After the meeting, it was agreed that the figures from both WAJ-Finance and WAJ-Zarqa Customer Service would be provided after an official request by MCA-Jordan M&E Unit. However, as underlined above, no additional data was received by the DQR team.

MCA-Jordan M&E Unit

Given the definition of this indicator (based on annual sales), frequency of reporting should be annual. This has already been agreed with WAJ-Central Finance Department and will be implemented starting Q9.

The baseline data is not available; there is a need to calculate it. The information should be available in the information system at WAJ-Central or even at WAJ-Zarqa (financial indicators). Historical data (trends) should be used to estimate the baseline as this indicator can vary quite importantly from year to year. There is also need to establish a target for this indicator based on historical trends and expected effects of the program on this indicator. This will not be easy as the logical relation (relevance) between the program activities and this indicator is not direct, since this indicator is more related to administrative management rather than to the improvement of network. There is need to discuss the relevance of this indicator during the upcoming revision of the M&E plan and clearly justify its relevance in assessing the performance of the MCA-Jordan Compact.

If judged justified to keep this indicator in the M&E plan, there is need to clarify the definition of this indicator to make sure repeated measurements yield the same results: Account receivable (Account receivable in the previous year + Sales in the current year - Bills collected during the year) / sales in the current year. This would prevent any misinterpretation by WAJ-Central Finance Department on the information to be reported. This should be done in written form, in a specific reporting format where formulas should be integrated (and protected) and in written guidelines. As stated for the previous indicator, there is also need to specify reporting requirements (submission dates) to ensure the timeliness in the reporting of this indicator.

The data quality for this indicator is moderately satisfactory with a score of 2.3, but there is need for improvement especially as regards its timeliness, precision and validity (especially in regarding the sub-dimensions of relevance and adequacy).

Additional recommendations on Compact level indicators

Even though the assessment of indicators informed through survey was not part of the TORs for this DQR exercise, some comments and recommendations that were judged useful by the DQR team for the upcoming review of the M&E Plan are discussed hereunder, as well as suggestions of additional indicators.

Total residential water consumption:

- This indicator is calculated using the following formula: Billed residential network water consumption + tankers, treatment shops, and bottled water.
- Information on network residential consumption can be informed through WAJ-Zarqa, but water consumption from other sources can only be informed through a survey.
- Consequently, this indicator cannot be informed quarterly as stated in the M&E Plan, since it needs survey data to inform on the use of other water sources such as tankers, treatment shops and bottled water. WAJ-Zarqa includes tankers in its data but they don't know if it is part of residential or non-residential billing data.
- There is a need to clarify the calculation method used to calculate the baseline: for this indicator as it is not clear why there is a need to sum “residential consumption from other than network” with “Average percentage of residential customers”.
- This indicator will be difficult to inform even through a survey is planned because its calculation involves mixing administrative and survey data. The use of population estimates is also a problem for this indicator. The best option would be to estimate households' water consumption by water source and calculating the per capita consumption from the sample only.
- An indicator that might be easier to measure would be the proportion of households using non-public water sources (tank water, bottled water). The outcome of the Compact could be measured through the reduction in the use of non-public water sources. One advantage of using this indicator is that Department of Statistics informs this indicator every 2 years through the Household Budget Survey (HBS). Other indicators available through this survey and for which estimates are representative for Zarqa Directorate are the type of sewage system and household assets owned by households by type of asset (useful in assessing improvements in socio-economic conditions of households).
- Discussions could also be conducted with DOS to include additional indicators to the HBS to enable to link improvements in socio-economic conditions of households in Zarqa and the increased access to water and sanitation.

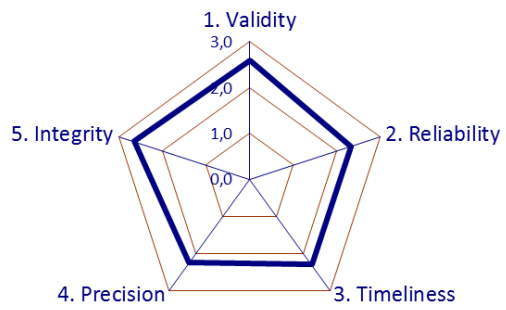
In any case, given the characteristics of the projects to be evaluated through the impact evaluation survey, it will be important to plan for the use of qualitative approaches to complement the quantitative information to be collected and better grasp the causal effects

of the Compact. This could also ensure to assess the sustainability of the Compact's outcomes and impacts in the future (after the end of the Compact).

4.1.2 ASSESSMENT OF OVERALL DATA QUALITY

Figure 4.1 presents the overall assessment of the quality of M&E data for Compact level indicators[20]. The overall score is 2.4, indicating that the quality of the data is moderately satisfactory but that there is still room for improvement. More specifically, the summary evaluation shows that data quality is satisfactory as regards validity and integrity. Whereas, the precision, timeliness and reliability criteria are judged moderately satisfactory and further improvements are needed in these areas.

Figure 4.1: Project Data Quality Assessment - Compact Level Indicators



Note: Score of 2.6 to 3.0: Data quality is satisfactory
Score of 2.0 to 2.5: Data quality is moderately satisfactory
Score of 1.0 to 1.9: Data quality is unsatisfactory

4.2 WATER NETWORK PROJECT

4.2.1 ANALYSIS OF DATA QUALITY BY INDICATOR

Table 4.2 presents detailed results for of the analysis of data quality forthe outcome indicator of the Water Project. However, the output indicators were not given scores since no data had been collected on these indicators at the time of the DQR. However, whenever issues were identified with these indicators, they are discussed hereafter.

[20] The assessment is based on available information at the time of the DQR.

Table 4.2: Assessment of Data Quality for Water Network Project Level

Criteria	Outcome
	Non-Revenue Water (NRW)
1. Validity	2.5
2. Reliability	1.9
3. Timeliness	2.8
4. Precision	2.0
5. Integrity	1.8
Average score	2.2

Note: Score of 2.6 to 3.0: Satisfactory
Score of 2.0 to 2.5: Moderately satisfactory
Score of 1.0 to 1.9: Not satisfactory

Non-Revenue Water (NRW)

The quality of this indicator is moderately satisfactory with a score of 2.2. Areas of concern include criteria such as reliability and integrity, and there is need for improvement especially as regards its reliability, precision, and integrity. Findings and recommendations regarding this indicator include the following:

- This indicator is informed on a quarterly basis and is calculated as the percentage difference between authorized water consumption and water supplied through the network. Data is obtained at WAJ-Zarqa from Customer Services Department (X7 system) for authorized water consumption (including billed and unbilled water consumption) and from the Operations Department for quantity of water supplied through the network (including water production, import, and export quantities).
- This definition does not comply exactly with the IWA definition if wanted to be benchmarked with international best practices. The IWA considers only the Authorized BILLED Consumption as the Revenue Water, anything else is considered as non-revenue water.
- When reviewing the baseline files, it can be noticed that the definition and method of calculation is different from what is specified in the Narrative Description of the NRW indicator, which is developed as an individual effort by the M&E Unit. The following table demonstrates these differences and compares it to the IWA Definition:

Table 4.3: Definitions of NRW from various sources and recalculated baseline

Parameter	Baseline Based on Narrative Description	Existing/Current Baseline Calculation	Baseline based on IWA Definition
Water input	Production and Imports excluding exports [1]	Production and Imports	Production and Imports excluding Export
Revenue Water	Authorized Consumption (billed and unbilled)	Authorized Billed Consumption	Authorized Billed Consumption
Export Water	Considered Revenue Water and not deducted from Water Input	Considered Non-Revenue Water [2]	To be deducted from water input
NRW Re-Calculation for 2009	54.2%	47%[3]	54.8%

[1] Although the calculation of NRW delivered by WAJ considers export as Authorized Consumption and is not deducted from water input.
[2] Although in the formula it is considered as revenue water (part of the water sales).
[3] Quoted from the Baseline Calculations Table

- In order to meet international definition of NRW (IWA Guidelines), MCA-Jordan should follow the following definitions at all levels:
    - Water Input: Water Imports + Water Production - Water Exports
    - Revenue Water: Authorized Billed Consumption

  NRW = (Water Input - Revenue Water) / Water Input*100

- Since calculation of NRW is a timely process as it requires that all customers' meters readings be collected and processed, it was agreed between MCA-J and MCC that NRW value for a certain quarter will actually reflect NRW in the previous one (e.g. NRW for Q8 is actually NRW for Q7).
- Procedures for data verification prior to reporting, including random checking, need to be developed. In many cases, some odd figures of billed quantities (e.g. zero readings or high water consumption for an apartment based on its history) is detected and investigated but not as a systematic approach rather than an initiative by the concerned staff. Assigning a responsibility for data verification (Quality Control) and problems with X7 data extraction need to be investigated and resolved by WAJ-Zarqa.
- In addition, WAJ-Zarqa needs to clearly identify the source of the data and who is responsible for maintaining this data and how to access it in case of a person's absence, drop out and/or emergency.

- Targets need to be reviewed in light of the delay in signing the water project contracts and the agreed work plan for each of these contracts.

Restructure and rehabilitate primary and secondary pipelines (km)

As mentioned earlier, the assessment of this indicator, and the coming ones, was based mostly on the clarity of indicator definition and simplicity of its measurement.

Specific comments and recommendations related to this indicator are as follows:

- The name of the indicator should be reformulated as "Length of primary and secondary pipelines restructured and rehabilitated", since it is currently formulated as an action rather than as an indicator.
- There is need to distinguish between restructuring and rehabilitation:
    - Length of water distribution network restructured (overall sub-division of the network into Water Supply Areas, Distribution Areas and District Meter Areas.
    - Length of existing primary and secondary pipelines renovated/replaced.

Restructure and Rehabilitate Tertiary Pipelines (km)

Specific comments and recommendations related to this indicator are as follows:

- The name of the indicator should be reformulated as "Km of tertiary pipelines restructured and rehabilitated", since it is currently formulated as an action rather than as an indicator.
- It could also be useful to distinguish between replacement and reinforcement/renovation as the works needed are different and might target different areas.

Number of Replaced Customer Meters

This indicator refers to the number of customer meters to be replaced through the project as the current meters are not working properly. Specific comments and recommendations related to this indicator are as follows:

- There is need to reformulate this indicator as "Number of defective customer water meter replaced", since it is currently formulated as an action rather than as an indicator.
- Another indicator that can be adopted is the number of customer meters fixed. As it is possible that some of the meters that are set for replacement are only not working properly because of manipulation, improper installation, tilting, meter class, or others.

Restructure and Construct District Meter Areas (#)

This indicator is related to the progress in establishing the District Meter Areas which requires Primary and Secondary networks to be established and each of the areas to be completely isolated from other adjacent districts to control the water supply according to the new design of the water supply network.

There is need to reformulate this indicator as "Number of District Meter Areas' connection points isolated and constructed", since it is currently formulated as an action rather than as an indicator.

Install Strategic Meters on Key Water Transfer Pipes

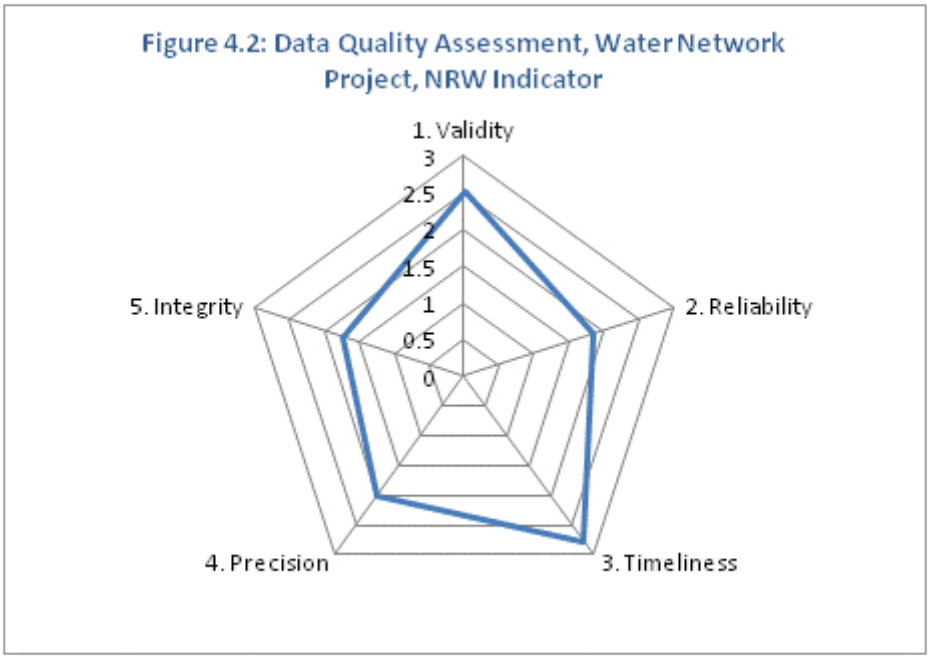
This indicator aims at monitoring bulk water flow into the isolated districts to be established as part of the project. These meters shall be installed on the key bulk water transfer pipes. It is completely dependent on the new design of the water supply system in the targeted areas.

There is need to reformulate this indicator as "Number of strategic meters installed on key water transfer pipes", since it is currently formulated as an action rather than as an indicator.

4.2.2 ASSESSMENT OF OVERALL DATA QUALITY

Figure 4.2 presents the overall analysis of the M&E data quality of the Water Network Project[21]. The assessment focused on NRW as no data/reports were available for output indicators at the time of the DQR. The overall score of the NRW Indicator is 2.2, indicating that the quality of the data is moderately satisfactory with room for improvement. More specifically, the summary evaluation shows that data quality is satisfactory as regards validity, timeliness, and precision. However, the reliability and integrity criteria are judged moderately satisfactory.

[21] The assessment is based on available information at the time of the DQR.



Note: Score of 2.6 to 3.0: Data quality is satisfactory
Score of 2.0 to 2.5: Data quality is moderately satisfactory
Score of 1.0 to 1.9: Data quality is unsatisfactory

4.3 WASTE WATER NETWORK PROJECT

Overall, the M&E Plan includes three outcome and six output indicators. All indicators were reviewed for this DQR exercise. Table 4.4 presents responsible entities and data sources for each of these indicators.

