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INSTITUTIONAL SUPPORT & STRENGTHENING PROGRAM

***READINESS ASSESSMENT FOR WAJ OPERATING UNITS
AND YARMOUK WATER COMPANY TO REPORT ON
KEY PERFORMANCE INDICATORS***

FINAL REPORT

July 2014

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INSTITUTIONAL SUPPORT AND STRENGTHENING PROGRAM (ISSP)

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ACRONYMS

GIS	Geographic Information System
ISSP	Institutional Support and Strengthening Program
JVA	Jordan Valley Authority
KPI	Key Performance Indicator
M3/d	Cubic Meter per Day
MWI	Ministry of Water and Irrigation
OP	Operating Unit
PI	Performance Indicator
PMU	Program Management Unit
PS	Pumping Stations
USAID	United States Agency for International Development
WAJ	Water Authority of Jordan
WTP	Water Treatment Plant
WURU	Water Utility Regulatory Unit
WWTP	Wastewater Treatment Plant
WW	Wastewater
YC	Yarmouk Company
NRW	Non-Revenue Water
PC	Personal Computer

1. EXECUTIVE SUMMARY

As part of the Institutional Support and Strengthening Program (ISSP) support to the regulatory unit in WAJ, a regulatory readiness assessment to report on Key Performance Indicators (KPIs) was conducted for six WAJ operating units (Balqa, Madaba, Zarka, Karak, Tafleh and Ma'an), and Yarmouk Company (YC). Joint visits by ISSP team and Program Management Unit (PMU) staff for each operating unit and YC were completed to present the ten KPIs and variables that are taken into consideration for calculating KPIs, and to closely assess the units' preparedness and competency to report them. Due to time restrictions, field visits to specific data sources could not be performed. Therefore, a generalized readiness assessment was conducted.

Before conducting the field visits, the ISSP team distributed a questionnaire to each of the units. The questionnaire summarizes the current situation of the unit and its capacity to collect different variables needed for the calculation of KPIs. Cooperation of the operating units and YC in filling-out the distributed questionnaire, particularly the staff's knowledge and unit's accessible systems, was not as anticipated.

All visited operating units and YC exhibited a strong comprehension of the presented KPIs and variables. This is due to continuous efforts from PMU in prompting the operating units to report and respond to the identified KPIs.

Shortages in equipment, tools and qualified dedicated staff are major difficulties that several WAJ water unit management teams are facing in the collection, processing and accessibility of data for KPIs variables. The following limitations and critical needs are:

1. Water meters to accurately read and record source production and water imports and exports;
2. Trained field inspectors dedicated to follow-up on meter conditions and record all meter readings by their appropriate deadlines;
3. Online function coordinator responsible for contacting each data source for the variables and collecting the data;
4. Transportation means for either data collection or data verification;
5. PCs to facilitate variables data storage, processing and reporting;
6. Training on variables data verification and calculation of KPIs.

It is imperative that the findings of the readiness assessment are presented to the operating units and YC in coordination with the PMU, in order for the management of operating units and YC to be fully aware of their reporting responsibilities and abilities to KPIs variables data, as well as its reliability. As a result, this will improve management's reporting procedures and overall unit performance. It is also necessary to develop an overall KPI template to include all variables data and KPI calculations that can be used by all operating units. This template is a handy tool that can be utilized to input variable data in the correct place and at the appropriate time. This tool will also provide built-in KPIs calculations and a standardized format for reporting to all operating units. Finally, it will be a basic management tool to monitor the performance and trends of the unit, and will provide an opportunity to strengthen management and improve services.

Due to the fact that continuous supply for subscribers is not currently available to all WAJ operating units and YC, performance indicators related to subscribers receiving continuous supply (QSc01) must be excluded from the KPIs list. However, it is recommended that the below performance indicators should be added to the KPIs list.

1. Resident populations connected to the sewer system (WQSI)
2. Sewer blockages (Wop34)
3. Average power consumption per cubic meter pumped (Phc02)

2. INTRODUCTION

The Institutional Support and Strengthening Program (ISSP) is a three year USAID funded program to support and develop the water sector in Jordan to improve the overall sector efficiency and to better meet the challenge of water resources management.

The project developed an initial assessment (IA) of the water sector in Jordan and made recommendations on how to improve the governance structure to increase the efficiency and eliminate conflicts of interest and the overlapping of mandates between different entities in the sector. The assessment was conducted on the three entities responsible for managing the water sector in Jordan, namely: WAJ, JVA and MWI.

One of the major recommendations is to develop the regulatory function within the sector. The project has been working to support the PMU to build-on existing capacities in order to improve utility regulation in the sector. ISSP developed the rules of procedure for the Water Utility Regulatory Unit (WURU) which were approved by the Minister of Water and Irrigation in February 2014. The WURU was also established within the PMU.

As part of the support to PMU, ISSP conducted this readiness assessment which will help WURU to identify existing capacities of WAJ units and YC to report on KPIs as a preliminary step for starting to monitor their performance. This assessment included:

1. Middle Governorates: Balqa, Zarqa and Madaba
2. Southern Governorates: Karak, Ma'an and Tafleh
3. Northern Governorates (All Managed by YWC): Irbid, Jerash, Ajloun and Mafraq

Performance monitoring helps MWI to evaluate the existing efficiency of all water and waste water systems' components. Proper monitoring is implemented by using suitable set performance indicators (PIs). Performance monitoring will help maintain valuable utilities' infrastructures by ensuring they are operating at their maximum possible efficiency with minimum costs throughout its operational lifetime.

A PI is a characterized parameter which describes a status for an entity or a process based on the variables that define the indicator. Hence, judgment on a utility performance is based on measured facts and not on individual impressions or personal emotions. Once established, a PI system can show the utility development trend.

Various organizations worldwide have developed detailed performance evaluation frameworks including several indicators to comprehensively cover all the aspects of the water and wastewater systems, such as water quality, manpower, operational, customer satisfaction and financial.

The PMU/WURU has adopted a set of PIs for WAJ affiliated water operating units and water companies in the Kingdom of Jordan. This set of PIs are placed in categories related to water, wastewater, and financial characteristics, totaling 44 indicators and are grouped into the following headings:

- Water Resources
- Personal
- Physical properties
- Operational
- Quality of service
- Financial
- Wastewater
- Water demand

For each category, there are PIs with associated variables and calculation formulas.

The PMU/WURU envisaged ten KPI's to start regulating water utilities. Currently, both Miyahuna and Aqaba companies are reporting on these KPIs. Other WAJ units and YC have not yet started the reporting process due to limitations in their capabilities.

This report summarizes the findings and conclusions for the readiness assessment to evaluate current capacities of WAJ units and YC, as well as discussing preliminary recommendations for PMU on which variables can be reported under existing conditions and recommendations on what is needed to gradually build capacities to achieve full reporting on KPIs.

3. METHODOLOGY

Various meetings and discussions with PMU/WURU took place to develop a PI manual that defines PIs for water and wastewater services “version 7-December 2009”, and collect documents submitted by Miyahuna and Aqaba companies for its quarterly performance. It was necessary to look at the latest version of the PMU developed PI manual to see other relevant PIs, which are viewed as important performance indicators but are not part of KPIs list. Quarterly performance reports were also looked at to see reported KPIs and the reporting format.

3.1. REVIEW THE PERFORMANCE INDICATORS MANUAL

The older version of the PI manual developed by the PMU version “6.1 November 2008” showed 35 performance indicators. The outdated manual was upgraded to the current version “07 December 2009” which has 44 performance indicators with three levels of importance:

- Level 1 : Regulatory indicators (11 PIs)
- Level 2: Water and wastewater indicators (21 PIs)
- Level 3 : Water and wastewater specific indicators (12 PIs)

This new manual showed 44 performance indicators and 67 variables used for their calculations. The manual defines each performance indicators and its associated variables and formulas for calculating the indicator.

3.1.1. KPIS DEFINITIONS AND SIGNIFICANCE

Although key performance indicators identified in the PI manual “Level 1” are eleven, only ten were considered for the assessment. The indicator related to “Resident population connected to the sewer systems (WQS1)” was not presented as a KPI by the PMU during the introductory presentation made for WAJ operating units and YC.

Each indicator has and has a definition and a significance (Annex 1.1). The indicator definition outlines the purpose and use, while the indicator significance explains the value of the indicator for a water operating unit and its benefit.

Table (1) below shows the 10 key performance indicators on which the assessment was conducted:

No	KPI Code	Key Performance Indicator
1	WRc02	Water Consumption per Capita
2	QS17	Microbiological Water Quality Compliance
3	Op22	Water Loss per water connection
4	Fi36	Non-Revenue water by volume
5	Fic01	Collection Ratio
6	Fic03	Operating cost coverage ratio (W&WW)
7	QSc01	Subscribers receiving continuous supply
8	QS22	Non-billing complaints
9	QS27	Billing complaints
10	PEc01	Total employees per 1000 water subscribers

Table 1: Key Performance Indicators List

3.1.2. KPIS VARIABLES AND CALCULATION FORMULAS

To calculate a KPI, it is essential to have a clear understanding of its variables and its calculation formula. Therefore, available variables definitions need explanation to WAJ operating units staff who are recording the variable data in order to establish a base clear understanding of the variable which will help providing better data. While KPIs formulas, although straightforward, need explanation and elaboration for the management to be able to do a basic verification of data and to use it as an internal management tool.

Table (2) below shows all variables required to calculate the KPIs.

