



# NEWSLETTER

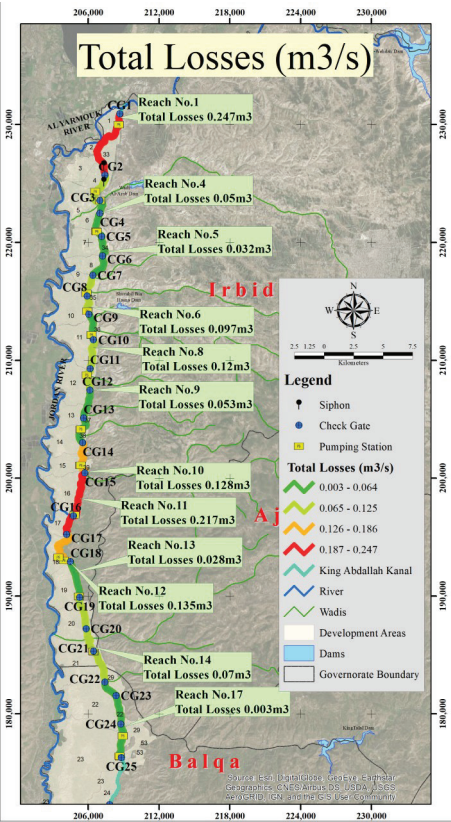
## Water Management Initiative (WMI) Project

### DETERMINATION OF WATER LOSSES IN THE KAC CONVEYANCE SYSTEM

The primary goal of this first phase of the “Determination of Water Losses in the King Abdullah Canal (KAC) Conveyance System” project was to measure the total losses for each reach of the upper canal (0-65km), and to determine the relative contribution of evaporation, seepage, and unmetered/illegal use to the total estimated loss. Two approaches to measure the canal flow were used; one instantaneous and the other continuous over an extended period of about 24 hours, where, two different cutting-edge instruments were used for these purposes.

Nearly 1000 instantaneous discharge measurements were made in July and October 2017, and about 25 days of continuous 5-minute (over 7000 discharge measurements) were collected in October 2017. These observations were analyzed, combined and compared with observations made by the KAC-SCADA system to derive initial estimates of losses for the upper KAC.

The figure shows the total losses for the different reaches under investigation. This visualization pointed directly to the reaches with the highest losses and also the reaches with the potential to face problems in the near future. The total water losses for the 65km of the upper KAC are estimated to be 24.4% of the maximum flow, partitioned between 10.7% being constant/seepage, and 13.7% being unmetered/illegal uses. If accounting for evaporation, the total loss would increase by about 1% to 25.4%, with the constant/seepage and unmetered/illegal percentages staying the same.

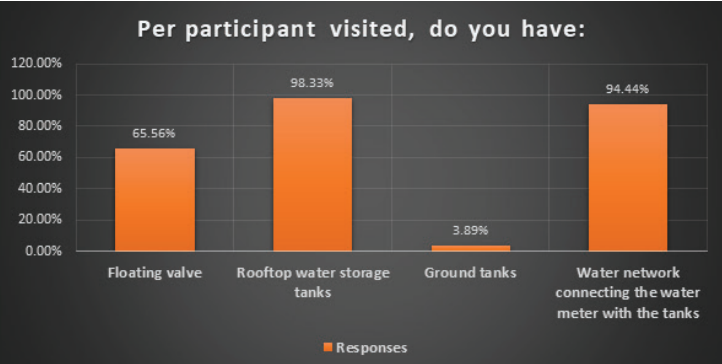
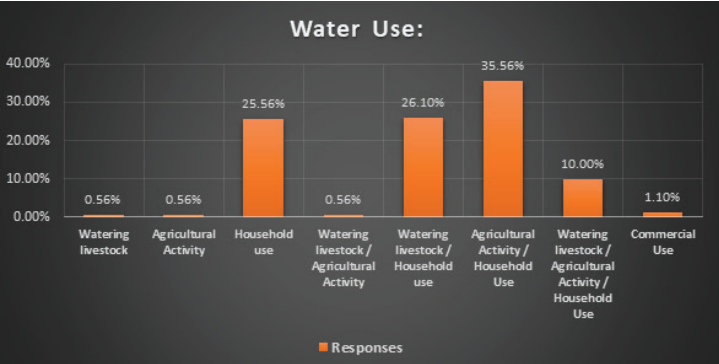