Table 4.4: Waste Water Project indicators assessed by the DQR, responsible entity and data source

Indicators	Outcome level			Output level					
	Sewer blockage events	Volume of wastewater collected	Residential population connected to the sewer system	Expand network			Reinforce and rehabilitate network		
				West Zarqa	East Zarqa	Ruseifa	West Zarqa	East Zarqa	Ruseifa
Responsible entity / Data source	WAJ-Zarqa	WAJ-Zarqa	WAJ-Zarqa	PMC			PMC		

4.3.1 ANALYSIS OF DATA QUALITY BY INDICATOR

Table 4.5 presents detailed results for each Waste Water Network Project indicator assessed. The analysis of output indicators "Expand network" and "Reinforce and

rehabilitate network" were done jointly for all three zones (West and East Zarqa, and Ruseifa) as they are the same indicators for which the information is presented by zone. As such, the same reporting systems are used to report on these indicators. A detailed analysis of the data quality for each indicator is presented below at outcome and output levels.

Table 4.5: Assessment of Data Quality of Waste Water Network Project indicators

Criteria	Outcome			Output		Overall Average by Criteria
	Sewer blockage events	Volume of wastewater collected	Residential population connected to the sewer system	Expand network (West and East Zarqa, Ruseifa)	Reinforce and rehabilitate network (West and East Zarqa, Ruseifa)	
1. Validity	2.1	2.6	2.7	3.0	2.8	2.6
2. Reliability	1.7	2.9	2.8	2.9	2.9	2.6
3. Timeliness	2.4	2.8	2.7	3.0	3.0	2.8
4. Precision	2.0	3.0	3.0	3.0	3.0	2.8
5. Integrity	1.0	2.3	2.8	3.0	3.0	2.4
Average score	**1.8**	**2.7**	**2.8**	3.0	**2.9**	**2.7**

Note: Score of 2.6 to 3.0: Satisfactory
Score of 2.0 to 2.5: Moderately satisfactory
Score of 1.0 to 1.9: Not satisfactory

Outcome Indicators

Sewer blockage events

This indicator is informed on a quarterly basis by WAJ-Zarqa through the Monthly Complaints Reports for Zarqa and Ruseifa (Word document) in which waste water complaints are reported along with complaints related to the water network (overflows). This indicator is defined as annual number of blockages that occurred in sewers network per year (pumping station blockages shall not be included). However, this indicator is reported quarterly (sum of blockages in the quarter). The calculation formula for target and baseline are not indicated in the Indicator Narrative sheet. However, based on baseline calculation formula, we can deduct that the formula is: [Number of Sewage Blockages (Zarqa and Ruseifa) during the period + Number of Sewage Blockages (Zarqa and Ruseifa) during the period]. It is important to note that all Zarqa Governorate was included in the calculation and not only the project area.

Specific findings and recommendations are presented below for WAJ-Zarqa and MCA-Jordan M&E Unit respectively.

WAJ-Zarqa

This indicator is of great importance to assess the project goals. It aims to assess performance of network/operation and maintenance costs/efforts based on program logic (in the project area).

However, data collected to report on this indicator are dispersed; lack any kind of template or reporting format. Incidents are either reported to the waste water network maintenance division at WAJ-Zarqa or through complaints to the municipality. Waste water complaints received are documented in written form in a notebook.

Based on baseline estimation that was indicated in the P2 narrative sheet for the period January – December 2009 and as was provided by WAJ-Zarqa, the value of 8461 out flow incidents was recorded. It is strongly recommended that M&E unit revise the yearly targets, since for Year 1 the value is already higher than the target.

Data verifications showed lack of consistency in the reporting of this indicator between quarters (for Q5 to Q8). It was not possible to reconcile most data between the reports sent by WAJ-Zarqa for this period and the data reported in the ITT. Whenever it was possible to reconcile some data (Q3 and Q4), it showed that only waste water complaints from Zarqa were included, not complaints from Ruseifa as per the definition. M&E unit sums up Zarqa and Ruseifa once they get separate reporting sheets.

There is no storage system, or data review or verification being done. Besides, there is an urgent need to organize this indicator data flow from the customer to WAJ-Zarqa. Improvement of the call center facility or implementation of a software could contribute to a vast improvement in the reporting of data included in the ITT.

An additional point to define would be the duration of the blockages. Definition shall be consistent when recording, so is it one hour, one day, and to agree on this point before start reporting. Spatial distribution and the cause of those incidents shall be added to the data collected in this due. A use of GIS system would be of great support to localizing and zoning of those incidents for any analysis or planning intensions.

- Data Verification of the Incidents of Sewer blockages is highly recommended. However, reports submitted to the DQR team by WAJ-Zarqa were not complete enough to enable thorough data verifications, i.e., source data was not available (record book).

- For the baseline data it was not clear how it was calculated for which year, or even if it is an average of previous years. No source of the data is provided which made the baseline not reliable at this point.

Based on the analysis above, the quality of data for this indicator was assessed as unsatisfactory with a score of 1.8 over 3 (Table 4.5).

Volume of wastewater collected

- This is a good indicator for wastewater collected from the governorate and since MCA-J is the only projects active at this stage we can accept that any increase in the collected wastewater in East Zarqa, West Zarqa and Ruseifa is due to new connections. However, an additional amount also comes from Disi aquifer, and an additional part is coming from Amman.
- It is defined as the average Flow from ZPS (West Zarqa) + Average Flow from Hashemiyah PS (East Zarqa)
- Data is collected and reported through WAJ-Zarqa
- Baseline data was calculated based on 2009. Population growth in the project area was not expecting the sudden increase of population due to Syrian refugees. Population growth rate for this indicator was considered 2.32% where for other indicators like number of people connected to the waste water network was considered as 2.7%.
- Target value was estimated by: [(Served Pop 2015 * Water provided to HH per capita * WW generation * Portion of people/houses that will be served for WW /1000 L)/ 365] * 0.9. Water expected to be provided in Zarqa per capita at 2015 was estimated according to the Policy Note.
- Water expected to be provided in Amman trib. per capita at 2015 was estimated according to the Policy Note. Kumar stated that they are using assumption of 85% connection rate within areas served, 4-Aug-2010. A factor of 90% is applied to account for uncertainty about the population served from Amman provided by Mohammad Ababneh, where part of Amman (Marka) is being collected through Zarqa network. Based on analysis of the baseline, we recommend further study and revision of the calculation of the baseline.

Based on the above analysis, the quality of this indicator was judged satisfactory with a score of 2.7 over 3.

Residential population connected to the sewer system

- This indicator is defined as Zarqa Governorate wastewater subscribers as a percent of water subscribers; each connection serves three subscribers and all subscribers will be connected to the new network.
- Baseline value is calculated with the following formula: (Wastewater bills in Zarqa + Wastewater bills in Ruseifa) / (Water bills in Zarqa + Water bills in Ruseifa).
- Calculation for the Baseline refers to water bill if it includes wastewater discharge rates or not. Numbers of issued bills were in year 2009 at two cities: Zarqa and Ruseifa.
- It would be better to distinguish between water and wastewater subscriber and use number of population connected to the sewer network rather than percentage of new connections. Taking weighted average: number of people / meter 8.82 (source own calculation MCA-J water survey Data (STATA)), as indicated in the documents provided to the DQR team. Increased people connected to the waste water network as percentage can be replaced by number of people which shall illustrates better the project effort.
- Target value estimation is based on two assumptions: one for the percentage of connected population to wastewater network and the other for who decides not to connect to wastewater network with a 95% factor (P2 Narrative sheet). However, this factor was not clearly justified in the calculations. It was also noticed in the target calculation that the factor of 97% was provided in the calculation as (1-3%), where 3% is the percentage of people with the opportunity to connect to the network, but do not connect. There shall be consistency with this factor for better data accuracy.

Based on the above analysis, the quality of this indicator was judged as satisfactory with a score of 2.8 over 3.

<u>Output Indicators</u>

The quality of output indicators is good with a respective score of 3.0 and 2.9 as presented in Table 4.5, since they are pretty straightforward. The source for these indicators is the PMC which has implemented a good reporting system to ensure the quality of information reported. Nevertheless, we recommend reporting separately on progress related to reinforcement and rehabilitation of the network. The output indicators would therefore become:

- Km of new connection pipes installed; disaggregated by area: West Zarqa, East

Zarqa, West Ruseifa. A GIS base data shall be highly recommended to present the project accomplishment spatial distribution.

- Km of existing pipes reinforced (upgraded); disaggregated by area: West Zarqa, East Zarqa, West Ruseifa.
- Km of existing pipelines rehabilitated (replaced); disaggregated by area: West Zarqa, East Zarqa, West Ruseifa.

Process indicators were not part of this DQR exercise, however, it is important to underline the importance of clarifying the definition of the following process indicator:

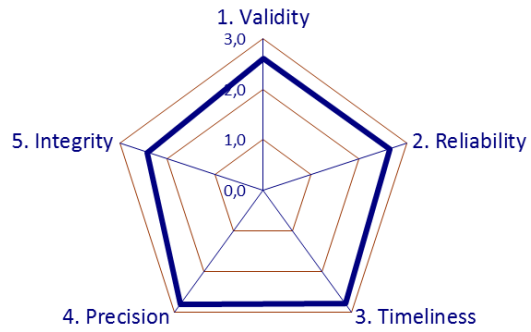
- Temporary employment generated in water and sanitation construction (total/female).

It is necessary to include in the definition what is meant by "temporary employment" to make sure that all structures provide the same information. In addition, to ensure that contractors provide the correct information, it is recommended to provide them with a specific reporting format and guidelines for this indicator.

4.3.2 Assessment of overall data quality

Figure 4.3 presents the overall analysis of the M&E data quality of the Waste Water Network Project. On average, data quality for the Waste Water Network Project indicates a score of 2.7 on a scale of 3. The summary evaluation indicates that data quality is satisfactory with regards to Integrity, Validity and precision. However, the integrity, validity and reliability criteria got the lowest score and further improvements would be needed.

Figure 4.3: Waste Water Network Project Data Quality Assessment



Note: Score of 2.6 to 3.0: Data quality is satisfactory
Score of 2.0 to 2.5: Data quality is moderately satisfactory
Score of 1.0 to 1.9: Data quality is unsatisfactory

4.4. AS-SAMRA EXPANSION PROJECT

Overall, the M&E Plan includes four outcome indicators for the As-Samra Expansion Project. Table 4.6 presents responsible entities and data sources for each of these indicators. It is important to note that no output indicator has been specified yet in the M&E plan as shown below.

Table 4.6: As-Samra Expansion Project indicators assessed by the DQR, responsible entity and data source

Indicators	Outcome				Output	
	Treated wastewater used in agriculture	Quality of As-Samra effluent meets standard	Volume of waste water effluent discharged from the As-Samra plant per year	Agriculture use of treated wastewater	Actual "substitution calculation" (TBD)	Expansion of As-Samra Treatment Plant (TBD)
Responsible entity / Data source	**JVA**	**MWI-PMU**	**MWI-PMU**	**JVA**	**TBD**	**TBD**

4.4.1 ANALYSIS OF DATA QUALITY BY INDICATOR

Table 4.7 presents detailed results of the data quality assessment for each indicator. Specific comments and recommendations regarding each indicator are presented hereunder.

Table 4.7: Assessment of Data Quality of As-Samra Expansion Project indicators

Criteria	Outcome				Overall Average by Criteria
	Treated wastewater used in agriculture	Quality of As-Samra effluent meets standard	Volume of waste water effluent discharged from the As-Samra plant per year	Agriculture use of treated wastewater	
1. Validity	2.6	2.9	2.7	2.9	2.8
2. Reliability	3.0	3.0	3.0	3.0	3.0
3. Timeliness	3.0	3.0	3.0	3.0	3.0
4. Precision	3.0	2.0	3.0	3.0	2.8
5. Integrity	3.0	3.0	3.0	3.0	3.0
Average score	2.9	2.8	3.0	3.0	2.9

Note: Score of 2.6 to 3.0: Satisfactory
Score of 2.0 to 2.5: Moderately satisfactory
Score of 1.0 to 1.9: Not satisfactory

Outcome Indicators

Treated wastewater used in agriculture

It is recommended to revise the name of this indicator to Reclaimed wastewater used in agriculture. Analysis of baseline calculations showed no specific issues.

Volume of wastewater effluent discharged from the As-Samra plant per year

This indicator is defined as “Annual volume of wastewater treated to at least secondary level (measured as annual volume of wastewater effluent discharged from As-Samra WWTP, million cubic meters per year)”. Regarding the volume of wastewater effluent discharged from As Samra Wastewater Treatment plant, by definition the volume is measured on annual basis, whereas it is reported quarterly in the ITT that might lead to confusion.

Agriculture use of treated wastewater

Baseline calculation method for this indicator is: ([Quantities of mixed water sources released for irrigation in North Ghor]+[Quantities of mixed water sources released for irrigation (in Middle/South Ghor])/(Total water quantities used in Ghor agriculture). However, no fresh water is used for agriculture in Middle /South Ghor as stated by JVA.

As for the target value, numbers are based on year 2015 forecasts. Numbers used in target calculation were unverifiable. Treated wastewater includes rainwater runoff mixed with treated wastewater in King Talal dam.

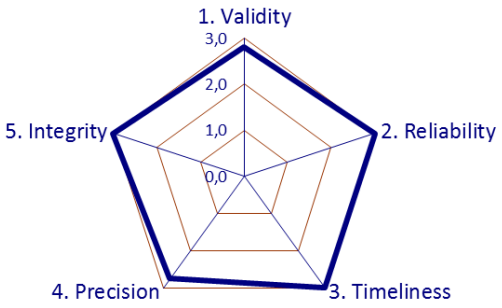
Output Indicators

To date, no output indicators have been identified given the characteristics of works undertaken, hence output indicators were not assessed. One solution could be to monitor indices that could inform on the progress of works compared to planned activities, such as physical implementation rate or earned value analysis indicators such as CPI (Cost Performance Indicator) or SPI (Schedule of Performance Indicator).

4.4.2 ASSESSMENT OF OVERALL DATA QUALITY

Figure 4.4 below shows the overall assessment of the data quality for As-Samra Expansion Project. The global score of 2.9 over 3.0 indicates a satisfactory performance. In terms of validity and precision there could be some improvements. Further details are presented in the following section.

Figure 4.4: As-Samra Expansion Project Data Quality Assessment



Note: Score of 2.6 to 3.0: Data quality is satisfactory
Score of 2.0 to 2.5: Data quality is moderately satisfactory
Score of 1.0 to 1.9: Data quality is unsatisfactory

5. MAIN FINDINGS AND RECOMMENDATIONS

5.1. M&E SYSTEMS

5.1.1. MCA-JORDAN

The M&E system developed and implemented at MCA-Jordan M&E Unit level enables reporting of the quarterly ITT to MCC. However, all 5 functional areas of the M&E system need to be improved to ensure quality and timely data, and most of all, to ensure that the main function of the M&E Unit, i.e. to inform on results for better decision-making, is fully accomplished.