Code	Variable	Unit	Code	Variable	Unit
A7	Produced Treated Water	M ³	F11	Service Complaints	Nr.
A8	Imported Treated Water	M ³	F16	Billing Complaints	Nr.
A9	Exported Treated Water	M ³	N1	Domestic Billed Volume	M ³
A15	Billed Authorized Consumption	M ³	N10	Active Subscribers	Nr.
A15-1	Billed Volume	M ³	N14	Subscribers Receiving Continuous Supply	Nr.
A15-2	Volume Calculated from Illegal Use	M ³	N18	Cash Collected	JOD
A15-3	Water Tankers	M ³	N20	W&WW Revenues	JOD
A18	Unbilled Authorized Consumption	M ³	N21	W&WW Operating Costs	JOD
C32	Water Service Connections	Nr.	N24	Total Staff	Nr.
D43	Microbiological Tests Performed	Nr.	N28	Amount Billed In Period	JOD
D52	Microbiological Tests In Compliance	Nr.	N35	Number of Days In Period	Nr.
E10	Registered Subscribers	Nr.	N55	Complaints of "No Water Supply"	Nr.
F1	Population Supplied (Water)	Nr.	N56	Other Service Complaints	Nr.

Table 2: List of Variables

3.2. PRESENTATION OF KPIS TO WAJ UNITS AND YC

To present the key performance indicators to WAJ operating units and Yarmouk company management and their subordinates, two main slides were prepared. The first slide displays for each KPI its:

- Code
- Name
- Category (operation, financial,...etc)
- Definition
- Significance
- Associated variables required for KPI calculation
- Calculation formula.

The other slide shows for each variable its:

- Code
- Name
- Definition
- Related Directorate responsible for providing the variable data
- The variable unit

Both slides were prepared in English and then translated to Arabic. This is due to the fact that explanations and discussions of the slides in Arabic can be more beneficial and interactive particularly for the subordinate staff that are the vital source for the variable data.

Annex 1 shows English & Arabic slides for the KPIS, while Annex 2 shows the English & Arabic slides for the variables.

3.3. DEVELOPING AND DISTRBUTING A QUESTIONNAIRE

For a better understanding of operating units' capacity to report on KPI's in terms of staff knowledge and the available systems for operations, customer service, financial and water quality, a questionnaire was prepared in two components.

1. The first component deals with KPIs variables that evaluate the level of understanding of variables, data collection status, processing, use, data readiness, and link to WAJ center; besides suggestions of improving the collection and reporting process for the variable data and foreseen recommendations.
2. The second component considers general managerial aspects for variables' data such as availability of dedicated staff for variables' data collection and whether data is being collected, form of data storage, whether utility systems (operational, financial, customer, etc.) are capable of providing the variables data, if there is any link between the systems of each operating unit and its center exists to deliver the data, if a link between the unit center and PMU/WAJ to deliver the data is in place, if any of these links are possible, level of understanding of the KPIs and its significance as well as the variables, level of data accuracy and data analysis, plans set to improve the process.

The questionnaire was prepared in English and then translated to Arabic to ease communication for better feedback.

Annex 3 shows the English form of this questionnaire.

It should be noted that as of the date of preparing this report and despite close follow-up from ISSP and PMU for the feedback on the questionnaire, most of the operating units and Yarmouk Company have not submitted the feedback. Only Madaba, Karak, and Balqa operating units did submit the questionnaire feedback. It should be noted that due to time limitation during the visit it was not possible to fill out the questionnaire by hand throughout the visit.

3.4. CONDUCTING SITE VISITS

Visits to individual WAJ operating units and to Yarmouk company took place to:

1. Present key performance indicators, its definitions and significance as well as all associated variables and its definitions.
2. Present and discuss each data variable and how KPIs are calculated (equations).
3. Discuss data availability, data source, and bottlenecks faced in collecting the data for each variable.
4. Present the questionnaire and its significance for the assessment.
5. Study closely each utility capacity to report on KPI variables and areas of improvements in the reporting process.

Annex 4 shows visits schedule, while Annex 5 shows lists of participants.

4. SUMMARY OF FINDINGS

It should be noted that a general, un-detailed readiness assessment took place for all WAJ units and Yarmouk Company due to time limitations. Thus, no field visits to variables data source were actually possible. Interviews with related staff collecting the data were conducted and variables data availability and accuracy were discussed.

The summary of findings for each of the operating units is shown in the following sections.

4.1.1. BALQA

A visit to Balqa operating unit took place on April 2nd, 2014. Having presented and discussed the KPIs and its related variables, the following points were reported:

- Very good understanding of the performance indicators, its significance and importance for management decision making process.
- Management dedication to report to KPIs was noticed.
- All KPIs variables data are available except for variables N14 related to “subscribers receiving continuous supply”, and D43 and D52 related to microbiological tests.
- Part of the data for produced, imported, exported treated water variables are estimated (A7, A8, and A9).
- Data accuracy related to the variables for service complaints and billing complaints are questionable (F11, and F16).
- Data accuracy related to the variables for complaints of no water supply and other service complaints are questionable (N55, and N56).
- No data collection problem was noticed.
- There is an assigned dedicated coordinator in the utility for KPIs variables data collection and follow up.
- Questionnaire feedback from operating unit revealed the following:
 - Clear understanding of KPIs variables and their significance
 - No fully dedicated employee for the data collection, processing, and reporting to KPIs is currently available.

- Part of the data is obtained separately from “Dorsch Consult maintenance Management System” (DCMMS), “Bulk Meters Flow Operation “ (BMFO), and billing system (X7) by paper output reports with no data verification tools.
- Need for training on variables data verification and calculation of KPIs, and KPIs reporting.
- Need for transportation mean for either data collection or verification.
- Need for resources to execute “not working” domestic meters replacement campaigns to ensure “billed volume” real and accurate data.

4.1.2. MADABA

Madaba operating unit is now managed by Miyhauna through a management contract which took place in early 2014. A visit to Madaba operating unit / Miyahuna took place on April 7th, 2014. Having presented and discussed the KPIs and its related variables the following points were reported:

- Very good understanding of the performance indicators, its significance and importance for management decision making process.
- Management dedication to report to KPIs was clear.
- All KPIs variables data are available except for variable N14 related to “subscribers receiving continuous supply”
- Monthly report for all microbiological tests is received from WAJ central laboratories..
- Data accuracy related to variable F16 is incomplete (only number of bill objections is registered). Madaba unit will start recording all other customer service related complaints.
- Data for variable N21 related to water and wastewater operating costs is currently being worked on.
- No data collection problem was noticed.
- There is dedicated staff in the utility for KPIs variables data collection and reporting.
- There is no noticeable problem in the available capacities to report on KPIs.
- Madaba unit is reporting KPIs to the PMU with a copy to Miyahuna,
- Questionnaire feedback from operating unit revealed the following:
 - Clear understanding of KPIs variables and their significance
 - Plans to create a dedicated section for collecting, analyzing, and processing all performance indicators variables supported by technical needs and training.
 - Need for training on variables data verification and calculation of KPIs

4.1.3. ZARQA

A visit to Zarqa operating unit took place on April 8th, 2014. Having presented and discussed the KPIs and its related variables, the following points were reported:

- Good understanding of the performance indicators, its significance and importance for management decision making process.
- Management dedication to report to KPIs is clear.
- Currently the data collection task is followed up by IT engineer with problems in collecting the variables data especially that related to operations. Wells production data are estimated due to either unavailable meters or not working meter on the source. Therefore data for variables A7, A8, A9 is estimated.
- Data for variables A15-part 1, A15- part 3, C32, E10, F11, N1, N10, N18, N24, N28, N35, N20, and F16 (only number of bill objections) are available.
- Data for variables A15-part 2, A18, D43, D52, F1, N21, N55, and N58 are not available. Variables data for D43, and D52 are not available but can be requested from WAJ central laboratories.
- The supply for water subscribers is intermittent for the governorate, however due to the current structure of the water network; there are some pockets on the water network where subscribers receive continuous supply. Currently those subscribers are not specified; consequently variable N14 is not applicable.
- Data collection is a problem.
- Although there is good qualified staff in the water utility capable to report on KPIs, currently there is no available method or system to report on KPIs. Instructions were given by the operating unit manager to start instantaneously setting data collection procedures.

4.1.4. KARAK

A visit to Karak operating unit took place on April 6th, 2014. Having presented and discussed the KPIs and its related variables the following points were reported:

- Good understanding of the performance indicators, its significance and importance for management decision making process was noticed.
- Management motivation or dedication to report to KPIs was not clear.
- As reported by Karak Operating Unit Manager shortages of technical and human capacities are reasons to make reporting to KPIs hard (No qualified and dedicated employee to collect the data for the variables, wells production readings are done by a technician on his free time, no PC is available for the task, etc.).

- Currently the task for data collection is followed up by the NRW engineer with problems in collecting the variables data; especially that related to operations. Moreover wells production data are estimated due to either unavailable meters on the source or meters are not working, hence data for variables A7, A8, A9 is usually estimated for yearly report.
- As reported by the Financial Manager” There is no computerization for the financial processes with manual log books for stores; besides the vast area which Karak governorate covers makes it hard to control with the current capabilities. Additionally, cost centers for unit facilities are not applied. Moreover, central maintenance for cars, vehicles, fuel, pumps, water meters,..etc. make it extremely hard to calculate variable N21 related to water and wastewater operating costs.
- Data for N18, N20, N24, and A18 are available.
- Data for KPIs variables A15, C32, E10, F1, F16, N1, N10, are available although A15-part 1 (billed volume) has to be requested from central WAJ in Amman.
- It was reported by the subscribers’ manager that there is shortage in meter readers; as such 40% of the billed volume is estimation (A15-1). Moreover, most of the water meters are unsealed which makes it easy for the customers to use water illegally. Additionally, campaigns for meter disconnection for outstanding amounts are not effective.
- Data for KPIs variable N14 related to “subscribers receiving continuous supply” is not applicable. The supply in Karak governorate is intermittent.
- Data for KPIs variable D43, and D52 related to “Microbiological water tests ” are not available. These data are not received by the operating unit from WAJ central laboratories.
- Data accuracy related to the variables for service complaints and billing complaints are questionable (F11, and F16).
- Data accuracy related to the variables for complaints of no water supply and other service complaints are questionable (N55, and N56).
- No effective data collection is presently available.
- No assigned dedicated coordinator for KPIs variables data collection and follow up in the operating unit.
- There is a noticeable problem in the available capacities to report on KPI’s.
- Questionnaire feedback from operating unit revealed the following:
 - Clear understanding of KPIs variables and their significance
 - Need for a dedicated employee and PC for collecting, recording, processing the variables data, and reporting KPI’s.