### GROUNDWATER UNITS

In supporting Water Authority of Jordan (WAJ) effort to create a water basin unit, WMI developed institutional options that will be presented to WAJ Secretary General next quarter. The basin unit will be responsible for introducing the smart meter technology on private wells. WMI will be supporting the function by introducing this new technology to non-agricultural, private wells. The companies responded to the tender documents for installing 241 ultrasonic smart meters tenders and WMI was part of the technical evaluation that was conducted in February. The new technology is expected to reduce illegal connection and human errors. Ring fencing for such a unit will also be facilitated to increase its independence.

### SHUBAK STUDY

WMI is supporting the Water Directorate of Shubak to control water losses practices and help residents control their water consumptions so that they avoid being subject to the implementation of the Amiri Law. WMI surveyed 180 households who have the highest water consumption for 2017 to find out the actual water losses practices that resulted in high consumption level and how much water quantities are being consumed by each subscriber. The findings show that only 65% of households do have a Water Floating Valve and 97% of them use water hose. 25% of residents of Shubak use the water for household cleaning and drinking purposes only, however, the majority of residents are adding to other water use purposes; watering their livestock and agricultural activities. Also, it was found that the current consumption per capita in Shubak for this high category of consumers reached 266 l/day. WMI is aiming to design a direct campaign to promote water conservation practices targeting those high consumers and reduce the quantities of consumed water by 13%.



### ASSESSMENT STUDY FOR PULSERS TECHNOLOGY IN MA'AN

Under the area of physical and procedural changes to operations that will increase cost recovery through improving the bulk meters monitoring process, WMI, supported by Water Authority of Jordan (WAJ), initiated a pilot project of installing 15 water meters reading pulsers, an innovative technology to add remote reading to existing mechanical meters, on different 15 wells in Ma'an governorate as a technological module that will empower WAJ to learn with accuracy the production status of remote wells in addition to receiving regular meter readings.

WMI has prepared this assessment report, to study the impact and evaluate feasibility, accuracy, time, level of information provided and cost of this technology during the period of installation. In conclusion, based on the analyzed data and information WMI is recommending applying this technology model in Ma'an for monitoring the wells production and bulk metering of primary system on the installed mechanical meters.



Installed Pulser

### INTERNAL AUDIT

WMI in process to complete CIA training of part #3. The training will end at mid of March 2018. Two important charters get approved, the first one is the internal audit unit charter and the second is the audit committee charter.







## ERP

The development of the Oracle ERP at Yarmouk Water Company (YWC) has been completed by upgrading of the old version of Oracle EBS release 11i, that was in place since 2006 to the latest version of Oracle EBS R12.2.6 during the period from April 2017 to March 2018. This development is consisted of re-engineering of the entire business cycles of the nine sub-modules of the ERP; the financial management activities, procurement activities, human resources activities.

The business owners of these activities, 22 officers, have been examined the new reengineered cycles prior to enabling them to the end-user trainees who were counted up to 178 personnel from the various sections of YWC. This type of users attended training sessions that lasted for 24 days in Irbid to build their capacity in working out the tasks assigned to each of them through the ERP system.

The developed system is divided into the following main functions:

- Financial activities: (1) General Ledger, (2) Accounts Payable, (3) Accounts Receivable, (4) Fixed Assets, (5) Cash Management
- Procurement activities: (6) Purchasing and (7) Inventory
- Human resources activities (8) Core Human Resources and (9) Payroll

The ERP has been reimplemented taking into consideration the principles of the best practices of the activity in the industry, and its business-cycle that is derived from the accrual accounting method which is applied by the other water companies in the country, and in the business sector in general.

This development enables the various departments of the utility to reduce the manual handling of the job that has been in place since the inception of YWC as a company. The development has attracted the need of redesigning the business cycle to follow the electronic path within the system to reach the stage of completion of each particular activity. For example, the procurement cycle that is designed in the system begins with the purchase request, and ends with the payment to the vendor, passing through many electronical approvals and the receipt of the material in the warehouse through the system to reduces the amount of work and time it takes usually to complete the process in the manual way.