Main findings at MCA-Jordan level include:

- Some confusion exists in the identification of roles and responsibilities of M&E Unit positions in documentation available (M&E plan, organizational chart, job descriptions);
- Human resources at M&E Unit are not sufficient to ensure fulfillment of all M&E functions (e.g., development of M&E manuals, revision of ERR analysis, internal data quality reviews, production of periodic M&E reports, and support to IEs);
- The DQR team identified inconsistencies between data provided by the IEs and data reported in the ITT that could have been easily identified by the M&E Unit. Calculation errors were also identified in the ITT itself which should have been easily detected. This can be due to the lack of human resources or a lack of time available between the receipt of data from reporting entities and the date of submission of the ITT to MCC.
- Lack of advanced analytical skills, including use of statistical packages (SPSS or STATA), advanced knowledge of Excel (use of pivot tables, formatting of figures, statistical functions, etc.); and reporting skills (preparation of M&E reports such as brief report on progress, annual performance report, how to interpret and communicate M&E results to contribute to increased use of M&E results in decision-making
- Lack of clear written reporting guidelines (including submission deadlines) and reporting formats and tools at central level and at IE level for increased data quality;
- Lack of systematic feedback procedures to address late, incomplete, inaccurate or missing reports, to address data quality issues and to ensure systematic back-up and storage of all M&E documentation and source documents.
- Lack of systematic supervision, site visits and internal data reviews;
- Very limited use of M&E results in decision-making.

In order to improve the M&E system at MCA-Jordan level, it is recommended for the M&E Unit to support and coordinate the following actions:

- Clarify roles and responsibilities of M&E Unit staff, as well as other staff involved in the M&E system in a written document (preferably in an M&E manual or guidelines) and fill the current vacant M&E Unit Director position based on this clarification.
- Reinforce the verification of data submitted by the entities and validation prior to reporting the quarterly ITT.
- Provided regular support to IEs and systematize supervisory field visits to IEs to ensure data quality.
- Review the M&E plan based on findings of the DQR and discussions with main stakeholders, update the Narrative description of indicators accordingly for greater clarity, and share the Narrative description with all concerned parties to ensure common understanding.
- Improve the capacities of M&E Unit staff and other relevant staff at MCA (e.g. Project Directors) in specific M&E skills, including analysis and interpretation of M&E data, reporting and communication, internal data quality review, and evaluation methodologies.
- Develop user-friendly, yet comprehensive M&E guidelines (or M&E manual) at MCA-Jordan level and for each project. More specifically, M&E guidelines to be developed should include at a minimum the following:
  - Organizational chart (organogram) for M&E
  - Definition of roles, responsibilities and incentives for M&E (including responsibilities matrix);
  - Reporting requirements (submission dates and cut-off dates (i.e., reporting period covered) and procedures to address late, inaccurate or missing reports;
  - Record Retention Policy or requirements defining the duration, location for storage of all records (hard and soft copies, data bases), including written records on how data inconsistencies were solved when identified, and frequency of back-ups for all levels of reporting.
  - M&E Information flow;
  - M&E framework (revised ITT);
  - M&E processes (what, to whom, when and how);
  - Internal data quality insurance strategy, including supervisory field visits;
  - Reporting formats and tools;
  - M&E Work plan and budget.
- Increase M&E capacities in M&E at all levels (MCA and IEs) based on M&E guidelines developed, including data collection, data management, and data quality insurance, and increase awareness of the importance of M&E results for decision at all levels.

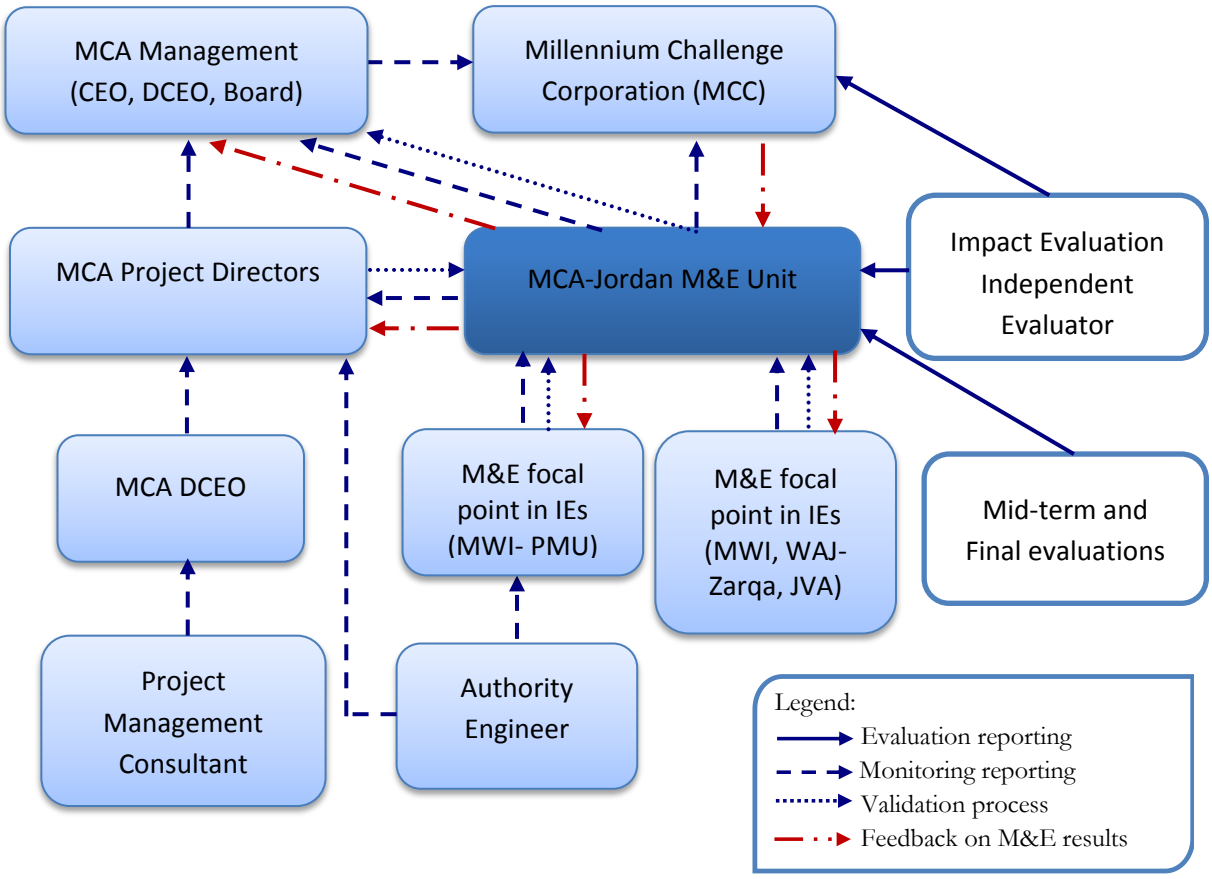
There is need to go beyond MCC reporting requirements and build upon available M&E data to conduct further analyses and improve communication of M&E results within and outside MCA, as well as for accountability and advocacy purposes. For instance, the feedback function of the M&E Unit to top management, project directors and main stakeholders, is not being fulfilled. This includes:

i. Clarifying communication channels within and outside MCA-Jordan, especially regarding M&E results;
ii. Identifying information needs of decision-makers (MCA and IE levels), including type of information, reporting format and frequency; and
iii. Developing report formats adapted to the needs of various stakeholders, such as dashboards, brief summary of performance, quarterly progress reports, annual performance report, etc.

These elements could be included as part of the M&E guidelines or form part of a separate document, such as an M&E Communication Plan. It is important that the development of this communication plan be as participatory as possible, and led jointly by the M&E Unit and MCA Communication Specialist.

Figure 5.1 below proposes an ideal flow of information for the whole MCA-Jordan Compact. It includes existing monitoring, evaluation and validation processes, but is complemented by an additional flow for feedback on M&E results. Prioritized actions to ensure implementation of recommendations above are discussed in Chapter 6.

Figure 5.1: Ideal information flow chart for MCA-Jordan



5.1.2. WAJ-ZARQA

WAJ-Zarqa is informing on indicators for Compact-level, Water Network Project and Waste Water Network Project. It is therefore the main provider of M&E information for MCA-Jordan. Main findings observed during the data quality review at the level of WAJ-Zarqa are as follows:

- There is a lack of clarification of responsibilities and of adequate incentives to ensure timely and quality data for WAJ-Zarqa personnel involved in the M&E of MCA-Jordan. WAJ-Zarqa staff is taking the initiative of reviewing the data collected through the X7 System and operations data. However, no person has the official mandate of reviewing data quality, including data verifications and checks.
- There are no written guidelines at WAJ-Zarqa describing internal reporting processes.
- There is no systematic approach for providing feedback to Customer Service and Operations Departments of WAJ-Zarqa on the quality of the data collected from their side. Feedback is provided only in case of serious data quality issues (like significant drop or increase in water production). System administrators can access the data through WAJ-Central servers.

- There is no systematic back-up or data transfer done from WAJ-Zarqa servers to WAJ-Central Servers. Only random local back-up (to local computers within the same server room) is delivered as an initiative from IT staff and backup media is kept within the same server room. There is no emergency/contingency plans in case of connection failure with WAJ-Central.

The following recommendations aim at further improving the data management and reporting system adopted at WAJ-Zarqa level:

- WAJ-Zarqa needs to officially assign staff, define clear responsibilities, allocate time and demonstrate a clear mandate for the provision of data required by MCA-Jordan M&E Unit. For instance, currently, it is a personal initiative by committed staff to do some data checking (based on their time availability) and reporting required information to MCA-J M&E Unit.
- Training on data management and reporting requirements should be provided to all concerned staff including Customer Service and Operations staff responsible for raw data generation.
- WAJ-Zarqa is advised to adopt clear policies for controlling missing water meter readings and handling non-realistic readings. These policies would provide clear procedures for data correction and how to document them.
- WAJ-Zarqa needs to enhance the performance of the customer water meter readings to minimize errors in readings and enhance the performance of the Customer services system (X7) by ensuring proper maintenance.
- WAJ-Zarqa needs to contemplate the possibility to improve the call centre for wastewater complaints at WAJ-Zarqa. The call centre would be the hub to collect the sewer outflow complains data, number, location, duration, and cause. Data are not collected in one storage system, some might not be recorded. Therefore, it's of great importance to data quality to ensure efficient data collection and reporting process to the ITT.
- Apply zoning for subscribers. It is better to indicate the geographic distribution of the subscribers using GIS. It would be an asset in reporting and visual presentation. It shall also help to identify the sites for example of frequent sewer outflow, thereto enhance any challenge analysis or highlight improvement areas as a tool.
- In addition to adopting clear policies for data and information back up to safely maintain all data, WAJ-Zarqa needs to deliver full rehabilitation of the server room to ensure proper data management and storage. The current room lacks basic requirements of a server room, including a proper firefighting system which jeopardizes the complete data reporting system.

5.1.3. MWI-PMU

Main findings regarding MWI-PMU show good capacity to provide quality data in the context of the As-Samra Expansion project. However, some points need special attention:

- As the PMU is managing many projects, therefore there is a lack of personnel to ensure proper supervision of the project.
- There is need for further training apart from the one already organized by M&E Unit. Main skills that need to be improved include analysis, interpretation, presentation and reporting of M&E data.

5.1.4. WAJ-Central Finance Department

Although the information used to report on these indicators comes from WAJ financial and administrative information system, there is little data validation done by the M&E focal points at the Finance Department before submission to MCA M&E Unit. Most of all, reporting formats used by WAJ-Central Finance Department are not conducive to ensuring good quality data.

Based on these findings, the following recommendations can be made at WAJ-Central Finance Department level:

- Officially identify an M&E focal point and provide personnel involved in M&E of MCA-Jordan with incentives to ensure quality and timely data. Incentives are not necessarily financial, they can include official recognition of their work, allocating time for M&E, access to trainings, equipment, etc.
- Clarify reporting requirements through M&E guidelines (including submission dates);
- Train staff involved in reporting to the M&E Unit and sensitize them to the importance of M&E;
- Develop reporting formats that reduce the chances of calculation errors;
- Implement an internal data quality plan.
- Discuss with WAJ-Zarqa the possibility to report on “Operating cost coverage” and “Outstanding debt” as these two indicators are also available at WAJ-Zarqa. Since WAJ-Zarqa is the primary source for this information, it would also increase the possibilities of validating the data.

5.1.5. Jordan Valley Authority

Main findings regarding the Jordan Valley Authority show that they are organized to provide data on indicators they need to be reporting. However, there is need to design and use consistent reporting forms that will meet the needs of MCA-Jordan and facilitate reporting by JVA. There is also need to develop written guidelines to clarify the reporting processes involved in reporting to MCA.

5.2. INDICATORS

MCA-Jordan Compact-level

The quality of outcome indicators reviewed at Compact-level (and the data used to inform them) during this DQR exercise is judged as moderately satisfactory. Areas where most improvements are needed are related to reliability, timeliness and precision of the data that informs these indicators.

The following recommendations aim at improving the quality of data used to inform Compact-Level indicators:

- Clarify the definition of and calculation formulas of the outcome indicators reviewed;
- Avoid the use of population estimates for the calculation of indicators related to water consumption per capita by informing this indicator through the survey (impact evaluation). Seriously contemplate replacing these two indicators by water consumption per customer;
- Update baselines for Billed residential water consumption and Operating cost coverage, and request historical data (2007 to 2009) from WAJ-Central Financial Department to inform the baseline for Outstanding debt.
- Discuss the relevance of Outstanding debt as an outcome indicator.
- Add a new indicator on Total network consumption (m^3) which would be a cumulative indicator.

Additional recommendations related to Compact-level indicators which were not included in this DQR since they are informed through surveys related the need to:

- Discuss the possibility of using secondary information to inform on Compact's impact, such as the Demographic and Health Survey and the Household Budget Survey.
- Make sure planned survey will inform impact (goal level) indicators.
- Complement quantitative survey data with qualitative information given the specific characteristics of projects being evaluated.

Water Network Project

WAJ-Zarqa has developed a clear table for NRW calculation. Raw data used for NRW calculation are extracted from X7 (for billing quantities) and operations reports (for production, import, and export quantities). However, the formula adopted for the calculation of the NRW does not comply with the equation used in the baseline calculation. At the same time, neither the formula currently adopted by WAJ nor the formula used in the baseline calculation comply with the international definition of NRW adopted by the IWA.

WAJ-Zarqa are advised to use the definition adopted by MCA-Jordan for NRW Calculation, which emphasizes that Export Water is considered as NRW which, when calculated that way, will also comply with the IWA definition.