- Need for training of assigned data collection employee on how to prepare necessary data collection forms, variables data verification and calculation of KPIs, and KPIs reporting.
- Need for transportation mean for either data collection or verification.
- Top management attention and intention to make a decision to build data bank.

4.1.5. TAFILEH

A visit to Tafileh operating unit took place on April 14th, 2014. Having presented and discussed the KPIs and its related variables, the following points were reported:

- Very good understanding of the performance indicators, its significance and importance for management decision making process.
- Management dedication to report to KPI's was clear.
- Currently the task is followed up by information and follow up section head without any problems in collecting the variables data.
- Variables related to water production volumes "A7" are estimated as the meters placed on the production sources are not working. Variables A8, and A9 do not apply as the governorate does not export or import any water quantities.
- Data for variables A15-1, related to billed volume is prepared by Karak for Tafileh customers and usually received late.
- Data for variables A15-2, A15-3, A18, C32, E10, F1, F11, F16, N1, N10, N18, N20, N24, N28, N35, N55, and N52 are available.
- Data for variables D43, and D52 are not available as the microbiological tests are done by Central Laboratories but can be requested.
- Variable N14 does not apply as there is no continuous supply in the governorate.
- Data for variable N21 related to water and wastewater operating costs are available to the extent of costs incurred from within the administration, while central operational costs are not available.
- Data collection is not a problem.
- There is no problem in the available capacities to report on KPIs.

4.1.6. MA'AN

A visit to Ma'an operating unit took place on April 15th, 2014. Having presented and discussed the KPIs and its related variables, the following points were reported:

- Good understanding of the performance indicators, its significance and importance for management decision making process. Part of the utility management team showed very good interest in the presented KPIs.
- Currently Non- Revenue Water Manager has some variables data collected for the purpose of reporting Non-Revenue water figures.
- Resource production data are estimated due to either unavailable meters or not working meters on the source. Therefore data for variables A7, A9 are available but estimated. Variable A8 does not apply as no water is imported from other utilities.
- Data for variables A15-1, related to billed volume is received from central WAJ, while data for variables A15- 2, A15-3, E10, F1, N1, N10, N18, N20, N24, N28, and N35 are available.
- Data for variable A18 is estimate as there are no meters on tankers feeding risers.
- Data for variable C32 related to number of service connection is estimated as the number of subscribers “In view that in Ma’an almost each subscriber has a house connection”.
- Data for variable F11 is not available. There is no logbook to keep record of service complaints. This due to the interruption occurred when Ma’an was managed by Aqaba Water Company and its service complaints were recorded by the company’s complaint center, while after Ma’an was back to WAJ no recording for the service complaints has been done.
- Data for variable F16 is only available for bill objections; other billing related complaints are currently not recorded.
- Variable N14 does not apply as there is no continuous supply in the governorate.
- Data for variables D43, and D52 are not available as the microbiological tests are done by Central Laboratories and can be requested.
- Data for variable N21 related to water and wastewater operating costs is available to the extent of costs from within the administration while central operational costs are not available.
- Data variables N55 and N58 related to service complaints are not currently recorded.
- Data collection is a problem.

4.1.7. YARMOUK WATER COMPANY

A visit to Yarmouk Water Company took place on April 22th, 2014. Having presented and discussed the KPIs and its related variables the following points were reported:

- Excellent understanding of the performance indicators, its significance and importance for management decision making process

- Currently both commercial manager and IT manager are following up performance indicators.
- Data collection and reporting is fragmented among different units. There is no established unit or section to deal with and report on all KPIs variables data.
- Water produced, imported, and exported data have estimations due to either unavailable meters or not working meters for some source locations. Therefore data for variables A7, A8, and A9 are available with estimations.
- All KPIs variables data are available except for variable N14 related to “subscribers receiving continuous supply” is not applicable. All Yarmouk service area has intermittent supply.
- Data for variable N21 related to water and wastewater operating costs is available for Yarmouk service area as a whole. Although there is an available algorithms for calculating operating costs for about 275 cost centers within the service area, operating cost is calculated for the service area as a whole.
- Generally speaking there is no noticeable problem in the available capacities and systems to report on KPIs.
- Visits to Mafraq, Jeresh, and Ajloun operating units which are part of Yarmouk Company service area were also conducted for presenting the KPIs and its variables to its management after the consent of Yarmouk Company manager was granted.

5. CONCLUSIONS

Based on the assessment findings, it was possible to draw conclusions for the visited operating units and Yarmouk Company on their capacities to report on KPIs. It should be noted that “accuracy” term used in the following tables is meant to indicate the reporting process and not the data validation of the variables for calculating the KPIs.

5.1. BALQA OPERATING UNIT

Table (3) below shows the reporting conclusion for Balqa operating unit on KPIs

No	KPI Code	Key Performance Indicator	Reliable Accuracy	Questionable Accuracy	No Ability
1	WRc02	Water Consumption per Capita	√		
2	QS17	Microbiological Water Quality Compliance			√
3	Op22	Water Loss per water connection		√	
4	Fi36	Non-Revenue water by volume		√	
5	Fic01	Collection Ratio	√		
6	Fic03	Operating cost coverage ratio (W&WW)		√	
7	QSc01	Subscribers receiving continuous supply			√
8	QS22	Non-billing complaints		√	
9	QS27	Billing complaints		√	
10	PEc01	Total employees per 1000 water subscribers	√		

Table 3: Balqa conclusion for reporting on KPIs

As can be drawn from table above, Balqa operating unit can report on the following KPIs

No	KPI Code	Key Performance Indicator
1	WRc02	Water Consumption per Capita
2	Op22	Water Loss per water connection
3	Fi36	Non-Revenue water by volume
4	Fic01	Collection Ratio
5	Fic03	Operating cost coverage ratio (W&WW)
6	QS22	Non-billing complaints
7	QS27	Billing complaints
8	PEc01	Total employees per 1000 water subscribers

5.2. MADABA OPERATING UNIT / MIYAHUNA

Table (4) below shows the reporting conclusion for Madaba operating unit / Miyahuna on KPIs

No	KPI Code	Key Performance Indicator	Reliable Accuracy	Questionable Accuracy	No Ability
1	WRc02	Water Consumption per Capita	√		
2	QS17	Microbiological Water Quality Compliance	√		
3	Op22	Water Loss per water connection	√		
4	Fi36	Non-Revenue water by volume	√		
5	Fic01	Collection Ratio	√		
6	Fic03	Operating cost coverage ratio (W&WW)	√		
7	QSc01	Subscribers receiving continuous supply			√
8	QS22	Non-billing complaints	√		
9	QS27	Billing complaints	√		
10	PEc01	Total employees per 1000 water subscribers	√		

Table 4: Madaba conclusion for reporting on KPIs

As can be drawn from table above, Madaba operating unit can report on the following KPIs

No	KPI Code	Key Performance Indicator
1	WRc02	Water Consumption per Capita
2	QS17	Microbiological Water Quality Compliance
3	Op22	Water Loss per water connection
4	Fi36	Non-Revenue water by volume
5	Fic01	Collection Ratio
6	Fic03	Operating cost coverage ratio (W&WW)
7	QS22	Non-billing complaints
8	QS27	Billing complaints
9	PEc01	Total employees per 1000 water subscribers

5.3. ZARQA OPERATING UNIT

Table (5) below shows the reporting conclusion for Zarqa operating unit on KPIs

No	KPI Code	Key Performance Indicator	Reliable Accuracy	Questionable Accuracy	No Ability
1	WRc02	Water Consumption per Capita		√	
2	QS17	Microbiological Water Quality Compliance			√
3	Op22	Water Loss per water connection		√	
4	Fi36	Non-Revenue water by volume		√	
5	Fic01	Collection Ratio		√	
6	Fic03	Operating cost coverage ratio (W&WW)			√
7	QSc01	Subscribers receiving continuous supply			√
8	QS22	Non-billing complaints		√	
9	QS27	Billing complaints		√	
10	PEc01	Total employees per 1000 water subscribers	√		

Table 5: Zarqa conclusion for reporting on KPIs

As can be drawn from table above, Zarqa operating unit can report on the following KPIs

No	KPI Code	Key Performance Indicator
1	WRc02	Water Consumption per Capita
2	Op22	Water Loss per water connection
3	Fi36	Non-Revenue water by volume
4	Fic01	Collection Ratio
5	QS22	Non-billing complaints
6	QS27	Billing complaints
7	PEc01	Total employees per 1000 water subscribers

5.4. KARAK OPERATING UNIT

Table (6) below shows the reporting conclusion for Karak operating unit on KPIs

No	KPI Code	Key Performance Indicator	Reliable Accuracy	Questionable Accuracy	No Ability
1	WRc02	Water Consumption per Capita	√		
2	QS17	Microbiological Water Quality Compliance			√
3	Op22	Water Loss per water connection		√	
4	Fi36	Non-Revenue water by volume		√	
5	Fic01	Collection Ratio	√		
6	Fic03	Operating cost coverage ratio (W&WW)			√
7	QSc01	Subscribers receiving continuous supply			√

No	KPI Code	Key Performance Indicator	Reliable Accuracy	Questionable Accuracy	No Ability
8	QS22	Non-billing complaints		√	
9	QS27	Billing complaints		√	
10	PEc01	Total employees per 1000 water subscribers	√		