Now, YWC enjoys the most comprehensive system in the water sector in the country. It is currently operational after a year of working on its implementation by a local developer who is still monitoring its performance at this date. Much time and effort has been made to make this project a success for the utility and for the water sector.

## GIS TRAINING

A four-day training in advanced GIS was conducted for Ma'an Water Administration (MWA) employees between 5-8 Feb 2018 at Al Hussein University GIS lab. 13 employees from the MWA headquarter and other directorates attended the training, which aimed at building their capacity in GIS technology and establish a robust GIS team that is capable to provide technical support for the entire administration. Building geo-database, preparing spatial data, transferring GIS knowledge, and introducing the GIS Train the Trainer concept among the team. The training is a follow up to another introductory GIS training that was organized in October/November 2017 for managers and staff of MWA. The effort comes as part of the WMI activities in Ma'an and in preparation for the official activation of GIS.



## GREYWATER HARVESTING

In furtherance to the Prime Minister's letter calling for the adoption of water use efficiency measures and rainwater harvesting, WMI and in coordination with the MWI's Water Demand Management Directorate is providing technical assistance to the Greater Amman Municipality (GAM)/Buildings Directorate to provide technical assistance to help GAM in granting construction permits based on the optimum rainwater harvesting tanks size.

WMI is preparing rainwater harvesting booklet in both Arabic and English and a software for that purpose to be utilized by GAM staff.

## X7 TRAINING

X7 key users training commenced in both Aqaba and Amman, (Miyahuna) and it will take 4 weeks. Trainees will be prepared to be key users of YWC in X7 administrative and operation, billing, collection and Customer Service. WMI designed the program and made all the coordination and facilitation in cooperation with Aqaba Water and Miyahuna. The funding of the program is totally offered by USAID/WMI.

## IMF

WMI worked closely with MWI to prepare the 2017 progress report for the Structural Benchmark Action Plan to Reduce Water Sector Losses (IMF Action Plan). This was the second progress report that reflects the implementation status of the actions of the plan as per the end of 2017. The progress report compares what was achieved during 2017 with the planned 2017 target and evaluates the results deviation for each action and its projects. WAJ was able to achieve the targeted O&M cost recovery for 2017 at 89%. At such trend, WAJ is on right track to achieve the targeted O&M cost recovery ratio for the coming years toward fully covering the O&M cost as shown in the figure below.

## CUSTOMER SERVICE TRAINING

Senior staff involved in customer services among Ma'an's four operation units were trained at Aqaba Water Company/Customer Service Department on the current methods applied by the utility.

Issues covered customer service activities, collection, connection and disconnection, support services and X7 in addition to IT systems.

A total of 19 persons including two female engineers, split to two batches, were trained over two weeks to build their capacity and help Ma'an Water Administration to better consider governance options.

## SCADA MISSION

SCADA experts conducted sites visits and short assessment for 25% of the SCADA sites in Amman and Madaba over 2 weeks; they noted that there is a great need to update and change the current situation of SCADA in Amman, not only on the software and hardware side but also the instrumentations. Experts also advised to incorporate modifications to the current tender documents to upgrade SCADA.

## NATIONAL CUSTOMER COMPLAINT CENTER

To standardize the water sector's national call and complaint center, a committee, representing Water Authority of Jordan (WAJ), Miyahuna, and WMI, is pursuing a project to improve the center's capabilities and operations.

The project aims to enhance data accuracy and quality of reported information through the center. It also looks to present automated control on transactions and field teams and incorporate GIS and artificial intelligence capabilities.

Among other things, the improvement will help reduce response time for all transactions especially the complaint maintenance, reduce physical losses from apparent leaks in the network, and reduce corrective maintenance frequency.

As a result, the improvement is hoped to render a center that demonstrates continuous operation without interruption, therefore, increasing accountability at the micro level, increase customer satisfaction level, and reducing NRW.

WMI will support the project by offering technical assistance, capacity building, solution design and implementation in addition to funding parts of the procurement needed. The project is planned to be working with all four utilities; WAJ, Miyahuna, Yarmouk Water Company and Aqaba Water to implement the solution to be designed and institutionalize this new revolutionary approach of managing this vital part of the daily work at the highest possible efficiency levels.