Other indicators that are recommended to be investigated by the M&E Unit:

- Number of No-Water Complaints at each of the targeted areas;
- Number of leakage complaints;
- M^3 of lost water per km of secondary network;
- M^3 of lost water per km of tertiary network;
- Number of customer meters that were checked and found working properly;
- Infrastructure Leakage Index (ILI).

Waste Water Network Project

In order to improve Waste Water Network Project indicators in the M&E plan, the following recommendations should be implemented:

- Identify number of subscribers in each house connection. Detailed description would be of help like number of apartment per house connection. This would be helpful to express the project effort.
- Establish a call center at WAJ-Zarqa.
- Apply zoning for new subscribers using GIS. This could be done by the Project Directorate.
- Use “number of people connected to wastewater network” rather than percentage and include it in the ITT. Percentage is estimated according to water subscribers which can be less than the actual number of people connected to the wastewater network according to numbers.

As-Samra Expansion Project

The following recommendations should be implemented to improve the overall quality of As-Samra Expansion project indicators:

- Identify a new outcome indicator after operation for the expansion of As Samra WWTP that is linked to contractual milestones.
- Identify at least one output indicator to monitor and report on progress of works (% physical implementation for instance).

In addition, it is recommended to include temporary employment as a process indicator in the ITT as it is already available being reported the progress reports and since the As-Samra Expansion Project has a significant impact on temporary employment.

6. PROPOSAL OF M&E STRENGHTENING PLAN

Based on findings and recommendations of the DQR exercise and discussion with stakeholders during the validation workshop of the draft report, specific actions were identified and prioritized to improve M&E systems at all levels and ensure the quality of data reported. Priority actions to be implemented in the short term and other actions to be contemplated in the medium term are presented below. They are followed by a work plan specifying responsibilities, main stakeholders involved and needs of technical assistance.

6.1. PRIORITY ACTIONS

MCA-Jordan

Priority actions to be implemented or led by the M&E Unit include:

- Revising the M&E plan, including roles and responsibilities of M&E Unit staff and performance indicators (ITT);
- Developing comprehensive M&E guidelines at MCA-Jordan level which include the content provided in the recommendations in chapter 5;
- Developing comprehensive M&E guidelines for each project, including main processes at IE level;
- Providing training on M&E guidelines and internal data quality review at all levels of the M&E system (DCEO, Project directors, IEs, PMC, and Authority Engineer).
- Organizing and participating to trainings on:
  - Internal data quality review for all stakeholders involved in the M&E system;
  - Introduction to the use and interpretation of M&E results for decision-makers, including CEO, DCEO, Project Directors, top management of IEs;
  - Advanced training on monitoring systems and evaluation methods for M&E focal points;
  - Advanced training on analysis, interpretation and communication of M&E results for M&E focal points and Communication Specialist.

Given the above priorities and the current M&E team, it will be difficult for the M&E Unit to ensure the implementation of the M&E strengthening plan and to fulfill its role of leadership in all that relates to M&E of the Compact. Consequently, the following actions need to be taken by top management at MCA:

- Recruitment of an additional staff at M&E Unit as soon as possible to fill the vacant position of M&E Director to ensure the M&E Unit has sufficient staff to support the implementation of actions needed to strengthen the M&E system[23].
- Clarify roles and responsibilities of all M&E Unit staff in collaboration with the M&E Unit.

WAJ-Zarqa

Specific actions to be implemented at WAJ-Zarqa in addition to the relevant actions above include:

- WAJ-Zarqa management is advised to provide staff involved in reporting to MCA-Jordan with a clear mandate (allocating necessary time) and motivation to ensure good quality data.
- In addition to M&E guidelines at project level, M&E focal points at WAJ-Zarqa need to develop reporting guidelines at their level with the support of MCA M&E Unit to improve reporting and ensure data quality, and to train concerned staff in data management and reporting requirements, including Customer Service and Operations staff responsible for raw data generation.
- WAJ-Zarqa needs to provide continuous training to water meter readers to enhance their performance and ensure good quality data and implement a data quality insurance plan.

6.2. OTHER ACTIONS TO IMPROVE M&E

Additional actions that will also need to be implemented in the medium term to ensure full implementation of the M&E system for MCA-Jordan are presented below.

MCA-Jordan

Identify and provide incentives for M&E focal points. A first step would be to officially name M&E focal points and make sure they have MCA-reporting functions as part of their time allocation (or job position).

Ensure use of M&E results in decision-making. A diagnostic of reporting needs of decision-makers needs to be conducted. On this basis, report formats should be developed to meet the needs of decision-makers.

[23] Although this action was not judged as a priority by all participants during the validation workshop, the DQR team feels it is needed to implement the M&E strengthening plan.

Develop a communication plan at MCA-Jordan level, including for M&E. There is need for the Communication Specialist and M&E Unit to discuss and work hand-in-hand to develop a communication plan to clarify communication channels with internal (within MCA) and external stakeholders, including with the population and target groups.

Create a climate conducive to the leadership of the M&E Unit. Top management at MCA needs to ensure that the M&E Unit is given the importance they should receive given the organizational structure by informing all stakeholders (especially within MCA) of the importance of M&E and demonstrating it by increasing the use of M&E results for decision-making.

WAJ-Zarqa

In the medium-term, there is need to for WAJ-Zarqa to:

- Establish a diagnostic of the current state of the X7 system and discuss the best strategy to correct current problems (especially debugging) and ensure regular maintenance, and estimate budget implications.
- Establish a call center to manage and systematize customer complaints.
- Identify actions needed to ensure rehabilitation of the server room for proper data management and storage, and estimate budget implications.

Based on budgets estimated to improve or implement the above systems, there will be need for MCA-Jordan and WAJ-Zarqa to discuss financing possibilities. Based on these discussions, a decision will need to be made. In the event that no financing is available, implications on data quality will need to be taken into account when using the information informed by these sources.

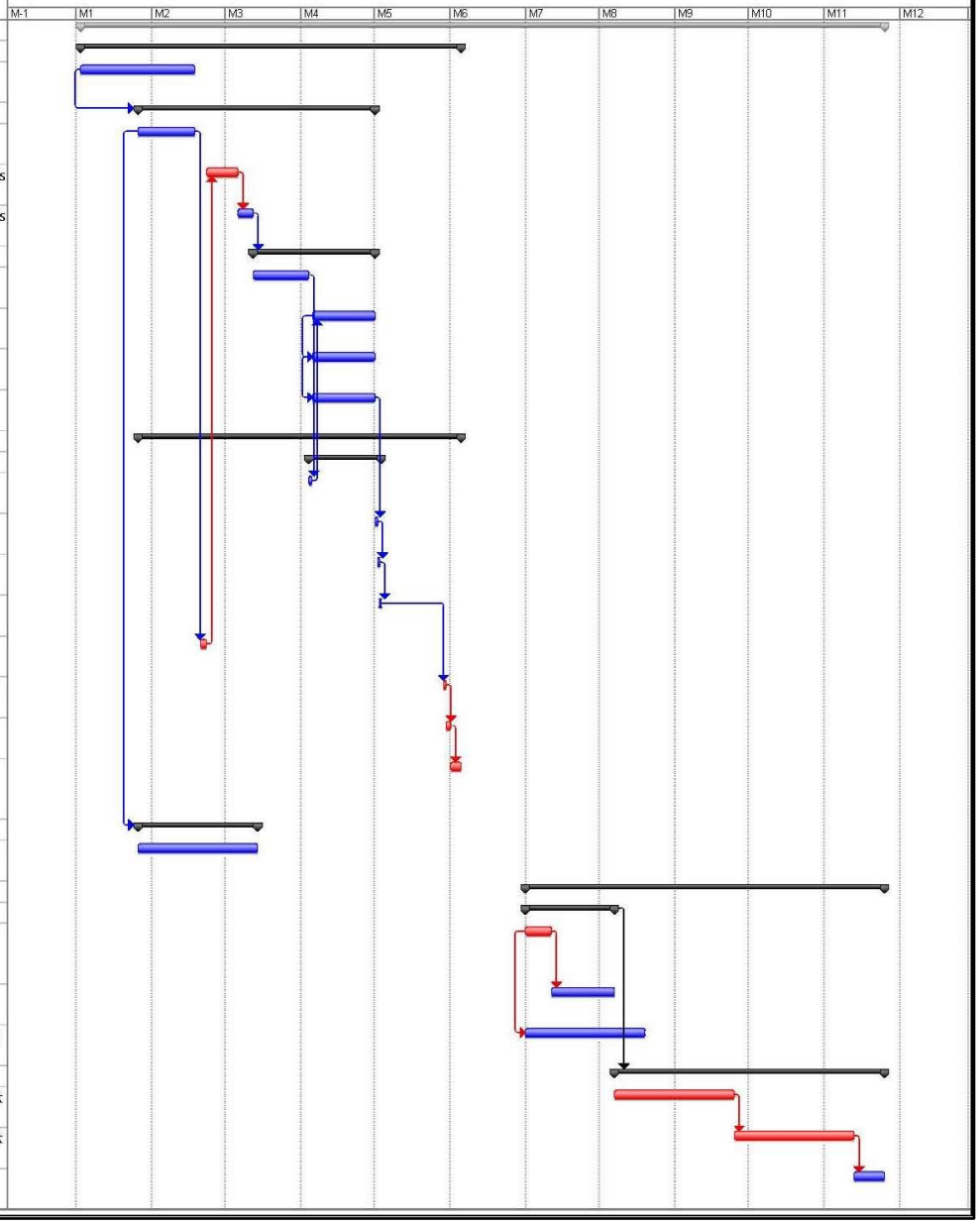
6.3. WORK PLAN

Figure 6.1 indicates main actions to be implemented, their estimated duration, the responsible structure, participating structures, and actions for which external technical assistance would be needed.

This work plan will ensure follow-up on recommendations of this DQR which should be one of the key objectives of the next DQR exercise.

Figure 6.1: MCA-Jordan M&E Strengthening Action Plan

WBS	Task Name	Duration	Responsible Structure	Participating structures
0	**MCA-Jordan M&E strenghtening Action Plan**	**269,86 d**		
1	**1 Phase 1: Priority actions**	**129 d**		
1.1	1.1 Recruitment of External consultants for the implementation of priority actions	40 d	M&E Unit	MCA Mgt, Fiscal Agent
1.2	**1.2 Development of M&E tools**	**80 d**		
1.2.1	1.2.1 Revision of M&E Plan for MCA-Jordan	20 d	M&E Unit	Project Directors, IEs, MCC
1.2.2	1.2.2 Development of M&E guidelines at MCA Level	10 d	M&E Unit	Project Directors, IEs
1.2.3	1.2.3 Development of an internal data quality insurance system, including an annual supervisory visits plan	5 d	M&E Unit	Project Directors, IEs
1.2.4	**1.2.4 Development of M&E guidelines**	**42 d**		
2.4.1	1.2.4.1 MCA-Jordan level M&E guidelines	20 d	M&E Unit	Project Directors, PMC, AE
2.4.2	1.2.4.2 Water Network Project M&E guidelines	20 d	M&E Unit	Project Director, WAJ-Zarqa, PMC
2.4.3	1.2.4.3 Waste Water Network Project M&E guidelines	20 d	M&E Unit	Project Director, WAJ-Zarqa, PMC
2.4.4	1.2.4.4 As-Samra Expansion Project M&E guidelines	20 d	M&E Unit	Project Director, MWI, JVA, AE
1.3	**1.3 Development of M&E capacitiies**	**109 d**		
1.3.1	**1.3.1 Trainings on M&E guidelines**	**25 d**		
3.1.1	1.3.1.1 Training on MCA M&E guidelines	2 d	M&E Unit	Project Directors, IEs, PMC, AE
3.1.2	1.3.1.2 Training on Water Network Project M&E guidelines	1 d	M&E Unit	Project Directors, WAJ-Zarqa, PMC
3.1.3	1.3.1.3 Training on Waste Water Network Project M&E guidelines	1 d	M&E Unit	Project Directors, WAJ-Zarqa, PMC
3.1.4	1.3.1.4 Training on Waste Water Network Project M&E guidelines	1 d	M&E Unit	Project Director, MWI, JVA, AE
1.3.2	1.3.2 Training on Internal Data Quality Review	3 d	M&E Unit	Project Directors, IEs, PMC, AE
1.3.3	1.3.3 Training on Introduction to use and interpretation of M&E results for decision makers	1 d	M&E Unit	CEO, DCEO, Project Dir., IE Mgt
1.3.4	1.3.4 Advanced training on monitoring systems and evaluation methods	2 d	M&E Unit	M&E focal points
1.3.5	1.3.5 Advanced training on analysis, interpretation and communication of M&E results	3 d	M&E Unit	M&E focal points, Comm. Spec.
1.3.6	**1.3.6 Recruitment of additional resources**	**40 d**		
3.6.1	1.3.6.1 Filling of M&E Director position	40 d	MCA Mgt	M&E Unit Dep. Dir.
2	**2 Phase II: Other actions to improve M&E**	**120 d**		
2.1	**2.1 Improvement of communication channels**	**30 d**		
2.1.1	2.1.1 Diagnostic of reporting needs of decision-makers	10 d	M&E Unit	Project Dir., IEs, Comm. Spec.
2.1.2	2.1.2 Development of a communication Plan for MCA-Jordan	20 d	Comm. Spec.	M&E Unit, Project Dir., IEs
2.2	2.2 Identification and implementation of incentive system for M&E focal points	40 d	MCA Mgt	M&E Unit, IEs (Mgt)
2.3	**2.3 Improvement of IE's information systems**	**90 d**		
2.3.1	2.3.1 Diagnostic of X7 system and elaboration of a strategy to solve problems and ensure regular	40 d	WAJ-Central, WAJ-Zarqa	MCA Mgt, M&E Unit
2.3.2	2.3.2 Establishment of a call center to monitor customer complaints (both water and waste water networks)	40 d	WAJ-Zarqa	MCA Mgt, M&E Unit
2.3.3	2.3.3 Identification of actions to rehabilitate server room at WAJ-Zarqa and budget implication	10 d	WAJ-Zarqa	



ANNEX 1: LIST OF DOCUMENTS REVIEWED

Documents (Word/PDF)

Albert J. and al., Impact Evaluation Design Report, Jordan Compact – Water Sector, Social Impact, November 2012.

Communication and Stakeholder Management Plan, Program Management Plan, Contract NO 106/2011, Program Management Consultant (PMC), Hazen and Sawyer, November 2013.

Department of Statistics, Jordan Statistical Yearbook 2012, Issue No. 63, Jordan, 2012.

DMA Contract Packaging.

Fichtner Water and Transportation, As Samra Waste Water Treatment Plant Expansion BOT Project, Document Control Procedures, August 2012.