Table 6: Karak conclusion for reporting on KPIs

As can be drawn from table above, Karak operating unit can report on the following KPIs

No	KPI Code	Key Performance Indicator
1	WRc02	Water Consumption per Capita
2	Op22	Water Loss per water connection
3	Fi36	Non-Revenue water by volume
4	Fic01	Collection Ratio
5	QS22	Non-billing complaints
6	QS27	Billing complaints
7	PEc01	Total employees per 1000 water subscribers

5.5. TAFILEH OPERATING UNIT

Table (7) below shows the reporting conclusion for Tafleh operating unit on KPIs

No	KPI Code	Key Performance Indicator	Reliable Accuracy	Questionable Accuracy	No Ability
1	WRc02	Water Consumption per Capita	√		
2	QS17	Microbiological Water Quality Compliance			√
3	Op22	Water Loss per water connection		√	
4	Fi36	Non-Revenue water by volume		√	
5	Fic01	Collection Ratio	√		
6	Fic03	Operating cost coverage ratio (W&WW)			√
7	QSc01	Subscribers receiving continuous supply			√
8	QS22	Non-billing complaints	√		
9	QS27	Billing complaints	√		
10	PEc01	Total employees per 1000 water subscribers	√		

Table 7: Tafleh conclusion for reporting on KPIs

As can be drawn from table above, Tafileh operating unit can report on the following KPIs

No	KPI Code	Key Performance Indicator
1	WRc02	Water Consumption per Capita
2	Op22	Water Loss per water connection
3	Fi36	Non-Revenue water by volume
4	Fic01	Collection Ratio
5	QS22	Non-billing complaints
6	QS27	Billing complaints
7	PEc01	Total employees per 1000 water subscribers

5.6. MA'AN OPERATING UNIT

Table (8) below shows the reporting conclusion for Ma'an operating unit on KPIs

No	KPI Code	Key Performance Indicator	Reliable Accuracy	Questionable Accuracy	No Ability
1	WRc02	Water Consumption per Capita	√		
2	QS17	Microbiological Water Quality Compliance			√
3	Op22	Water Loss per water connection		√	
4	Fi36	Non-Revenue water by volume		√	
5	Fic01	Collection Ratio	√		
6	Fic03	Operating cost coverage ratio (W&WW)			√
7	QSc01	Subscribers receiving continuous supply			√
8	QS22	Non-billing complaints			√
9	QS27	Billing complaints	√		
10	PEc01	Total employees per 1000 water subscribers	√		

Table 8: Ma'an conclusion for reporting on KPIs

As can be drawn from table above, Ma'anoperating unit can currently report on the following KPIs

No	KPI Code	Key Performance Indicator
1	WRc02	Water Consumption per Capita
2	Op22	Water Loss per water connection
3	Fi36	Non-Revenue water by volume
4	Fic01	Collection Ratio
5	QS27	Billing complaints
6	PEc01	Total employees per 1000 water subscribers

5.7. YARMOUK WATER COMPANY

Table (9) below shows the reporting conclusion for Yarmouk Company on KPIs

No	KPI Code	Key Performance Indicator	Reliable Accuracy	Questionable Accuracy	No Ability
1	WRc02	Water Consumption per Capita	√		
2	QS17	Microbiological Water Quality Compliance	√		
3	Op22	Water Loss per water connection	√		
4	Fi36	Non-Revenue water by volume	√		
5	Fic01	Collection Ratio	√		
6	Fic03	Operating cost coverage ratio (W&WW)	√		
7	QSc01	Subscribers receiving continuous supply			√
8	QS22	Non-billing complaints	√		
9	QS27	Billing complaints	√		
10	PEc01	Total employees per 1000 water subscribers	√		

Table 9: Yarmouk Company conclusion for reporting on KPIs

As can be drawn from table above, Yarmouk Company can currently report on the following KPI

No	KPI Code	Key Performance Indicator
1	WRc02	Water Consumption per Capita
2	QS17	Microbiological Water Quality Compliance
3	Op22	Water Loss per water connection
4	Fi36	Non-Revenue water by volume
5	Fic01	Collection Ratio
6	Fic03	Operating cost coverage ratio (W&WW)
7	QS22	Non-billing complaints
8	QS27	Billing complaints
9	PEc01	Total employees per 1000 water subscribers

5.8. OVERALL CONCLUSION AND ENVISIONED CRITICAL NEEDS

Table (10) below shows the reporting conclusion for all visited operating units and Yarmouk Company in reporting to KPIs

KPI No	1	2	3	4	5	6	7	8	9	10
KPI Code	WRc02	QS17	Op22	Fi36	Fic01	Fic03	QSc01	QS22	QS27	PEc01
KPI	Water Consumption per Capita	Microbiological Water Quality Compliance	Water Loss per water connection	Non-Revenue water by volume	Collection Ratio	Operating cost coverage ratio (W&WW)	Subscribers receiving continuous supply	Non-billing complaints	Billing complaints	Total employees per 1000 water subscribers
Balqa										
Madaba										
Zarka										
Karak										
Tafileh										
Ma'an										
Yarmouk										

Table 10: conclusion Summary in reporting to KPIs

	Reliable accuracy
	Questionable accuracy
	No ability to report

Table (11) below shows critical needs for all visited operating units and Yarmouk Company to improve data collection process and data quality for reporting to KPIs.

Operating Unit	Source Flow Meters	Field Inspectors	Coordinator	Transportation	Personal Computer
Balqa	✓	✓		✓	
Madaba					
Zarqa	✓	✓	✓	✓	
Karak	✓	✓	✓	✓	✓
Tafileh	✓	✓		✓	
Ma'an	✓	✓	✓	✓	✓
Yarmouk	✓	✓	✓		

Table 11: critical needs to improve reporting to KPIs

6. KPIS MONITORING NEEDS

Although this assessment was short and not detailed, it spotted some of the difficulties that most of WAJ water utilities management teams are facing in making available, collecting, and processing the data for the variables needed to calculate the key performance indicators. These difficulties are attributed to shortages in some equipment and qualified dedicated staff. Spotted critical needs are:

- Accurate metering and recording of water resource production, water importes and exportes, water tankers filling points. And water volumes for un-billed authorized consumption such as delivered free water tankers, water volumes for water and wastewater network flushings,..etc.
- Trained field inspectors dedicated to follow up meters conditions and record all meters readings.
- Online function coordinator responsible to contact each source for variables data (operation, finance, customer service, water quality, etc) and to collect the data, prepare necessary forms to facilitate data collection, follow up, process, and provide data for KPI's calculations.
- Means of transportation for field inspectors to follow up meters conditions and record all meters readings.
- PC's to facilitate variables data storage, processing and reporting.

7. PRELIMINARY RECOMMENDATIONS

1. Conduct a workshop for WAJ operating units and Water Utility Regulatory Unit (WURU) / PMU to
 - Present all levels of performance indicators.
 - Present assessment of operating units and Yarmouk Company findings.
2. Conduct a detailed assessment for WAJ operating units and YC to identify actual deficiencies.
3. Develop an overall KPI template to include all variables data collection and KPIs calculation.
4. Develop a linking tool between WURU/ PMU and WAJ operating units such that all KPIs variable data are monitored and directly received by WURU /PMU.
5. Excluded Performance indicator QSc01 related to subscribers receiving continuous supply from the list of KPIs for WAJ operating units and Yarmouk company. This is due to the fact that continuous supply for subscribers is currently unavailable for all governorates covered with this study.
6. Introduce below wastewater performance indicators as part of the KPIs list.
 - Resident populations connected to the sewer system (WQSI)
 - Sewer blockages (Wop34)
7. Introduce “Average power consumption per cubic meter pumped” (Phc02) as part of the KPIs list.
8. Review and assess a final list for the KPIs
9. Issue a letter to all operating units management to start reporting on five KPIs utilizing currently available capacities These five KPIs are:
 - WRc02 Water consumption per capita
 - OP22 Water loss per water connection
 - Fi36 Non-revenue water
 - Fic01 Collection ratio
 - PEc 01 Total employees per 1000 water subscribers
10. Start a process for collected data validation.

ANNEXES

ANNEX 1.1 - KEY PERFORMANCE INDICATORS (DEFINITIONS, SIGNIFICANCE, RELATED VARIABLES, AND CALCULATION FORMULA) ENGLISH SLIDE

ID	Indicator	Category	Unit	Indicator Definition	Significance	Required Variables	Calculation Formula
WRc02	Water Consumption per Capita	Water Resource	L/Cap/d	Measures amount of water delivered and sold to domestic consumers	It indicates whether the population receives enough water for its needs (drinking, cooking, cleaning,...ect)	N1,F1	$N1 \times 1000 / 90 / F1$
QS17	Microbiological Water Quality Compliance	Water Quality	%	Percentage of microbiological test that comply with The Jordanian Drinking Water Standards	Safe water is being supplied to consumers	D52,D43	$D52 / D43 \times 100$
Op22	Water Loss per water connection	Water Loss	L/Sc/d	Measures the volume of water lost (real & apparent) per water	It reflects the technical condition of the water connections for the	A7, A8, A9, A15, A18, C32, N35,	$((1000 \times A20) / C32) / N35$
Fi36	Non-Revenue water by volume	Financial/ Water Loss	%of system input	The difference between the volumes of the water system input and the billed authorized	It measures water losses, both real and apparent . It also indicates the technical conditions of the water	A7, A8, A9, A15, A26 $A26 = (A7 + A8) - (A15 + A9)$	$A26 / (A7 + A8) \times 100$
Fic01	Collection Ratio	Financial	%	The ratio of the collected cash from the billed amount for the same	It measures the proportion of billings that are converted into cash receipts , It	N18, N28	$N18 / N28 \times 100$
Fic03	Operating cost coverage ratio (W&WW)	Financial	%	The ratio pf W&WW revenues to the total W&WW services operating costs for the same period	It measures the financial sustainability of the utility	N20, N21	$N20 / N21 \times 100$
QSc01	Subscribers receiving continuous supply	Service Quality	%	The percentage of active subscribers receiving continuous supply out of total active subscribers	It measures the continuity of the water supply	N14, N10	$N14 / N10 \times 100$
QS22	Non-billing complaints	Service Quality	%of No. of Subs.	The percentage of the total number of non-billing complaints (service complaints) out of the total number of registered subscribers. (complaints	It measures customer satisfaction of quality of service provided	F11, N55, N56, E10 F11 = N55 + N56	$F11 / E10 \times 100$
QS27	Billing complaints	Service Quality	%of No. of Subs.	The percentage of the total number of billing complaints out of the total number of registered subscribers.	It measures customer satisfaction regarding billing.	F16, E10	$F16 / E10 \times 100$
PEc01	Total employees per 1000 water subscribers	Human Resource	No. /1000 Subs.	The total number of employed staff by the utility per 1000 water subscribers (regardless of their function or status)	It measures the man-power level of the utility	N24, E10	$N24 \times 1000 / E10$

ANNEX 1.2 - KEY PERFORMANCE INDICATORS (DEFINITIONS, SIGNIFICANCE, RELATED VARIABLES, AND CALCULATION FORMULA) ARABIC SLIDE

معايير الاداء الرئيسية التعاريف، الفائده، متغيرات المعيار، والمعادلة

الرمز	معيار الاداء	الوحده	تعريف المعيار	فائدة المعيار	المتغيرات المطلوبة	معادلة احتساب المعيار
WRc0 2	استهلاك الفرد من المياه	L/Cap/ d	يقيس كميات المياه الموزعه المباعه للمستهلك	يعطي مؤشر ان كان يصل للسكان كميات مياه كافيه لاجتياجاتهم (للشرب، للطبخ، للتنظيف.... الخ)	N1,F1	$N1*1000/90/F1$
QS17	مطابقة نوعية المياه الميكروبيولوجية للمواصفات	%	هو نسبة الفحوصات الميكروبيولوجيه المطابقه للمواصفات الاردنيه لمياه الشرب	التأكد من تزويد المستهلكين بمياه امنه	D52,D43	$D52/D43*100$
Op22	فاقد المياه لكل وصله	L/Sc/d	يقيس حجم المياه المفقوده لكل وصله مياه (الفاقد الحقيقي والظاهري)	يعكس حاله الفنيه لوصلات المياه في انظمة التوزيع	A7,A8,A9, A15, A18, C32, N35, A20 A20= (A7+A8) - (A9+A15 +A18)	$((1000*A20)/C32)/N35$
Fi36	المياه التي لا تجني ايراد بالحجم	نسبه من حجم المياه الداخله للنظام المائي	هو الفرق ما بين حجم المياه الداخله للنظام المائي وحجم الاستهلاك المفوتر المسموح به منسوباً الى حجم المياه الداخله للنظام المائي	يقيس المياه المفقوده بشقيها الحقيقي والظاهري ويظهر كذلك حاله الشبكات الفنيه وحاله العدادات	A7,A8,A9, A15, A26 A26=(A7 +A8) - (A15+A9)	$A26/(A7+A8)*100$
Fic01	نسبة التحصيل	%	هي نسبة النقد المحصل من المبالغ المفوتره لنفس الفتره	تقيس نسبة المبالغ المفوتره التي تم تحويلها الى سيوله نقديه مستلمه اي انها تقيس التدفق النقدي	N18, N28	$N18/N28*100$
Fic03	نسبة تغطية المصاريف التشغيليه	%	هي نسبة ايرادات المياه والصرف الصحي الى اجمالي المصاريف التشغيليه لخدمات المياه والصرف الصحي لنفس الفتره	تقيس الاستدامه الماليه لادارة المياه	N20,N21	$N20/N21*100$
QSc01	المشركون لديهم خدمة مياه متواصله	%	هي نسبة المشتركين الفعالين الذين تصلهم المياه بشكل متواصل الى اجمالي عدد المشتركين الفعالين	تقيس تزويد المياه المتواصل	N14,N10	$N14/N10*100$

QS22	الشكاوي غير المتعلقة بالفوتره	نسبه من اجمالي عدد المشتركين	هي نسبة اجمالي عدد الشكاوي غير المتعلقة بالفوتره (شكاوي الخدمه المتعلقة بالضغط ،توعية المياه ،انقطاعات ،المياه...الخ) الى اجمالي المشتركين المسجلين	تقيس رضا المشتركين لنوعية الخدمه المقدمه	F11,N55, N56, E10 F11= N55+N56	F11/E10*100
QS27	شكاوي الفوتره	نسبه من اجمالي عدد المشتركين	هي نسبة اجمالي عدد شكاوي الفوتره الى اجمالي المشتركين المسجلين	تقيس رضا المشتركين فيما يخص بالفوتره	F16,E10	F16/E10*100
PEc01	عدد الموظفين لكل الف مشترك مياه	عدد/ الف مشترك مياه	هو عدد اجمالي عدد الموظفين بادارة المياه لكل الف مشترك مياه وبغض النظر عن موقع عملهم او حالتهم	يقيس مستوى القوى العامله لدى ادارة المياه	N24,E10	N24*1000/E10

ANNEX 2.1 – VARIABLES NAMES & DEFINITIONS FOR KEY PERFORMANCE INDICATORS ENGLISH SLIDE

Annex 2-1: Variables Names and Definitions for Key Performance Indicators English slide				
CODE	NAME	DEFINITION	DIRECTORATE	Unit
A7	Produced treated water	Total volume of water input (Produced) to either water transmission lines, or directly to the distribution system. Data is preferred to be reported separately for each town or distribution sub-system	Operation	m3
A8	Imported treated water	Total volume of water imported from other systems. Data is preferred to be reported separately for each town or distribution sub-system	Operation	m3
A9	Exported treated water	Total volume of water exported to other water undertakings or systems from the supply area . Data is preferred to be reported separately for each town or distribution sub-system	Operation	m3
A15	Billed authorized consumption	billed metered and un-metered consumption	Customer Service	m3
		part 1: Billed volume	Customer Service	m3
		part 2: Volume calculated from illegal usage	Customer Service	m3
		part 3: Water tankers	Operation	m3
A18	Un-billed authorized consumption	Total amount of un-billed consumed water. This may include items such as free supply for masjids, free supply to firefighting and training, flushing of water and sewer network, street cleaning, and municipal watering.	Operation	m3
C32	Water service connections	Total number of water service connections. A service connections is the delivery point from the tertiary water network to the subscribers meter or meters. A water service connection cannot and should not serve more than one plot.	Customer Service	Nr.
D43	Microbiological water quality tests performed	Total number of microbiological water tests performed for treated water during the period. Do not include tests of raw water	Production & Quality	Nr.
D52	Compliance of microbiological tests	Number of microbiological tests performed for treated water during the period which complied with JISM standards	Production & Quality	Nr.
E10	Registered subscribers	Total number of subscribers registered in the billing database, including those receiving water and those temporarily not receiving water	Customer Service	Nr.
F1	Population supplied (water)	Resident population served by the water undertaking. In the absence of better information, the calculation may be based on the number of "active subscribers N10" with estimated occupancy	Customer Service	Nr.
F11	Service complaints	Number of direct , telephone and written complaints for quality of service, excluding complaints related to billing matters. This PI includes complaints about the quality of service such as pressure complaints, water continuity , ...etc F11=N55+N56	Operation	Nr.
F16	Billing complaints	Number of direct written billing complaints. A complaint is defined as any written communication from the subscriber to draw attention to a shortfall in the billing process as perceived by the subscriber	Customer Service	Nr.
N1	Domestic billed volume	The total volume of water billed for residential customers only	Customer Service	m3
N10	Active subscribers	All customers with a water meter who were receiving a water service on the last day of the reporting period. This definition excludes customers on the billing database who were not receiving water	Customer Service	Nr.
N14	Subscribers receiving continuous supply	Number of subscribers normally receiving continuous supply; 24 hours per day ,7 days per week. No allowance need to be made for interruptions to supply for maintenance or caused by network and equipment failure unless the interruption lasts more than two weeks	Operation	Nr.
N18	Cash collected	Value of cash collected in billing cycle. Approach must be consistent with N28.Include collections from subscribers associated with water and wastewater charges and meter fees. Do not include water sales to other utilities, and sewerage contributions from municipalities	Customer Service	JOD
N20	W&WW revenues	Include all revenues from water and tankering revenues for W & WW services and reclaimed water including billing, tankering, exports to other utilities, all fees charges and penalties, contribution from municipalities and interest received. Do not include subsidies from government and income from noncore activities.	Financial	JOD
N21	W&WW operating costs	Total annual W&S operating costs including: imported water, energy, external services, leasing and rentals, consumables, material for maintenance and repair, levies. Do not include capital charges (depreciation and financing costs).	Financial	JOD
N24	Number of staff engaged in the utility	W & WW full or part time employees	Human Resources	Nr.
N28	Amount billed in period (billing cycle)	W&WW billing in the billing cycle. Approach must be consistent with N18. include subscribers billings associated with W & WW charges, meter fees. Do not include water sales to other utilities , sewerage contributions from municipalities , interest payments, income from non-core activities	Customer Service	JOD
N35	Number of days in the applicable quarter	Number of days in one quarter or in one year, This number is used for conversion of quarterly data and / or yearly data into daily data	Operation	Nr.
N55	Complaints of "no water supply"	Number of direct telephone and written complaints relating specifically to No water supply. A complaint is defined as any written, or spoken, communication from a subscriber that draws attention to a shortfall in service as perceived by the subscribers.	Operation	Nr.
N56	Other service complaints	Number of direct telephone and written complaints quality of the water service excluding complaints about billing or no water supply . This PI include complaints about the quality of the water service such as low pressure and water quality complaints	Operation	Nr.