Implementing Entity Agreement between Water Authority of Jordan and Millennium Challenge Account –Jordan, 15 November, 2011.

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Job Descriptions M&E Unit Staff:

- M&E Unit Director;
- M&E Deputy Director;
- M&E Officer.

MCA-Jordan Compact Document.

MCA-Jordan Organizational Chart, 2013.

Monitoring and Evaluation Plan, Millennium Challenge Account Jordan (MCA Jordan), Jordan, March 6, 2012.

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MCC guidance on Common Indicators, MCC, Washington D.C., June 03, 2013, http://www.mcc.gov/pages/about/policy/guidance-on-common-indicators.

MCC guidance on Disbursement Request Package (2009).

Program Management Consultant (PMC) Organizational Chart
Policy for Monitoring and Evaluation of Compacts and Threshold Programs, Millennium Challenge Corporation, Department of Policy and Evaluation, Washington D.C., May 1, 2012.
Jordan Population and Family Health Survey 2012, The Hashemite Kingdom of Jordan, Department of Statistics, ICF International, October 2013.
Social Impact, M&E training material (PowerPoint presentations), 2013.
Water Network Project Summary.
African Development Bank, Guidelines for User Fees and Cost Recovery, Water Partnership Program, Operations Policy and Compliance Department, ADB, 2010.
Water Use and Socio-Economic Survey For Zarqa Governorate (2009), Department of Statistics, Millennium Challenge Unit, Prime Ministry, The Hashemite Kingdom of Jordan, Jordan, April 10.
Wildman T., Water Market System in Balqa, Zarqa, & Informal, Settlements of Amman & the Jordan Valley – Jordan, OXFAM, August - September 2013

Excel documents

Indicator metadata (Narrative) Compact
ITT-JOR-Q8 Template
Indicator metadata (Narrative) Water Network Project
Indicator metadata (Narrative) Waste Water Network Project.
Indicator metadata (Narrative) As-Samra Expansion Project
WAJ-Zarqa report (Q5 to Q8) on Water quantities billed and number of subscribers.
WAJ-Central, Cost Recovery Analysis report (2008-2013).
WAJ-Central, Financial indicators for Al Zarqa (2013).
Quarterly reports WAJ-Zarqa 3 and 4.
Organizational Chart PMC.
NRW Calculation Sheets (Q5-Q7)
2013 Monthly Water Supply Quantities (Production, Imports, and Exports)
Detailed Water Supply per Distribution Area (Zarqa Sub-Area)
2013 Water Complaints

ANNEX 2: LIST OF KEY INFORMANTS

List of Key Informants – Compact Level (MCA-Jordan)

Structure	Unit	Position	Name	Email Contact	Phone number	Physical address
MCA-Jordan	MCA Management	CEO	Eng. Kamal Zoubi	KZoubi@mca-jordan.gov.jo	065936339	MCA-Jordan Office
	MCA-Management	Deputy CEO	Eng. Nazir Abu Arquoub	nabuarqoub@mca-jordan.gov.jo	065936339	MCA-Jordan Office
	MCA M&E-Unit	M&E Director	Raed Zahrawi	rzahrawi@mca-jordan.gov.jo	0777766645	MCA-Jordan Office
	MCA M&E Unit	M&E Officer	Ahmad kassab	akassab@mca-jordan.gov.jo	0797962583	MCA-Jordan Office
	MCA	Director of Communication	Sofian Qurashi	squrashi@mca-jordan.gov.jo	0797311300	MCA-Jordan Office
	MCA	Gender Expert	Shadia Nassar	snassar@mca-jordan.gov.jo	0795509583	MCA-Jordan Office
Ministry of Water and Irrigation	Water Authority of Jordan	M&E focal point in Amman	PMU: Sultan Mashaqbeh Sufian Bataineh	Sultan_mashaqbeh@mwi.gov.jo Sufyan_bataineh@mwi.gov.jo	0777462541 0779902739	MWI HQ
Ministry of Water and Irrigation	Water Authority of Jordan	Financial Department in Amman	Firas AlAzzam	Firas_alazzam@mwi.gov.jo	5697907	MWI HQ

List of Key Informants – Water Network Project

Structure	Unit	Position	Name	Email Contact	Phone number	Physical address
MCA-Jordan	Water Network Project	Director	**Louis Qaqish**	lqaqish@mca-jordan.gov.jo	**0777470038**	**MCA-Jordan Office**
		Key staff in charge of Activity Infrastructure	**Rodana AlDabbas**	Ral-dabbas@mca-jordan.gov.jo	**0779044387**	**MCA-Jordan Office**
		Key staff in charge of Activity Water Smart Homes Activity	**Lara Shahin**	lshahin@mca-jordan.gov.jo	**0777649010**	**MCA-Jordan Office**
Jordan Water Authority – Zarqa (Zarqa Governorate Water Administration)	Information System department		**Eng. Ali Dmisi**	aldamisi@gmail.com	**0772247016**	**WAJ-Zarqa Office**
			Nuha Yousif	Nuha_yusif@hotmail.com	**0795171418**	**WAJ-Zarqa Office**
	NRW Directorate	M&E focal point Zarqa	**Eng. Riyad AlShayeb**	riyadalshayeb@gmail.com	**0798503551**	**WAJ-Zarqa Office**
	WHJ		**Nabil HIjazeen**	nabilhjazeen@yahoo.com	**0798502471**	**WAJ-Zarqa Office**
Water Smart Homes Consultant		M&E focal point	**Lara Shahin**	lshahin@mca-jordan.gov.jo	**0777649010**	**WAJ-Zarqa Office**
Project Management Consultant	PMC Zarqa	M&E focal point	**Nazir Abu Arqoub**	nabuarqoub@mca-jordan.gov.jo	**0795007592**	**MCA-Jordan Office**
Contractor	Zarqa	M&E focal point	**Nazir Abu Arqoub**	nabuarqoub@mca-jordan.gov.jo	**0795007592**	**MCA-Jordan Office**

List of Key Informants – Waste water Network Project

Structure	Unit	Position	Name	Email Contact	Phone number	Physical address
MCA-Jordan	Waste Water Network Project	Director	**Mohammad Ababneh**	mababneh@mca-jordan.gov.jo	**0777746111**	**MCA-Jordan Office**
Water Authority of Jordan (WAJ)	WAJ – Zarqa Directorate	M&E focal point	**Eng. Nibal Salem Ali**	-	-	**WAJ-Zarqa Office**
Project Management Consultant	PMC	M&E focal point (Vice-President Hazen and Sawyer)	**Shajan Joykutty, P.E.**	sjoykutty@hazeandswayer.com	**0795569966**	**Ibrahim Al Khaledi St. – Bldg. 29, Jebel Amman**
		Program Administrator	**Eng. Eman Alhamdan**	ealhamadan@pmc-zarqa.com	**053930078**	**Prince Hesham Bin Al-Abdullah st. King Abdulaziz City, Zarqa**

List of Key Informants – As-Samra Expansion Project

Structure	Unit	Position	Name	Email Contact	Phone number	Physical address
MCA-Jordan	As-Samra Expansion Project	Director	**Mohammad Bader**	mbader@mca-jordan.gov.jo	**0776677388**	**MCA-Jordan Zarqa**
Ministry of Water and Irrigation	Project Management Unit	M&E focal point				
Jordan Valley Authority		M&E focal point	**Qais Oweis**	Qais_owais@yahoo.com	**0795649822**	**JVA HQ**
Jordan Valley Authority		Authority Engineer	**Eng. Sultan Mashaqbeh**	Sultan_mashaqbah@mwi.gov.jo	**0777462541**	**PMU**
Contractor	As Samra Plant	Representative Fichter +eco consult	**Eng. Meurer, Wolfgang**	wolfgang.meurer@fwt.fichtner.de		

List of participants to validation workshop of Draft DQR Report

#	Participants Name	Title	Entity	Mobile Number
1	Eng. Kamal Zoubi	CEO	MCA-J	kzoubi@mca-jordan.gov.jo
2	Nazir Abdallah Abu arqoub	Deputy CEO - Project Management	MCA-J	nabuarqoub@mca-jordan.gov.jo
3	Mohammad Ababneh	Project Director, Wastewater Systems	MCA-J	MAbabneh@mca-jordan.gov.jo
4	Mutaz M Qutob	Procurement Director	MCA-J	MQutob@mca-jordan.gov.jo
5	Sofian Qurashi	Communication and Outreach Director	MCA-J	SQurashi@mca-jordan.gov.jo
6	Mai Abu Tarbush	Environmental and Social Director	MCA-J	Mabutarbush@mca-jordan.gov.jo
7	Louis Musa Qaqish	Project Director, Water System	MCA-J	Lqaqish@mca-jordan.gov.jo
8	Rodana A l-Dabbas	Deputy Director, Water System	MCA-J	ral-dabbas@mca-jordan.gov.jo
9	Ahmad Kassab	Monitoring & Evaluation Officer	MCA-J	akassab@mca-jordan.gov.jo
10	Khaled Saghah	Finance Director	MCA-J	ksaghah@mca-jordan.gov.jo
11	Lara Butros Hanna Shahin	Project Manager, Water Smart Home	MCA-J	lshahin@mca-jordan.gov.jo
12	Ayman Mousa	Accountant	MCA-J	amousa@mca-jordan.gov.jo
13	Sireen Awad	HR & Administration Manager	MCA-J	sawad@mca-jordan.gov.jo
14	Ahmmad Talafha	Site Engineer	MCA-J	atalafha@mca-jordan.gov.jo
15	Main Al-Kharabsheh	Site Engineer	MCA-J	malkharabsheh@mca-jordan.gov.jo
16	Alex Russin	Resident Country Director	MCC	russinaj@mcc.gov
17	Hermosillo, Lola	M&E	MCC	-
18	Dana Abu Sier	MCC	MCC	abusierdz@mcc.gov
19	Lamia Al-Zou'bi	Director	MOPIC	Lamia.Alzoabi@mop.gov.jo
20	Sana El Hennawi	M&E Senior Researcher	MOPIC	Sana.Elhennawi@mop.gov.jo
21	Iyad Hayyad		PMU	Iyad_Dahiyat@mwi.gov.jo
22	Sultan Mashaqbeh		PMU	Sulttan_Mashaqbah@pmu.gov.jo
23	Sufyan Bataineh		PMU	Sufyan_Bataineh@pmu.gov.jo
24	Mohammad Al Waqfi		PMU	mohammad_al-waqfi@pmu.gov.jo
25	Khalil Abssi		JVA	khalil_alabsi@mwi.gov.jo
26	Qais Owais	Secretary General Assistant	JVA	qais_owais@yahoo.com

27	Mohammad Abu Maidan		WAJ-Zarqa	maidan2@yahoo.com
28	Ali Al-Dmasi		WAJ-Zarqa	aldamisi@gmail.com
29	Nuha Yousef		WAJ-Zarqa	
30	Mohammad Khalayleh		WAJ-Zarqa	
31	Nabil Hijazeen		WAJ-Zarqa	
32	Riyad Al Shayeb		WAJ-Zarqa	riyadalshayeb@gmail.com
33	Fathi Khamis		WAJ-Zarqa	fathi_khamis@yahoo.com
34	Hussein Surkhi	Deputy Fisical Agent Director	WAJ-Amman	loco@mwi.gov.jo
35	Dania Al Husseini	M&E Specialist	USAID-BAP	dhusseini@ecoditjo.com
36	Shajan Joykutty	Manager	PMC	sjoykutty@pmc-zarqa.com
37	Iman Alhamdan		PMC	communications@pmc-zarqa.com
38	Mohammad AlJundi		DoS	Mohammad.AlJundi@DOS.GOV.JO
39	Fouad Irteimeh		DoS	Fouad.Irtiemeh@DOS.GOV.JO
40	Melissa Knight	Director-Watwe Resources and Environment	USAID	mknight@usaid.gov
41	Barbara Rossmiller	Chief of Party	ISSP-USAID	Brossmiller@isspjordan.org
42	Ditzel Philipp		OMS/ GIZ	Philipp.Ditzel@dorsch.de
43	Stephan Kugler		OMS/ GIZ	stephan_kugler@dorsch.com.jo
44	Jorge McGregor	WSHs Consultant	Co-water International	jmcgregor@cowater.com
45	Robert Cardinalli		USAID-BAP	rcardinalli@ecoditjo.com
46	Ibrahim Obadah			Ibrahim_obadah@mwi.gov.jo
47	Firas Azzam	Fiscal Agent		-
48	Naser Qawwas	MWI		-
49		Sub Dept. MWI		-
50	Izzat Qassab	Fiscal Agent		-

ANNEX 3: DQR TOOLS

Annex 3a: Indicator Reference Sheet

Indicator Reference Sheet (Template)

Indicator Name		
1.	**Metadata**	
1.1	Indicator Code	
1.2	Responsible Entity	
1.3	Indicator Type (input, activity, output, outcome, impact	
1.4	Measurement Unit	
1.5	Data Source	
1.6	Definition	
1.7	Calculation Method (formula)	
1.8	Sampling Method (if applicable)	
1.9	Data Collection Method	
1.10	Reporting Method	
1.11	Frequency	
1.12	Level of Disaggregation	
1.13	Data Storage Method	
1.14	Database Format (if applicable)	
1.15	Observations on Metadata	

Indicator Reference Sheet (Cont'd)

2.	**Baseline Values**	
2.1	Value	
2.2	Period of Reference	
2.3	Baseline Value Estimation Method	
2.4	Observations on Baseline	
3.	**Targets**	
3.1	Target Settting Method	
3.2	Observations on Targets	
4.	**Indicator Monitoring**	
4.1	Value	
	Year 1	
	Year 2	
4.2	Reporting Date	
	Year 1	
	Year 2	
5.	**Recounting of Reported Results**	
5.1	Re-aggregate the numbers from the reports received from all Service Delivery Sites. What is the re-aggregated number? [A]	
5.2	What aggregated result was contained in the progress report prepared by the grantee (and submitted to AGRA M&E Unit)? [B]	
5.3	Calculate the ratio of recounted to reported numbers. [A/B]	
5.4	What are the reasons for the discrepancy (if any) observed (i.e., data entry errors, arithmetic errors, missing source documents, other)?	
6.	**Comments**	
6.1	Quality of Indicator	
6.2	Proposition for Revising Current Indicator	
6.3	Proposition to ensure timely availability of the data	
6.4	Aspects to update in the M&E Plan	

Annex 3b: Data Quality Assessment grid

Data Quality Assessment Grid (template)

Validity - Do the data adequately represent the desired performance?