ANNEX 2.2 – VARIABLES NAMES & DEFINITIONS FOR KEY PERFORMANCE INDICATORS ARABIC SLIDE

اسماء المتغيرات وتعريفاتهم لمعايير الاداء الرئيسيه

الرمز	اسم المتغير	التعريف	المديرية	الوحده
A7	المياه المنتجه المعالجه	احمالي حجم المياه المنتجه والداخله الى الخطوط الناقله او مباشره الى نظام التوزيع ويفضل ان تدون المعلومات لكل قرية او نظام تزويد فرعي	التشغيل	m3
A8	المياه المستورده المعالجه	احمالي حجم المياه المستورده من انظمة مياه اخرى ويفضل ان تدون المعلومات لكل قرية او نظام تزويد فرعي	التشغيل	m3
A9	المياه المصدره المعالجه	احمالي حجم المياه المصدره الى انظمة مياه اخرى ويفضل ان تدون المعلومات لكل قرية او نظام تزويد فرعي	التشغيل	m3
A15	الاستهلاك المفوتر المسموح به	الاستهلاك المفوتر المقاس بعدد او بغير عدد	خدمات المشتركين	m3
		الجزء الاول- الحجم المفوتر	خدمات المشتركين	m3
		الجزء الثاني - الحجم المحسوب من استعمالات المياه غير المشروعه	خدمات المشتركين	m3
		الجزء الثالث - صهاريج المياه	التشغيل	m3
A18	الاستهلاك غير المفوتر المسموح به	الكميات الكليه للمياه المستهلكه غير المفوتره والتي قد تشمل حالات مثل التزويد المجاني للمساجد واطفاء الحرائق والتدريب وغسيل شبكات المياه والصرف الصحي وتنظيف الشوارع والري الخاص بالبلديات	التشغيل	m3
C32	وصلات المياه	اجمالي عدد وصلات خدمة المياه . ان وصله المياه هي نقطة الوصل ما بين شبكة التوزيع وعدد / عدادات المشتركين ولا يجوز ان تخدم الوصله الواحده اكثر من قطعة ارض واحده	خدمات المشتركين	Nr.
D43	فحوصات نوعيه المياه الميكروبيولوجيه المنجزه	اجمالي عدد الفحوصات الميكروبيولوجيه التي تم عملها للمياه المعالجه خلال مده زمنيه بحيث لا يتم شمول اية فحوصات للمياه قبل معالحتها	الانتاج والنوعيه	Nr.
D52	فحوصات نوعيه المياه الميكروبيولوجيه المطابقه للمواصفات	عدد الفحوصات المخبريه التي تم عملها للمياه المعالجه خلال مده زمنيه والتي كانت مطابقه للمواصفات الاردنيه لمياه الشرب	الانتاج والنوعيه	Nr.
E10	المشركون المسجلون	اجمالي عدد الاشتراكات المسجلون في قاعده بيانات الفوتره بما فيها تلك الاشتراكات التي تصلهم المياه وتلك الاشتراكات محجوبي الخدمه	خدمات المشتركين	Nr.
F1	السكان المزودون بخدمه المياه	عدد السكان المقيمين المخدومين بالمياه من قبل اداره المياه وفي حال عدم توفر المعلومه يمكن احتسابها من عدد المشتركين الفاعلين مع تقدير عدد القاطنين للاشتراك	خدمات المشتركين	Nr.
F11	شكاوي الخدمه	عدد الشكاوي التلفونيه والمكتوبه المباشره الخاصه بنوعيه الخدمه ولا تشمل تلك الخاصه بامور الفوتره (شكاوي ضغط المياه ، انقطاع المياه، ...الخ)	التشغيل	Nr.

F16	شكاوي الفوتره	عدد الشكاوي المباشره المكتوبه المتعلقة بالفوتره (بوجود اي تقصير) من منظور المشترك	خدمات المشتركين	Nr.
N1	المياه المنزليه المفوتره	حجم المياه المفوتره للاشتراكات المنزليه فقط	خدمات المشتركين	m3
N10	المشتركون غير محجوبي الخدمه (الفاعلين)	جميع المشتركين الذين لديهم عداد ويزودون بالمياه (المياه واصله) لغاية اخر يوم لتقديم المعلومه ويستثنى جميع الاشتراكات الموجودين في قاعدة بيانات الفوتره والذين لا تصلهم المياه (محجوبي الخدمه)	خدمات المشتركين	Nr.
N14	المشتركون لديهم خدمة مياه متواصله	عدد المشتركين الذين تصلهم المياه بشكل متواصل 24 ساعه باليوم و 7 ايام بالاسبوع وبغض النظر لاية انقطاعات قد تحدث للتزويد نتيجة صيانة الشبكه او اية امور تشغيليه اخرى على ان لا يستمر الانقطاع لمدته تزيد عن اسبوعين	التشغيل	Nr.
N18	المبالغ الماليه المحصله	المبالغ الماليه التقديه المحصله بالدوره الواحده على ان يكون هناك تناغم مع المتغير (ن 28) وان تشمل تحصيلات المشتركين المتعلقة بائمان المياه واجور الصرف الصحي والعداد وان لا تشمل المبيعات للادارات الاخرى ومساهمات الصرف الصحي من البلديات	خدمات المشتركين	JOD
N20	ايرادات المياه والصرف الصحي	تشمل جميع ايرادات خدمات المياه والصرف الصحي والمياه المستصلحه والفوتره والصهاريج ومبيعات المياه للادارات الاخرى وجميع الرسوم والغرامات ومساهمات البلديات والفوائد المستلمه ولا تشمل الدعم الحكومي او اي دخل من خارج صلب المياه	الماليه	JOD
N21	الكلف التشغيليه للمياه والصرف الصحي	اجمالي الكلف التشغيليه السنويه للمياه والصرف الصحي والتي تشمل المياه المستورده ، الطاقه، الايجارات،المستهلكات، المواد اللازمه للصيانه والاصلاحات،الضرائب المفروضه ولا تشمل الرسوم الرأسماليه (الاستهلاكات او كلف التمويل)	الماليه	JOD
N24	اجمالي اعداد العاملين بالاداره	جميع العاملين بالمياه والصرف الصحي في اداره المياه بدوام كامل او جزئي وبغض النظر عن وضعهم الوظيفي (مؤقت...الخ)	الموارد البشريه	Nr.
N28	اجمالي المبالغ المفوتره بالدوره	مبالغ المياه والصرف الصحي المفوتره بالدوره الواحده على ان يكون هناك تناغم مع المتغير (ن18) ويجب ان تشمل فواتير المشتركين المتعلقة بائمان المياه واجور الصرف الصحي واجور العدادات وان لا تشمل مبيعات المياه للمناطق الاخرى ومساهمات البلديات والفوائد المدفوعه والدخل القادم من خارج نشاطات اداره المياه الرئسيه	خدمات المشتركين	JOD
N35	عدد الايام في ربع السنه /السنه المعنيه	عدد الايام في الربع او السنه وهذا الرقم يستخدم لتحويل البيانات الربعيه او السنويه الى بيانات يومية	التشغيل	Nr.
N55	شكاوي انقطاع المياه	عدد الشكاوي المكتوبه او الهاتفية المتعلقة خصا بانقطاع المياه	التشغيل	Nr.
N56	الشكاوي الاخرى غير انقطاع المياه والفوتره	عدد الشكاوي المكتوبه او الهاتفية المتعلقة خصا بنوعيه خدمه المياه على ان لا تشمل شكاوي الفوتره او شكاوي انقطاع المياه مثل شكاوي انخفاض ضغط المياه وشكاوي نوعيه المياه	التشغيل	Nr.

ANNEX 3: QUESTIONNAIRE ON CAPACITIES TO REPORT KPIs (ENGLISH VERSION)

Questionnaire Related to Capacities of WAJ Utility Units to Report to KPI's (General Aspects)

1. Availability of dedicated employee or a section concerned with data collection and particularly those variables of Key Performance Indicators.
2. Is Data for the KPI's variables being collected?
3. How collected data are being stored and in which form (manual, on logs, or digital/PC)?
4. Are working systems in operations, customer service, financial, and water quality capable of providing the required data and in which form?
5. Is there any connection mechanism between these systems and the center of the water utility?
6. Is there any connection mechanism between the center of the water utility and central Performance management Unit or Central WAJ?
7. Is such a connection possible?
8. Is there any current connection for any of PKI's variables with central WAJ?
9. What is the knowledge level with KPI's and its significance?
10. What is the knowledge level with KPI's variables?
11. Level of follow up to collect data and to clarify ambiguities in collected data.
12. Level of data analysis, data validation, and correctness?
13. Any plans for improving data collection mechanisms?
14. Any plans for improving collected data storage, handling, classification, and processing to serve showing the utility unit performance?
15. Commitments' to adhere to all WAJ decisions related to KPI's and its data collection, storage, and processing to show the utility performance.
16. Meetings with data providers to discuss methods used for data collection and how can such methods be improved to ensure data accuracy and completeness.
17. Meetings with managers to discuss data collection mechanisms, bottlenecks, and proposed solutions.
18. Meetings with managers to discuss ways to improve collected data storage, classification, and how to use it to show the utility performance.
19. What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verification

- c) Data readiness at scheduled time
 - d) Collected data classification and storage
 - e) Collected data application to KPI's
 - f) Possibilities for direct link between utility and central WAJ online
20. What are the possibilities to improve the process of making the data available and providing it?
21. What are the suggestions and recommendations?