	Impact		Outcome		Output	
Dimension / Question	Indicator 1.01	Indicator 1.02	Indicator 2.01	Indicator 2.02	Indicator 3.01	Indicator 3.02
1.1. Relevance						
Is there a solid, logical relation between the activity or program and what is being measured, or are there significant uncontrollable factors?						
1.2. Adequacy						
Do the indicators for particular expected results fully measure them? (completeness)						
Are definitions clear enough for all users to have the same understanding?						
If applicable, were national definitions used to define impact and outcome indicators?						
Are the indicators sufficient to characterize and/or measure the results?						
Does data include sufficient detail for disaggregated analysis if necessary?						
1.3. Data collection tools (non-survey data only)						
Is the data collection instrument well designed (e.g.,reporting formats)?						
Are data collectors well trained? How were they trained?						
If the instrument was self-reporting were adequate instructions provided?						
1.4. Non Sampling or Measurement Error (survey data only)						
Is the data collection instrument well designed? I.e., does it enable to inform the indicator?						
Were the questions in the survey/questionnaire clear, direct, easy to understand?						
Are definitions for data to be collected operationally precise?						
Was there any quality control in the selection process of the enumerators?						
Were trainers insiders of the program/project?						
Were enumerators well trained?						
If the instrument was self-reporting were adequate instructions provided?						
Were response rates sufficiently large?						
Has non-response rate been followed up?						
Were there reasons for respondents to give incomplete or untruthful information?						
Were there efforts to reduce the potential for personal bias by enumerators?						

Validity - Do the data adequately represent the desired performance? (cont'd)

1.5. Representativeness of Data (survey data only)						
Is the sample from which the data are drawn representative of the population served by the activity?						
Did all units of the population have an equal chance of being selected for the sample?						
Is the sampling frame adequate? (i.e., the list of units in the target population up to date, comprehensive, mutually exclusive (for geographic frames))						
Is the sample of adequate size?						
Are the data complete? (i.e., have all data points been recorded?)						
1.6. Transcription error						
Are steps being taken to limit transcription errors? (e.g., double keying of data for large surveys, electronic edit checking program to clean data, random checks of partner data entered by supervisors)						
Have data errors been tracked to their original source and mistakes corrected?						
1.7. Data processing						
Are the correct formulae being applied?						
Are the same formulae applied consistently from year to year, site to site, data source to data source (if data from multiple sources need to be aggregated)?						
Are procedures for dealing with missing data/outsiders traceable?						
Have procedures for dealing with missing data/outsiders been correctly applied?						
1.8. Does the data set reflect data entered at the source? (non-survey data only)						
Are final numbers reported accurate? (E.g., does a number reported as a "total" actually add up?)						
Would an increase in the degree of accuracy be more costly than the increased value of the information? (Yes-completely, if no more marginal value remaining to conquer?)						
Does the recording and reporting system avoids double counting people (e.g., a person receiving the same service twice in a reporting period, a person registered as receiving the same service in two different locations, etc)?						
Does the reporting system enable the identification and recording of a "drop out", a person "lost to follow-up" and a person who died?						
Average score	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Recommendations on Validity						

2. Reliability - Are data collection processes stable and consistent over time?

	Impact		Outcome		Output	
Dimension / Question	Indicator 1.01	Indicator 1.02	Indicator 2.01	Indicator 2.02	Indicator 3.01	Indicator 3.02
2.1. Consistency						
Is a consistent data collection process used from year to year, location to location, data source to data source (if data come from different sources)?						
Is the same instrument used to collect data from year to year, location to location?						
If data come from different sources are the instruments similar enough that the reliability of the data are not compromised?						
Is the same sampling method used from year to year, location to location, data source to data source?						
2.2. Internal quality control						
Are there procedures to ensure that data are free of significant error and that bias is not introduced?						
Are there procedures in place for periodic review of data collection, maintenance, and processing?						
Do these procedures provide for periodic sampling (random checks) and quality assessment of data?						
2.3. Transparency						
Are data collection, cleaning, analysis, reporting, and quality assessment procedures documented in writing?						
Are data problems at each level reported to the next level?						
Are data quality problems clearly described in final reports?						
2.4 Technology and Software						
Does the technology and/or statistical software used to collect, analyse and manage data ensure reliability of data?						
Does the technology and/or statistical software used t oreport data adapted to the needs of internal users?						
Does the technology and/or statistical software used t oreport data adapted to the needs of internal users?						
Is the technology used to report data adequate and accessible for external users.						
Average score	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Recommendations on Reliability						

3. Timeliness - Is data collected frequently and is it current?

	Impact		Outcome		Output	
Dimension / Question	Indicator 1.01	Indicator 1.02	Indicator 2.01	Indicator 2.02	Indicator 3.01	Indicator 3.02
3.1. Frequency						
Are data available on a frequent enough basis to inform program management decisions?						
Is a regularized schedule of data collection in place to meet program management needs?						
3.2. Availibility						
Is data reported in a given period the most current (up-to-date) practically available?						
Is data from within the period of interest for management purposes?						
Is data reported as soon as possible after collection?						
Is the date of collection clearly identified in the report?						
3.3. Practicality						
Is the collection of data for the indicator a reasonably viable matter (human and financial resources are adequate)?						
Is the data collection cost effective (are costs acceptable and justifiable)?						
Are conditions favourable for timely data collection?						
Average score	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Recommendations on Timeliness						

4. Precision - Do the data have an acceptable margin of error?

	Impact		Outcome		Output	
Dimension / Question	Indicator 1.01	Indicator 1.02	Indicator 2.01	Indicator 2.02	Indicator 3.01	Indicator 3.02
4.1. Reproducibility						
Would repeated measurement yield the same results under similar conditions?						
4.2. Precision (survey data only)						
Is the margin of error less than the expected change being measured?						
Is the margin of error acceptable given the likely management decisions to be affected? (consider the consequences of the program or policy decisions based on the data)						
Have targets been set for the acceptable margin of error?						
Has the margin of error been reported along with the data?						
Average score	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Recommendations on Precision						

5. Integrity - Are data free of manipulation?

	Impact		Outcome		Output	
Dimension / Question	Indicator 1.01	Indicator 1.02	Indicator 2.01	Indicator 2.02	Indicator 3.01	Indicator 3.02
5.1. Integrity						
Are mechanisms in place to reduce the possibility that data are manipulated for political or personal reasons?						
Is there objectivity and independence in key data collection, management, and assessment procedures?						
Have data collection, management and analysis processes been reviewed by an independant body?						
If data is from a secondary source, is the credibility of the data verified?						
If relevant, is personal data maintained according to national or international confidentiality guidelines?						
Average score	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Recommendations on Accuracy						

Project Data Quality Assessment

	Impact		Outcome		Output		Overall Average by Criteria	Impact Average by Criteria	Outcome Average by Criteria	Output Average by Criteria
Criteria	Indicator 1.01	Indicator 1.02	Indicator 2.01	Indicator 2.02	Indicator 3.01	Indicator 3.02				
1. Validity	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
2. Reliability	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
3. Timeliness	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
4. Precision	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
5. Integrity	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Average score	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Recommendations on Indicators										

Annex 3c: Reporting and System Assessment Protocol – MCA Level

Reporting and System Assessment Protocol – MCA level (example)

Reporting and System Assessment Protocol - MCA-Jordan			
MCA-T M&E Unit/Organization:		MCA M&E Unit	
Date of Review:			
Reporting Period Verified:			
Component of the M&E System		**Answer Codes:** Yes - completely Partly No - not at all N/A	**REVIEWER COMMENTS** (Please provide detail for each response not coded "Yes - Completely". Detailed responses will help guide strengthening measures.)
Part 1: Reporting Performance			
Review availability, completeness, and timeliness of reports from all Intermediate Aggregation Sites. How many reports should there have been from all Aggregation Sites? How many are there? Were they received on time? Are they complete?			
1	How many reports should there have been from PIUs? **[A]**		
2	How many reports are there? **[B]**		
3	Calculate % **Available Reports [B/A]**	-	
4	Check the dates on the reports received. How many reports were received on time? (i.e., received by the due date). **[C]**		
5	Calculate % **On time Reports [C/A]**	-	
6	How many reports were complete? (i.e., complete means that the report contained all the required indicator data*). **[D]**		
7	Calculate % **Complete Reports [D/A]**	-	

Reporting and System Assessment Protocol – MCA level (cont'd)

Part 2. Systems Assessment			
I - M&E Structure, Functions and Capabilities			
1	There is a documented organizational structure/chart that clearly identifies positions that have data management responsibilities at the M&E Unit.		
2	All staff positions dedicated to M&E and data management systems are filled.		
3	Current human resources at the M&E Unit are sufficient in quantity to ensure good quality M&E		
	List the additional human resources needed to ensure good quality M&E		
4	Current human resources at the M&E Unit have necessary skills (knowledge, ability and attitude) to ensure good quality M&E		
	List the skills needed to ensure good quality M&E		
5	A senior staff member (e.g., the Program Manager) is responsible for reviewing the aggregated numbers prior to the submission/release of reports from the M&E Unit.		
6	There are designated staff responsible for reviewing the quality of data (i.e., accuracy, completeness, timeliness and confidentiality) received from PIUs.		
7	There is a training plan which includes staff involved in M&E and data-collection and reporting at all levels in the reporting process.		
8	The training plan is being implemented in a timely manner.		
9	All relevant staff have received training in M&E and on the data management processes and tools.		

Reporting and System Assessment Protocol – MCA level (cont'd)

II- Reporting Guidelines			
10	The M&E Unit has documented the definition of the indicator(s).		
11	The M&E Unit has **shared** the definition of the indicator(s) with all relevant levels of the reporting system (e.g., regions, districts, service points).		
12	The M&E plan shows a description of the services (activities) that are related to each indicator measured by the Program.		
13	There is a written policy that states for how long source documents and reporting forms need to be retained.		
14	The M&E Unit has provided written guidelines to all PIUs on reporting requirements and deadlines.		
The M&E Unit has provided written guidelines per indicator to PIUs on …			
15	,,, *what* they are supposed to report on.		
16	… *how* (e.g., in what specific format) reports are to be submitted.		
17	… *to whom* the reports should be submitted.		
18	… *when* the reports are due.		

Reporting and System Assessment Protocol – MCA level (cont'd)

III- Data-collection and Reporting Forms / Tools			
19	The M&E Unit has identified standard reporting forms/tools to be used by all reporting levels.		
20	If multiple organizations (PIUs) are implementing activities under the Program/project, they all use the same reporting forms and report according to the same reporting timelines.		
21	….The standard forms/tools are consistently used by PIUs.		
22	Clear instructions have been provided by the M&E Unit on how to complete the data collection and reporting forms/tools.		
23	All source documents and reporting forms relevant for measuring the indicators are available for auditing purposes (including dated print-outs in case of computerized system).		
IV- Data Management Processes			
26	The M&E Unit has clearly documented data aggregation, analysis and/or manipulation steps performed at each level of the reporting system.		
27	Feedback is systematically provided to PIUs on the quality of their reporting (i.e., accuracy, completeness and timeliness).		
28	(If applicable) There are quality controls in place for when data from paper-based forms are entered into a computer (e.g., double entry, post-data entry verification, etc).		
29	There is a written back-up procedure for electronic data and information.		
30	...If yes, the latest date of back-up is appropriate (e.g., back-ups are weekly or monthly).		
31	There is a written procedure to address late, incomplete, inaccurate and missing reports; including following-up with PIUs on data quality issues.		
32	If data discrepancies have been uncovered in reports from PIUs, the M&E Unit has documented how these inconsistencies have been resolved.		
33	The M&E Unit can demonstrate that regular supervisory site visits have taken place and that data quality has been reviewed.		

Reporting and System Assessment Protocol – MCA level (cont'd)

V- Use of M&E results			
33	Are M&E results used to inform planning of Compact activities? If yes, please provide examples of use. If no, why?		
34	Are M&E results used to inform budgeting within the Compact? If yes, please provide examples of use. If no, why?		
35	Are M&E results used at MCA-T level to asses performance during implementation? If yes, please provide examples of use. If no, why?		
36	Are M&E results used for supporting evidence-based decision-making? If yes, please provide examples of use. If no, why?		
37	Are M&E results used for informing advocacy efforts? If yes, please provide examples of use. If no, why?		
38	How could use of M&E results be improved at MCA-T level?		

Annex 3d: Reporting and System Assessment Protocol – Implementing Entity Level

Reporting and System Assessment Protocol – Implementing Entity Level (example)

Reporting and System Assessment Protocol - Intermediate Level (PIU/IE)			
IE/Organization:		Water Authority of Jordan (central level)	
Date of Review:			
Reporting Period Verified:			
Component of the M&E System		**Answer Codes:** Yes - completely Partly No - not at all N/A	**REVIEWER COMMENTS** (Please provide detail for each response not coded "Yes - Completely". Detailed responses will help guide strengthening measures.)
Part 1: Reporting performance			
Review availability, completeness, and timeliness of reports from all Service delivery sites within the Region. How many reports should there have been from all Service Delivery Sites? How many are there? Were they received on time? Are they complete?			
1	How many reports should there have been from all service delivery sites? **[A]**		
2	How many reports are there? **[B]**		
3	Calculate % **Available Reports [B/A]**	-	
4	Check the dates on the reports received. How many reports were received on time? (i.e., received by the due date). **[C]**		
5	Calculate % **On time Reports [C/A]**	-	
6	How many reports were complete? (i.e., complete means that the report contained all the required indicator data*). **[D]**		
7	Calculate % **Complete Reports [D/A]**	-	

Reporting and System Assessment Protocol – Implementing Entity Level (cont'd)

Part 2. Systems Assessment			
I - M&E Structure, Functions and Capabilities			
1	There are designated staff responsible for reviewing the quality of data (i.e., accuracy, completeness and timeliness) received from sub-reporting levels (e.g., service delivery sites).		
2	There are designated staff responsible for reviewing aggregated numbers prior to submission to the next level (e.g., to the central M&E Unit).		
3	Current human resources at the M&E Unit are sufficient in quantity to ensure good quality M&E		
	List the additional human resources needed to ensure good quality M&E		
4	Current human resources at the M&E Unit have necessary skills (knowledge, ability and attitude) to ensure good quality M&E		
5	List the skills needed to ensure good quality M&E		
6	All relevant staff have received training on the data management processes and tools.		
II- Indicator Definitions and Reporting Guidelines			
The M&E Department at IE level has provided written guidelines to each sub-reporting level on …			
7	,,, *what* they are supposed to report on.		
8	… *how* (e.g., in what specific format) reports are to be submitted.		
9	… *to whom* the reports should be submitted.		
10	… *when* the reports are due.		