Questionnaire Related to Capacities of WAJ Utility Units to Report to KPI's Variables (Specific)

1. Variable A7 :Produced treated water

- Source of variable (operation customer service, financial, water quality)
- How variable information is collected (received, picked up from source, other mean)
- How and where variable information is recorded (Manual. Logbook, PC)
- What does the variable information currently used for?
- What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verification
 - c) Data readiness at scheduled time
 - d) Collected data classification and storage
 - e) Collected data application to KPI's
 - f) Possibilities for direct link between utility and central WAJ online
- What are the suggestions and recommendations?

2. Variable A8 :Imported treated water

- Source of variable (operation customer service, financial, water quality)
- How variable information is collected (received, picked up from source, other mean)
- How and where variable information is recorded (Manual. Logbook, PC)
- What does the variable information currently used for?
- What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verification
 - c) Data readiness at scheduled time
 - d) Collected data classification and storage
 - e) Collected data application to KPI's
 - f) Possibilities for direct link between utility and central WAJ online
- What are the suggestions and recommendations?

3. Variable A9 :Exported treated water

- Source of variable (operation customer service, financial, water quality)
- How variable information is collected (received, picked up from source, other mean)
- How and where variable information is recorded (Manual. Logbook, PC)
- What does the variable information currently used for?
- What are the basic needs to:

- a) Ensure data accuracy and correctness
 - b) Data verification
 - c) Data readiness at scheduled time
 - d) Collected data classification and storage
 - e) Collected data application to KPI's
 - f) Possibilities for direct link between utility and central WAJ online
- What are the suggestions and recommendations?
4. Variable A15 : Billed authorized consumption- part 1/billed volume
- Source of variable (operation customer service, financial, water quality)
 - How variable information is collected (received, picked up from source, other mean)
 - How and where variable information is recorded (Manual. Logbook, PC)
 - What does the variable information currently used for?
 - What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verification
 - c) Data readiness at scheduled time
 - d) Collected data classification and storage
 - e) Collected data application to KPI's
 - f) Possibilities for direct link between utility and central WAJ online
 - What are the suggestions and recommendations?
5. Variable A15 : Billed authorized consumption- part 2/volume calculated from illegal use
- Source of variable (operation customer service, financial, water quality)
 - How variable information is collected (received, picked up from source, other mean)
 - How and where variable information is recorded (Manual. Logbook, PC)
 - What does the variable information currently used for?
 - What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verification
 - c) Data readiness at scheduled time
 - d) Collected data classification and storage
 - e) Collected data application to KPI's
 - f) Possibilities for direct link between utility and central WAJ online
 - What are the suggestions and recommendations?

6. Variable A15 : Billed authorized consumption- part 3/ water tankers
- Source of variable (operation customer service, financial, water quality)
 - How variable information is collected (received, picked up from source, other mean)
 - How and where variable information is recorded (Manual. Logbook, PC)
 - What does the variable information currently used for?
 - What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verification
 - c) Data readiness at scheduled time
 - d) Collected data classification and storage
 - e) Collected data application to KPI's
 - f) Possibilities for direct link between utility and central WAJ online
 - What are the suggestions and recommendations?
7. Variable A18 :Unbilled authorized consumption
- Source of variable (operation customer service, financial, water quality)
 - How variable information is collected (received, picked up from source, other mean)
 - How and where variable information is recorded (Manual. Logbook, PC)
 - What does the variable information currently used for?
 - What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verification
 - c) Data readiness at scheduled time
 - d) Collected data classification and storage
 - e) Collected data application to KPI's
 - f) Possibilities for direct link between utility and central WAJ online
 - What are the suggestions and recommendations?
8. Variable C32 :Water service connections
- Source of variable (operation customer service, financial, water quality)
 - How variable information is collected (received, picked up from source, other mean)
 - How and where variable information is recorded (Manual. Logbook, PC)
 - What does the variable information currently used for?
 - What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verification

- c) Data readiness at scheduled time
 - d) Collected data classification and storage
 - e) Collected data application to KPI's
 - f) Possibilities for direct link between utility and central WAJ online
- What are the suggestions and recommendations?
9. Variable D43 :Performed microbiological water quality tests
- Source of variable (operation customer service, financial, water quality)
 - How variable information is collected (received, picked up from source, other mean)
 - How and where variable information is recorded (Manual. Logbook, PC)
 - What does the variable information currently used for?
 - What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verification
 - c) Data readiness at scheduled time
 - d) Collected data classification and storage
 - e) Collected data application to KPI's
 - f) Possibilities for direct link between utility and central WAJ online
 - What are the suggestions and recommendations?
10. Variable D52 :Compliance of microbiological tests
- Source of variable (operation customer service, financial, water quality)
 - How variable information is collected (received, picked up from source, other mean)
 - How and where variable information is recorded (Manual. Logbook, PC)
 - What does the variable information currently used for?
 - What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verification
 - c) Data readiness at scheduled time
 - d) Collected data classification and storage
 - e) Collected data application to KPI's
 - f) Possibilities for direct link between utility and central WAJ online
 - What are the suggestions and recommendations?
11. Variable E10 :Registered subscribers
- Source of variable (operation customer service, financial, water quality)
 - How variable information is collected (received, picked up from source, other mean)

- How and where variable information is recorded (Manual. Logbook, PC)
- What does the variable information currently used for?
- What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verification
 - c) Data readiness at scheduled time
 - d) Collected data classification and storage
 - e) Collected data application to KPI's
 - f) Possibilities for direct link between utility and central WAJ online
- What are the suggestions and recommendations?

12. Variable F1: Population supplied with water

- Source of variable (operation customer service, financial, water quality)
- How variable information is collected (received, picked up from source, other mean)
- How and where variable information is recorded (Manual. Logbook, PC)
- What does the variable information currently used for?
- What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verification
 - c) Data readiness at scheduled time
 - d) Collected data classification and storage
 - e) Collected data application to KPI's
 - f) Possibilities for direct link between utility and central WAJ online
- What are the suggestions and recommendations?

13. Variable F11 :Service complaints

- Source of variable (operation customer service, financial, water quality)
- How variable information is collected (received, picked up from source, other mean)
- How and where variable information is recorded (Manual. Logbook, PC)
- What does the variable information currently used for?
- What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verification
 - c) Data readiness at scheduled time
 - d) Collected data classification and storage
 - e) Collected data application to KPI's
 - f) Possibilities for direct link between utility and central WAJ online

- What are the suggestions and recommendations?

14. Variable F16 :Billing complaints

- Source of variable (operation customer service, financial, water quality)
- How variable information is collected (received, picked up from source, other mean)
- How and where variable information is recorded (Manual. Logbook, PC)
- What does the variable information currently used for?
- What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verification
 - c) Data readiness at scheduled time
 - d) Collected data classification and storage
 - e) Collected data application to KPI's
 - f) Possibilities for direct link between utility and central WAJ online
- What are the suggestions and recommendations?

15. Variable N1 :Domestic billed volume

- Source of variable (operation customer service, financial, water quality)
- How variable information is collected (received, picked up from source, other mean)
- How and where variable information is recorded (Manual. Logbook, PC)
- What does the variable information currently used for?
- What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verification
 - c) Data readiness at scheduled time
 - d) Collected data classification and storage
 - e) Collected data application to KPI's
 - f) Possibilities for direct link between utility and central WAJ online
- What are the suggestions and recommendations?

16. Variable N10 :Active Subscribers

- Source of variable (operation customer service, financial, water quality)
- How variable information is collected (received, picked up from source, other mean)
- How and where variable information is recorded (Manual. Logbook, PC)
- What does the variable information currently used for?
- What are the basic needs to:
 - a) Ensure data accuracy and correctness

- b) Data verification
- c) Data readiness at scheduled time
- d) Collected data classification and storage
- e) Collected data application to KPI's
- f) Possibilities for direct link between utility and central WAJ online

- What are the suggestions and recommendations?

17. Variable N14:Subscribers receiving continuous supply

- Source of variable (operation customer service, financial, water quality)
- How variable information is collected (received, picked up from source, other mean)
- How and where variable information is recorded (Manual. Logbook, PC)
- What does the variable information currently used for?
- What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verification
 - c) Data readiness at scheduled time
 - d) Collected data classification and storage
 - e) Collected data application to KPI's
 - f) Possibilities for direct link between utility and central WAJ online
- What are the suggestions and recommendations?

18. Variable N18 :Cash collected

- Source of variable (operation customer service, financial, water quality)
- How variable information is collected (received, picked up from source, other mean)
- How and where variable information is recorded (Manual. Logbook, PC)
- What does the variable information currently used for?
- What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verification
 - c) Data readiness at scheduled time
 - d) Collected data classification and storage
 - e) Collected data application to KPI's
 - f) Possibilities for direct link between utility and central WAJ online
- What are the suggestions and recommendations?

19. Variable N20 :W&WW revenues

- Source of variable (operation customer service, financial, water quality)
- How variable information is collected (received, picked up from source, other mean)
- How and where variable information is recorded (Manual. Logbook, PC)
- What does the variable information currently used for?
- What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verification
 - c) Data readiness at scheduled time
 - d) Collected data classification and storage
 - e) Collected data application to KPI's
 - f) Possibilities for direct link between utility and central WAJ online
- What are the suggestions and recommendations?

20. Variable N21 :W&WW operating costs

- Source of variable (operation customer service, financial, water quality)
- How variable information is collected (received, picked up from source, other mean)
- How and where variable information is recorded (Manual. Logbook, PC)
- What does the variable information currently used for?
- What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verification
 - c) Data readiness at scheduled time
 - d) Collected data classification and storage
 - e) Collected data application to KPI's
 - f) Possibilities for direct link between utility and central WAJ online
- What are the suggestions and recommendations?