Reporting and System Assessment Protocol – Implementing Entity Level (cont'd)

III- Data-collection and Reporting Forms / Tools			
11	Are you aware of the indicators in the Indicator Tracking Table (ITT)?		
12	Do you understand the indicators you need to report on in the Indicator Tracking Table (ITT)?		
13	The M&E Department at PIU level has identified standard reporting forms/tools to be used by all reporting levels		
14	Clear instructions have been provided by the M&E Department at PIU level to sub-reporting levels (e.g., service delivery sites) on how to complete the data collection and reporting forms/tools.		
15	….The standard forms/tools are consistently used by Service Delivery Sites and other sub-reporting levels.		
16	All *source documents* and *reporting forms* relevant for measuring the indicators are available for auditing purposes (including dated print-outs in case of computerized system).		
IV- Data Management Processes			
17	Feedback is systematically provided to all service delivery sites on the quality of their reporting (i.e., accuracy, completeness and timeliness).		
18	If applicable, there are quality controls in place for when data from paper-based forms are entered into a computer (e.g., double entry, post-data entry verification, etc).		
19	There is a written back-up procedure for electronic data and information.		
20	...*If yes*, the latest date of back-up is appropriate (e.g., back-ups are weekly or monthly).		
21	There is a written procedure to address late, incomplete, inaccurate and missing reports; including following-up with service delivery sites on data quality issues.		
22	If data discrepancies have been uncovered in reports from service delivery sites, the Intermediate Aggregation Levels (e.g., regions, PIU) have documented how these inconsistencies have been resolved.		

Reporting and System Assessment Protocol – Implementing Entity Level (cont'd)

V- Use of M&E results			
33	Are M&E results used to inform planning of Project activities? If yes, please provide examples of use. If no, why?		
34	Are M&E results used to inform budgeting of the project? If yes, please provide examples of use. If no, why?		
35	Are M&E results used to asses performance during implementation of the project? If yes, please provide examples of use. If no, why?		
36	Are M&E results used for supporting evidence-based decision-making? If yes, please provide examples of use. If no, why?		
37	Are M&E results used for informing advocacy efforts? If yes, please provide examples of use. If no, why?		
38	How could use of M&E results be improved at Project level?		

Annex 3e: Reporting and System Assessment Protocol – Intermediate Aggregation Site

Reporting and System Assessment Protocol – Intermediate Aggregation Site (example)

Reporting and System Assessment Sheet - Intermediate Aggregation Site			
Organization:		Jordan Water Authority – Zarqa	
Date of Review:			
Reporting Period Verified:			
Component of the M&E System		**Answer Codes:** Yes - completely Partly No - not at all N/A	**REVIEWER COMMENTS** (Please provide detail for each response not coded "Yes - Completely". Detailed responses will help guide strengthening measures.)
Part 1: Reporting performance			
Review availability, completeness, and timeliness of reports from all Service delivery sites within the Region. How many reports should there have been from all Service Delivery Sites? How many are there? Were they received on time? Are they complete?			
5	How many reports should there have been from all service delivery sites? **[A]**		
6	How many reports are there? **[B]**		
7	Calculate % **Available Reports [B/A]**	-	
8	Check the dates on the reports received. How many reports were received on time? (i.e., received by the due date). **[C]**		
9	Calculate % **On time Reports [C/A]**	-	
10	How many reports were complete? (i.e., complete means that the report contained all the required indicator data*). **[D]**		
11	Calculate % **Complete Reports [D/A]**	-	

Reporting and System Assessment Protocol – Intermediate Aggregation Site (cont'd)

Part 2. Systems Assessment			
I - M&E Structure, Functions and Capabilities			
1	There are designated staff responsible for reviewing the quality of data (i.e., accuracy, completeness and timeliness) received from sub-reporting levels (e.g., service delivery sites).		
2	There are designated staff responsible for reviewing aggregated numbers prior to submission to the next level (e.g., to the central M&E Unit).		
3	Current human resources are sufficient to ensure good quality M&E at PIU level.		
4	All relevant staff have received training on the data management processes and tools.		
II- Indicator Definitions and Reporting Guidelines			
The M&E Department at PIU level has provided written guidelines to each sub-reporting level on …			
5	,,, *what* they are supposed to report on.		
6	… *how* (e.g., in what specific format) reports are to be submitted.		
7	… *to whom* the reports should be submitted.		
8	… *when* the reports are due.		

Reporting and System Assessment Protocol – Intermediate Aggregation Site (cont'd)

III- Data-collection and Reporting Forms / Tools			
9	The M&E Department at PIU level has identified standard reporting forms/tools to be used by all reporting levels		
10	Clear instructions have been provided by the M&E Department at PIU level to sub-reporting levels (e.g., service delivery sites) on how to complete the data collection and reporting forms/tools.		
11	….The standard forms/tools are consistently used by Service Delivery Sites and other sub-reporting levels.		
12	All *source documents* and *reporting forms* relevant for measuring the indicators are available for auditing purposes (including dated print-outs in case of computerized system).		
IV- Data Management Processes			
13	Feedback is systematically provided to all service delivery sites on the quality of their reporting (i.e., accuracy, completeness and timeliness).		
14	If applicable, there are quality controls in place for when data from paper-based forms are entered into a computer (e.g., double entry, post-data entry verification, etc).		
15	There is a written back-up procedure for electronic data and information.		
16	...If yes, the latest date of back-up is appropriate (e.g., back-ups are weekly or monthly).		
17	There is a written procedure to address late, incomplete, inaccurate and missing reports; including following-up with service delivery sites on data quality issues.		
18	If data discrepancies have been uncovered in reports from service delivery sites, the Intermediate Aggregation Levels (e.g., regions, PIU) have documented how these inconsistencies have been resolved.		

Annex 3f: Reporting and System Assessment Protocol – Service delivery site

Reporting and System Assessment Protocol- Service Delivery Site		
Service Delivery Point/Organization:	Infrastructure Contractor	
Date of Review:		
Reporting Period Verified:		
Component of the M&E System	**Answer Codes:** Yes - completely Partly No - not at all N/A	**REVIEWER COMMENTS** (Please provide detail for each response not coded "Yes - Completely". Detailed responses will help guide strengthening measures.)
Part 1: Reporting performance		
	Review availability and completeness of all indicator source documents for the selected reporting period.	
1	Review available source documents for the reporting period being verified. Is there any indication that source documents are missing?	
	If yes, determine how this might have affected reported numbers.	
2	Are all available source documents complete?	
	If no, determine how this might have affected reported numbers.	
3	Review the dates on the source documents. Do all dates fall within the reporting period?	
	If no, determine how this might have affected reported numbers.	

Reporting and System Assessment Protocol – Service Delivery Site (cont'd)

Part 2. Systems Assessment			
I - M&E Structure, Functions and Capabilities			
1	There are designated staff responsible for reviewing aggregated numbers prior to submission to the next level (e.g., intermediate aggregation level, PIU/IE, or to MCA M&E Unit).		
2	The responsibility for recording the delivery of services on source documents is clearly assigned to the relevant staff.		
3	Current human resources at the M&E Unit are sufficient in quantity to ensure good quality M&E		
	List the additional human resources needed to ensure good quality M&E		
4	Current human resources at the M&E Unit have necessary skills (knowledge, ability and attitude) to ensure good quality M&E		
	List the skills needed to ensure good quality M&E		
4	All relevant staff have received training on the data management processes and tools.		
II- Indicator Definitions and Reporting Guidelines			
The M&E Department at PIU has provided written guidelines to service delivery sites on …			
5	,,, *what* they are supposed to report on.		
6	… *how* (e.g., in what specific format) reports are to be submitted.		
7	… *to whom* the reports should be submitted.		
8	… *when* the reports are due.		

Reporting and System Assessment Protocol – Service Delivery Site (cont'd)

III - Data-collection and Reporting Forms and Tools			
9	The M&E Department at PIU level has identified standard reporting forms/tools to be used by all reporting levels		
10	Clear instructions have been provided by the M&E Department at PIU level on how to complete the data collection and reporting forms/tools.		
11	….The standard forms/tools are consistently used by the Service Delivery Site.		
12	All *source documents* and *reporting forms* relevant for measuring the indicator(s) are available for auditing purposes (including dated print-outs in case of computerized system).		
IV- Data Management Processes			
13	Feedback is systematically received from higher reporting levels on the quality of reporting of the service delivery site (i.e., accuracy, completeness and timeliness).		
14	If applicable, there are quality controls in place for when data from paper-based forms are entered into a computer (e.g., double entry, post-data entry verification, etc).		
15	There is a written back-up procedure for electronic data and information.		
16	*...If yes, the latest date of back-up is appropriate (e.g., back-ups are weekly or monthly).*		

ANNEX 4: RESULTS OF ASSESSMENT OF M&E SYSTEMS BY ENTITY

MCA-Jordan

SUMMARY TABLE Assessment of Data Management and Reporting Systems		I M&E Structure, Functions and Capabilities	II Reporting Guidelines	III Data-collection and Reporting Forms and Tools	IV Data Management Processes	V Use of M&E Results	Average (per site)
MCA M&E Unit							
-	MCA M&E Unit	**2,1**	**2,2**	**2,2**	**2,1**	**2,0**	**2,1**

WAJ-Central (for Compact level indicators)

SUMMARY TABLE Assessment of Data Management and Reporting Systems		I M&E Structure, Functions and Capabilities	II Indicator Definitions and Reporting Guidelines	III Data-collection and Reporting Forms / Tools	IV Data Management Processes	V Use of M&E Results	Average (per site)
PIU Level							
1	Water Authority of Jordan (central level) Finance Department	**2,0**	**2,3**	**1,5**	**1,3**	**1,0**	**1,6**

Water Network Project

SUMMARY TABLE Assessment of Data Management and Reporting Systems		I M&E Structure, Functions and Capabilities	II Indicator Definitions and Reporting Guidelines	III Data-collection and Reporting Forms / Tools	IV Data Management Processes	V Use of M&E Results	Average (per site)
MCA							
-	Water Network Project Directorate	**2,33**	**2,56**	**1,20**	**2,00**	**2,25**	**2,07**
PIU Level							
1	Jordan Water Authority – Zarqa	**1,75**	**2,00**	**3,00**	**1,20**	**-**	**1,99**
Average (per functional area)		**2,0**	**2,3**	**2,1**	**1,6**	**2,3**	**2,1**

Waste Water Network Project

SUMMARY TABLE Assessment of Data Management and Reporting Systems		I M&E Structure, Functions and Capabilities	II Indicator Definitions and Reporting Guidelines	III Data-collection and Reporting Forms / Tools	IV Data Management Processes	V Use of M&E Results	Average (per site)
MCA M&E Unit							
-	Waste Water Network Project Directorate	**2,86**	**2,56**	**3,00**	**2,67**	**2,20**	**2,66**
PIU Level							
1	WAJ – Zarqa Directorate	**1,80**	**3,00**	**2,60**	**2,95**	**2,60**	**2,59**
Intermediate Aggregation Level Sites							
1	PMC	**2,50**	**2,75**	**3,00**	**2,83**	**-**	**2,77**
Average (per functional area)		**2,39**	**2,77**	**2,87**	**2,82**	**2,40**	**2,65**

As-Samra Project

SUMMARY TABLE Assessment of Data Management and Reporting Systems		I M&E Structure, Functions and Capabilities	II Indicator Definitions and Reporting Guidelines	III Data-collection and Reporting Forms / Tools	IV Data Management Processes	V Use of M&E Results	Average (per site)
MCA M&E Unit							
-	As-Samra Project Directorate	**2,71**	**2,44**	**3,00**	**3,00**	**1,80**	**2,59**
PIU Level							
1	Ministry of Water and Irrigation - Water Authority of Jordan (WAJ)	**2,40**	**3,00**	**3,00**	**3,00**	**1,40**	**2,56**
Intermediate Aggregation Level Sites							
1	Jordan Valley Authority	**3,00**	**3,00**	**3,00**	**2,00**	**-**	**2,75**
Average (per functional area)		**2,70**	**2,81**	**3,00**	**2,67**	**1,60**	**2,56**

ANNEX 5: DATA VERIFICATIONS MCA-CENTRAL LEVEL

Data verifications Residential water consumption and number of customers

	Period reported:		July-Sep	Oct-Dec	Jan-mar	Apr-June	July-Sep				
Zone 003: Zarqa	Apr-June	July-Sep	Oct-Dec	Jan-mar	Apr-June	July-Sep	Oct-Dec				
	Q2	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Average growth rate (Q4-Q8)**	**Mean**	**Standard deviation**	**Coefficient of variation**
Residential water consumption			3665236	3285599	3044231	3500187	4455521	21,6%	3590155	536977	15,0
Residential customers			31783	32147	32210	32624	33115	4,2%	32376	509,7	1,6
Consumption per customer			115,32	102,21	94,51	107,29	134,55	16,7%	111	15,3	13,8
Quarterly change in total consumption				*-10,4%*	*-7,3%*	*15,0%*	*27,3%*				
Zone 014: Ruseifa	Apr-June	July-Sep	Oct-Dec	Jan-mar	Apr-June	July-Sep	Oct-Dec				
	Q2	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Average growth rate (Q4-Q8)**	**Mean**	**Standard deviation**	**Coefficient of variation**
Residential water consumption			1510046	1329845	1262882	1497886	1867464	23,7%	1493625	234579	15,7
Residential customers			7496	7661	7744	7878	7889	5,2%	7734	163,4	2,1
Consumption per customer			201,45	173,59	163,08	190,14	236,72	17,5%	193	28,6	14,8
Quarterly change in total consumption				***-11,9%***	***-5,0%***	***18,6%***	***24,7%***				
Total	Apr-June	July-Sep	Oct-Dec	Jan-mar	Apr-June	July-Sep	Oct-Dec				
	Q2	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Average growth rate (Q4-Q8)**	**Mean**	**Standard deviation**	**Coefficient of variation**
Residential water consumption	4532026	5240137	5175282	4615444	4307113	4998073	6322985	22,2%	5027294	668387	13,3
Residential customers			39279	39808	39954	40502	41004	4,4%	40109	663,1	1,7
Consumption per customer			131,76	115,94	107,80	123,40	154,20	17,0%	127	17,8	14,0
Quarterly change in total consumption		***15,6%***	***-1,2%***	***-10,8%***	***-6,7%***	***16,0%***	***26,5%***				

Data verifications Non-residential water consumption and number of customers

	Period reported:		July-Sep	Oct-Dec	Jan-mar	Apr-June	July-Sep				
Zone 003: Zarqa	Apr-June	July-Sep	Oct-Dec	Jan-mar	Apr-June	July-Sep	Oct-Dec				
	Q2	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Average growth rate (Q4-Q8)**	**Mean**	**Standard deviation**	**Coefficient of variation**
Non-residential water consumption			429495	372025	361451	363663	348153	-18,9%	374957	31668	8,4
Quarterly change in consumption				***-13,4%***	***-2,8%***	***0,6%***	***-4,3%***				
Zone 014: Ruseifa	Apr-June	July-Sep	Oct-Dec	Jan-mar	Apr-June	July-Sep	Oct-Dec				
	Q2	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Average growth rate (Q4-Q8)**	**Mean**	**Standard deviation**	**Coefficient of variation**
Non-residential water consumption			76568	76675	53368	68592	70323	-8,2%	69105	9518	13,8
Quarterly change in consumption				***0,1%***	***-30,4%***	***28,5%***	***2,5%***				
Total	Apr-June	July-Sep	Oct-Dec	Jan-mar	Apr-June	July-Sep	Oct-Dec				
	Q2	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Average growth rate (Q4-Q8)**	**Mean**	**Standard deviation**	**Coefficient of variation**
Non-residential water consumption	407015	452019	506063	448700	414819	432255	418476	-17,3%	444063	37131	8,4
Quarterly change in consumption		***11,1%***	***12,0%***	***-11,3%***	***-7,6%***	***4,2%***	***-3,2%***				

Data verifications: Recounting of results for Network water consumption (residential and non-residential)

	Apr-June	July-Sep	Oct-Dec	Jan-mar	Apr-June	July-Sep	Oct-Dec				
	Q2	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Average growth rate (Q4-Q8)**	**Mean**	**Standard deviation**	**Coefficient of variation**
Total water consumption	4939041	5692156	5681345	5064144	4721932	5430328	6741461	18,7%	5527842	769813	13,9
Population estimates (DOS)	931000	931000	931000	931000	931000	951800	951800				
Recalculated Water network consumption per capita (l/day)	58,9	67,9	67,8	60,4	56,4	63,4	78,7	16,1%	65	9	13,1
Water network consumption per capita (l/day) available in ITT	58,9	67,9	67,8	60,4	56,4	63,4	78,7	16,1%	65	9	13,1
Ratio of recounted to reported numbers	1,0	1,0	1,0	1,0	1,0	1,0	1,0				

Verification of Population data:

End-of year 2012 (source: DOS data for whole Zarqa Governorate)	951800
End-of year 2011 (data used does not correspond to DOS data which is 934100). Source?	931000
Data from DOS not available for 2013	

	Urban	Rural	Total
Total population Zarqa Gov. 2004	727268	37382	**764650**
Total population Zarqa Gov. 2009			**891000**

Growth rate estimated using DOS data (between 2004 and 2009)	3,11%
Growth rate used by ERR analyis P1-B model	3,25%

Estimated population in 2012 (using DOS)	976622
Estimated population in 2013 (using DOS)	1006954
Estimated population in 2015 (using DOS)	1070473

Estimated population in 2012 (ERR model)	980726
Estimated population in 2015 (ERR model)	1079489

Residential water consumption per capita – Recounted values versus ITT values

A	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Residential water consumption	4532026	5240137	5175282	4615444	4307113	4998073	6322985
Population estimates (DOS)	934100	934100	934100	951800	951800	951800	951800
Consumption (l/c/d)	53,9	62,3	61,6	53,9	50,3	58,3	73,8
Quarterly change in total consumption		***15,6%***	***-1,2%***	***-10,8%***	***-6,7%***	***16,0%***	***26,5%***

B	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Residential water consumption	4532026	5240137	5175282	4615444	4307113	4998073	6322985
Population estimates (ITT)	931000	931000	931000	931000	931000	951800	951800
Consumption (l/c/d)	54,1	62,5	61,8	55,1	51,4	58,3	73,8
Quarterly change in total consumption		***15,6%***	***-1,2%***	***-10,8%***	***-6,7%***	***16,0%***	***26,5%***

C	Q2	Q3	Q4	Q5	Q6	Q7	Q8
ITT values	54,1	62,5	56,2	50,1	46,8	53,7	69,4
Ratio of recounted to reported numbers (C/B)	1,00	1,00	0,91	0,91	0,91	0,92	0,94

Financial Data on outstanding debt

Financial Indicators For Al Zarqa					
DETAILS	2013 Q1	2013 Q2	2013 Q3		
	Q5	Q6	Q7		
water sales	1 809 971,0	1 984 399,0	2 530 816,0	6 325 186,0	3 794 370,0
Account receivable	1 036 794,0	2 558 554,0	1 834 157,0	5 429 505,0	3 595 348,0
Percentage	57%	129%	72%	0,85839452	
Account receivable 30/9/2013					

Financial Data on outstanding debt (cont'd)

Financial Indicators For Al Zarqa				
Account receivable 1/1/2013	**water sales q1+q2**	**colections**	**Account receivable 30/6/2013 (Q2)**	**Outstanding debt (recounted) Q6**
7 691 935	**3 794 370**	**3 595 348**	**8 046 085**	**212,1**
Account receivable 1/1/2013	**water sales q1+q2+q3**	**colections**	**Account receivable 30/9/2013 (Q3)**	**Outstanding debt (recounted) Q7**
7 691 935	**6 325 186**	**5 429 505**	**8 709 808**	**137,7**

Recalculations

Account receivable 1/1/2013	**water sales q1+q2**	**colections**	**Account receivable 30/6/2013 (Q2)**	**Outstanding debt (recounted) Q6**
7 691 935	**3 794 370**	**3 595 348**	**7 890 957**	**208,0**
Account receivable 1/1/2013	**water sales q1+q2+q3**	**colections**	**Account receivable 30/9/2013 (Q3)**	**Outstanding debt (recounted) Q7**
7 691 935	**6 325 186**	**5 429 505**	**8 587 616**	**135,8**

Financial Data on outstanding debt (cont'd)

Recalculations (based on Q4 estimated by DQR Team)

Account receivable 1/1/2013	water sales q1+q2	colections	Account receivable 30/6/2013 (Q2)	Outstanding debt (recounted) Q6
7 691 935	3 794 370	3 595 348	7 890 957	208,0

Account receivable 1/1/2013	Estimated water sales q1+q2+q3+q4	Estimated colections (q1+q2+q3+q4)	Account receivable 30/12/2013 (Q4)	Outstanding debt (recounted) Q8
7 691 935	8 825 186	7 429 505	9 087 616	103,0

ANNEX 6: SUMMARY OF RECOMMENDATIONS ON INDICATORS

Recommendations on MCA-Jordan Compact-level indicators

Current Indicator name	Main recommendations							Other actions
	Name	Definition	Calculation formula	Classification	Frequency	Baseline	Target	
Network water consumption per capita (residential and non-residential)	No issues noted	Review to: Billed residential and non-residential network water consumption in previous quarter (in m3)] / [population of governorate] * 1000 / 90.	Review to: [billed residential and non-residential network water consumption in previous quarter (in m3)] / [population of governorate] * 1000 / 90.	Change to level indicator	No issues noted	No issues noted	No issues noted	(1) If the indicator is conserved as is, review calculations for Q2 to Q4 using DOS figure for 2011: 934.100; (2) review calculations for Q5 to Q7 using population estimates of 951.800. (3) Contemplate replacing indicator by: "Network water consumption per customer (both residential and non-residential)".(4) If indicator is not replaced, measure this indicator using the Baseline evaluation survey data.
Billed residential water consumption	Billed residential water consumption per capita	Review to: Billed residential network water consumption in previous quarter (in m3)] / [population of governorate] * 1000 / 90.	Review to: Billed residential network water consumption in previous quarter (in m3)] / [population of governorate] * 1000 / 90.	Change to level indicator	No issues noted	Review to 56 l/c/d	No issues noted	(1) If the indicator is conserved as is, review the valued in the ITT for all quarters using new calculations presented in Annex 5; (2) Contemplate replacing this Indicator by "Billed residential consumption per customer"; (3) If indicator is not replaced, measure this indicator using the Baseline evaluation survey data.
Operating cost coverage	No issues noted	Clarify specific costs that are included in the calculation of operational costs and to update the M&E Plan accordingly.	Change to: [Total Annual Operational Revenue] / [Total Annual Operational Cost (including maintenance)]*100.	No issues noted	No issues noted	Update to 87% (2009)	Provide rationale for target of 100%	There is need for the M&E Unit to specify in written form new reporting requirements (annual submission dates) to ensure the timeliness in the reporting of this indicator.
Outstanding debt	No issues noted	clarify the definition of this indicator to make sure repeated measurements yield the same results	Account receivable (Account receivable in the previous year + Sales in the current year - Bills collected during the year) / sales in the current year.	No issues noted	Change to annual	No issues noted	No issues noted	Inform value for Q2
Proposal of new indicators								
	Total network consumption	Annual billed and non-residential network water consumption (in m3)	[Annual billed residential consumption (in m3) + non-residential network water consumption (in m3)].	Level indicator	Annual	21 272 723 m3	39 401 334 m3	

Recommendations on Water Network Project indicators

Current Indicator name	Main recommendations							Other actions
	Name	Definition	Calculation formula	Classification	Frequency	Baseline	Target	
Non-Revenue Water (NRW	No issues noted	NRW = (Water Input - Revenue Water) / Water Input*100	Water Input: Water Imports + Water Production - Water Exports Revenue Water: Authorized Billed Consumption	No issues noted	No issues noted	No issues noted	Review targets in light of the delay in signing the water project contracts and the agreed work plan for each of these contracts.	
Restructure and rehabilitate primary and secondary pipelines (km)	Length of primary and secondary pipelines restructured and rehabilitated	No issues noted	No issues noted	No issues noted	No issues noted	No issues noted	No issues noted	Distinguish between restructuring and rehabilitation: (1) Length of water distribution network restructured (overall sub-division of the network into Water Supply Areas, Distribution Areas and District Meter Areas. (2) Length of existing primary and secondary pipelines renovated/replaced.
Restructure and Rehabilitate Tertiary Pipelines (km)	Km of tertiary pipelines restructured and rehabilitated	No issues noted	No issues noted	No issues noted	No issues noted	No issues noted	No issues noted	Distinguish between replacement and reinforcement/renovation as the works needed are different and might target different areas.
Number of Replaced Customer Meters	Reformulate this indicator as “Number of defective customer water meter replaced	No issues noted	No issues noted	No issues noted	No issues noted	No issues noted	No issues noted	Another indicator that can be adopted is the number of customer meters fixed
Restructure and Construct District Meter Areas (#)	reformulate this indicator as “Number of District Meter Areas’ connection points isolated and constructed”	No issues noted	No issues noted	No issues noted	No issues noted	No issues noted	No issues noted	
Install Strategic Meters on Key Water Transfer Pipes	Reformulate this indicator as “Number of strategic meters installed on key water transfer pipes”,	No issues noted	No issues noted	No issues noted	No issues noted	No issues noted	No issues noted	

Recommendations on Waste Water Project indicators

Current Indicator name	Main recommendations							Other actions
	Name	Definition	Calculation formula	Classification	Frequency	Baseline	Target	
Sewer blockage events	No issue noted	This indicator is defined as annual number of blockages that occurred in sewers network per year (pumping station blockages shall not be included). However, this indicator is reported quarterly (sum of blockages in the quarter). This needs to be clarified in the definition.	Specify calculation formula: [Number of Sewage Blockages (Zarqa and Ruseifa) during the period + Number of Sewage Blockages (Zarqa and Ruseifa) during the period].	No issue noted	No issue noted	It is not clear how baseline was calculated for which year, or even if it is an average of previous years. No source of the data is provided which made the baseline not reliable at this point.	Revise the yearly targets, since for Year 1 the value is already higher than the target	Define the duration of the blockages
Volume of wastewater collected	No issue noted	No issue noted	No issue noted	No issue noted	No issue noted	Further study and revision of the calculation of the baseline is recommended.	No issue noted	
Residential population connected to the sewer system	No issue noted	No issue noted	No issue noted	No issue noted	No issue noted	It would be better to distinguish between water and wastewater subscribers and use number of population connected to the sewer network rather than percentage of new connections. Taking weighted average: number of people / meter 8.82 (source own calculation MCA-J water survey Data (STATA)), as indicated in the documents provided to the DQR team. Increased people connected to the waste water network as percentage can be replaced by number of people which shall illustrates better the project effort.	Target value estimation is based on two assumptions: one for the percentage of connected population to wastewater network and the other for who decides not to connect to wastewater network with a 95% factor (P2 Narrative sheet). However, this factor was not clearly justified in the calculations. It was also noticed in the target calculation that the factor of 97% was provided in the calculation, where 3% is the percentage of people with the opportunity to connect to the network, but do not connect. There shall be consistency with this factor for better data accuracy.	
Expand network (West and East Zarqa, Ruseifa)	Km of new connection pipes installed; disaggregated by area: West Zarqa, East Zarqa, West Ruseifa.	No issue noted	No issue noted	No issue noted	No issue noted	No issue noted	No issue noted	A GIS base data shall be highly recommended to present the project accomplishment spatial distribution.
Reinforce and rehabilitate network (West and East Zarqa, Ruseifa)	Disaggregated in two indicators: (1) Km of existing pipes reinforced (upgraded); disaggregated by area: West Zarqa, East Zarqa, West Ruseifa. (2) Km of existing pipelines rehabilitated (replaced); disaggregated by area: West Zarqa, East Zarqa, West Ruseifa.	No issue noted	No issue noted	No issue noted	No issue noted	No issue noted	No issue noted	

Recommendations on As-Samra Expansion Project Indicators

Current Indicator name	Main recommendations							Other actions
	Name	Definition	Calculation formula	Classification	Frequency	Baseline	Target	
Treated wastewater used in agriculture	Reclaimed wastewater used in agriculture	No issue noted	No issue noted	No issue noted	No issue noted	No issue noted	No issue noted	
Quality of As-Samra effluent meets standard	No issue noted	No issue noted	No issue noted	No issue noted	No issue noted	No issue noted	No issue noted	
Volume of waste water effluent discharged from the As-Samra plant per year	Clarify definition (see other actions)	No issue noted	No issue noted	No issue noted	No issue noted	No issue noted	No issue noted	Volume of wastewater effluent discharged from As Samra Wastewater Treatment plant, by definition the volume is measured on annual basis, whereas it is reported quarterly in the ITT that might lead to confusion.
Agriculture use of treated wastewater	No issue noted	No issue noted	No issue noted	No issue noted	No issue noted	Baseline calculation method for this indicator is: ([Quantities of mixed water sources released for irrigation in North Ghor]+[Quantities of mixed water sources released for irrigation (in Middle/South Ghor])/(Total water quantities used in Ghor agriculture). However, no fresh water is used for agriculture in Middle /South Ghor as stated by JVA.	No issue noted	