21. Variable N24 :Total number of staff engaged in the utility

- Source of variable (operation customer service, financial, water quality)
- How variable information is collected (received, picked up from source, other mean)
- How and where variable information is recorded (Manual. Logbook, PC)
- What does the variable information currently used for?
- What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verification

- c) Data readiness at scheduled time
- d) Collected data classification and storage
- e) Collected data application to KPI's
- f) Possibilities for direct link between utility and central WAJ online

- What are the suggestions and recommendations?

22. Variable N28 :Amount billed in period (billing cycle)

- Source of variable (operation customer service, financial, water quality)
- How variable information is collected (received, picked up from source, other mean)
- How and where variable information is recorded (Manual. Logbook, PC)
- What does the variable information currently used for?
- What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verification
 - c) Data readiness at scheduled time
 - d) Collected data classification and storage
 - e) Collected data application to KPI's
 - f) Possibilities for direct link between utility and central WAJ online

- What are the suggestions and recommendations?

23. Variable N35 :Number of days in the applicable quarter / year

- Source of variable (operation customer service, financial, water quality)
- How variable information is collected (received, picked up from source, other mean)
- How and where variable information is recorded (Manual. Logbook, PC)
- What does the variable information currently used for?
- What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verification
 - c) Data readiness at scheduled time
 - d) Collected data classification and storage
 - e) Collected data application to KPI's
 - f) Possibilities for direct link between utility and central WAJ online

- What are the suggestions and recommendations?

24. Variable N55 :Complaints of “no water supply”

- Source of variable (operation customer service, financial, water quality)
- How variable information is collected (received, picked up from source, other mean)

- How and where variable information is recorded (Manual. Logbook, PC)
- What does the variable information currently used for?
- What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verificationData readiness at scheduled time
 - c) Collected data classification and storage
 - d) Collected data application to KPI's
 - e) Possibilities for direct link between utility and central WAJ online
- What are the suggestions and recommendations?

25. Variable N56 :Other service complaints

- Source of variable (operation customer service, financial, water quality)
- How variable information is collected (received, picked up from source, other mean)
- How and where variable information is recorded (Manual. Logbook, PC)
- What does the variable information currently used for?
- What are the basic needs to:
 - a) Ensure data accuracy and correctness
 - b) Data verification
 - c) Data readiness at scheduled time
 - d) Collected data classification and storage
 - e) Collected data application to KPI's
 - f) Possibilities for direct link between utility and central WAJ online
- What are the suggestions and recommendations?

For inquiries, notes, and coordination

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ANNEX 4: VISITS SCHEDULE FOR WAJ OPERATING UNITS & YARMOUK COMPANY FOR KPIS PRESENTATION & READINESS ASSESSMENT

Date	Day	Governorate	PMU Representative
2/4/2014	Wednesday	Balqa	Dr. Mohammad Al-Waqfi
6/4/2014	Sunday	Karak	None
7/4/2014	Monday	Madaba	Dr. Mohammad Al-Waqfi
8/4/2014	Tuesday	Zarqa	None
14/4/2014	Monday	Tafieleh	Dr. Mohammad Al-Waqfi
15/4/2014	Tuesday	Ma'an	Dr. Mohammad Al-Waqfi
22/4/2014	Tuesday	Yarmouk Company	Dr. Mohammad Al-Waqfi
29/4/2014	Tuesday	Mafraq	Dr. Mohammad Al-Waqfi
30/4/2014	Tuesday	Ajloun	Dr. Mohammad Al-Waqfi
30/4/2014	Wednesday	Jerash	Dr. Mohammad Al-Waqfi

ANNEX 5: LIST OF WAJ OPERATING UNITS AND YARMOUK COMPANY PARTICIPANTS

Members of Balqa Operating Unit	
1	Eng. Khaled Al-Obiedieeen, Balqa General Manager
2	Eng. Saeed Akil, Customer Service Manager&NRW
3	Ma'ath Abu Ruman, IT Section
4	Munjed Al- Manaseer, Administration & Financial Manager
5	Eng. Rania Al-Shamayleh, Technical Manager
6	Eng. Moh'dHussam, Ein Al Basha Area Manager
7	Eng. Mazen Al- Rawashdeh, Fuheis Area Manager
8	Eng. ReyadFedah, Wastewater manager
9	Eng. ReyadMuhsen, South Shounch Area Manager
Members ISSP	
1	Radwan Akkash KPI Expert
Members PMU	
1	MohammadWaqfi PMU
Members of Madaba Operating Unit	
1	Mohammad Al-Awamleh Utility Manager
2	Arwa Billing operator
3	BalquesTameme Head Technical Affairs Unit
4	Sameer Kohury Water Administrator Engineer
5	Basel Al-Twalbeh Customer Service Manager
6	Mustafa Al-Shiekh Financial Manager
7	Musa Shenau Manager NRW
Members ISSP	
1	Team Leader for Technical Performance & Water Services- Robert Peter
2	Radwan Akkash KPI Expert
Members PMU	
1	MohammadWaqfi Monitoring Unit PMU
Members Zarqa operating unit	
1	Eng Mohammad Abu-Medan General Manager Zarqa
2	Khalid Al-Omoush Customer Service Manager
3	Eng Nabil HejazeenWasteWater Manager
4	Eng Mohammad JumaRussafeh Area Manager
5	EngMohamjmad Al Houlle Water Division Manager
6	Waleed Abu-Alhaiga Administrative Financial Manager
7	WalidBataineh NRW Manager
8	NuhaYousef IT Manager
9	12 Second tier employees
Members ISSP	
1	Team Leader for Technical Performance & Water Services- Robert Peter
2	Radwan Akkash KPI Expert
Members PMU	
1	None
Members of Karak operating unit	
1	Eng.Samer Al-Ma'aitah, Karak General Manager
2	Eng.MohammadBustanji, Customer Service Manager
4	IsmacelAssaf, Financial & Administration Manager
5	Eng. Abeer Al-Eidee. NRW Manager
6	Eng. Ibrahim Al-Hawari Operation Manager
7	Mustafa Al-Ja'afreh. Operator
Members ISSP	
2	Radwan Akkash KPI Expert
Members PMU	
1	None

Members of Tafileh operating unit	
1	Mustafa Al-Zananeen, Tafileh General Manager
2	Bassam Al- Musaudeen, Financial & Administration Manager
3	Akef Al-Sahareen, Customer Service
4	Suliman Al-Muhsen, NRW Section Head
5	Mohamad Al-Harases, Information Section
6	Mohammad Al-Akaeileh, Accounting Section
7	Eng. Musa Al-Murafi, Customer Service Manager
	Eng. Kholoud Al-Faqeer, WW Manager
Members ISSP	
1	Radwan Akkash KPI Expert
Members PMU	
1	MohammadWaqfi PMU
Members of Ma'an operating unit	
1	Eng. Mohammad Al- Amaireh, Ma'an General Manaager
2	Eng. Yaser Al-Muhtaseb, Shoubaq Area Manager
3	Eng. Basheer Al-Marafeih, Operation Manger
4	Mohammad Abeduldaiem, Customer Service
5	Musa AghoAmereh, Operations Inspector
6	Emad Al-Talhouni, NRW Manager
7	Mamoun Al-Humaidi, Customer Service
Members ISSP	
1	Radwan Akkash KPI Expert
Members PMU	
1	MohammadWaqfi PMU
Members of Yarmouk Company	
1	Eng. Mohammad Al-Rababah Company General Manager
2	Jehad Al-zoubi, Financial Manager
3	IsamJaradat, Commercial Manager
4	Mahmoud Al-Zoubi, IT Manager
5	Ashraf Bataeineh, Technical Manager
6	Abedallah Al-Zoubi, HR Manager
7	HussienAk-Hazaymeh, Jerash Unit Manager
Members ISSP	
1	Team Leader for Technical Performance & Water Services- Robert Peter
2	Radwan Akkash KPI Expert
Members PMU	
1	MohammadWaqfi PMU
Members of Mafrag operating unit	
1	Ali Abu-Sumaga, Mafrag Manager
2	Ms. Eng. Fatima Al-Khresha, Customer Service Manager
3	Ms. Sahar Al-Massaed, Information Section
4	EhsanSaleh Al-Shebi, Financial Section
5	NawafRegebat, Administration Section Head
6	Mohammad Al-Khawaldeh, Customer Service
7	Talal Al-Sayeg, Billing Section Head
Members ISSP	
1	Team Leader for Technical Performance & Water Services- Robert Peter
2	Radwan Akkash KPI Expert
Members PMU	
1	MohammadWaqfi PMU
Members of Jeresh operating unit	
1	Eng. HussienHazaimeh Utility Manager
2	Ali Rawashdeh Billing Manager
3	JamilKhalaf Collection Section
4	Eng Marwan Ayasrah Operation & Maintenance Mgr.
5	Bashar Nawasrah Technical Affairs
6	Ahmad Rawashdeh Customer Service

7	Jawad Al Kaed Administration
Members ISSP	
1	Team Leader for Technical Performance & Water Services- Robert Peter
2	Radwan Akkash KPI Expert
Members PMU	
1	MohammadWaqfi PMU
Members of Ajloun operating unit	
1	Eng. Eid Abu-Abed Utility Manager
2	AzamKhatatbeh Water Distribution
3	ZiadSmadi Customer Service Manager
4	Naser Al-Zugoul Operations
5	Mohammad Smadi Operations
6	GhadaZogoul Operations
7	Linda Muqatesh Computer division
8	IbtisamSougaoul Financial & Accounting
9	HebaRashaydeh Administration
10	FadiaSarsour Data Division
11	Naeem Al-Moumani Service & Transportation
12	Ahmad Quda Account
13	Omar Qura'n Water Tankers
Members ISSP	
1	Team Leader for Technical Performance & Water Services- Robert Peter
2	Radwan Akkash KPI Expert
Members PMU	
1	MohammadWaqfi PMU

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