



Household water connection installed by the Job Creation through Essential Services Delivery (JCESD) Program in Qena governorate, 2014, Chemonics Egypt.

EX-POST PERFORMANCE EVALUATION WATER AND WASTEWATER SMALL-SCALE CONSTRUCTION PROGRAM AND JOB CREATION THROUGH ESSENTIAL SERVICES DELIVERY IN UPPER EGYPT

Egypt Utilities Management (EUM) Assistance Agreement

October 25, 2019

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EX-POST PERFORMANCE EVALUATION

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Egypt Utilities Management (EUM) Assistance Agreement Final Report

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Submitted by:

The QED Group LLC
1820 N. Fort Myer Drive, Suite 700
Arlington, VA 22209, USA
Tel.: +1. 703.678.4700
www.qedgroupllc.com

Egypt Office:

The QED Group LLC
1A Nadi El Etisalat off El Laselky Street
New Maadi 11435, Cairo, Egypt
Office: +2090 2 25226697

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ACRONYMS

CAPMAS	Central Agency for Public Mobilization and Statistics
DEC	Development Experience Clearinghouse
EMMP	Environmental Monitoring and Mitigation Plans
EQ	Evaluation Question
EUM	Egypt Utilities Management
FARA	Fixed Amount Reimbursement Agreement
FIDIC	International Federation of Consulting Engineers (Federation International Des Ingenious Conseils)
G2G	Government to Government
GIS	Geographic Information System
GD	Group Discussion
GoE	Government of Egypt
HCWW	Holding Company for Water and Wastewater
JCESD	Job Creation Through Essential Services Delivery
KII	Key Informant Interview
MARS	Monitoring, Analysis and Reporting System
M&E	Monitoring and Evaluation
OEG	Office of Economic Growth
O&M	Operation and Maintenance
PIU	Project Implementation Unit
SC	Subsidiary Company
SIMPLE	Services to Improve Performance Management, Enhance Learning and Evaluation
SMPs	Standard Maintenance Procedures
SOPs	Standards Operating Procedures
TDS	Total Dissolved Solids
USAID	United States Agency for International Development
USG	United States Government
WASH	Water, Sanitation, and Hygiene
WTP	Water Treatment Plant
WW	Wastewater
WWC	Wastewater Collection
WWSSP	Water and Wastewater Sector Support Program

BIOGRAPHIES

Ahmed Mohamed Tammam Abdelgawad

Evaluation Team Leader

Dr. Ahmed Mohamed Tammam Abdelgawad has more than 15 years of experience in Monitoring and Evaluation (M&E). He is a PhD candidate who holds a Master of Public Policy and Administration degree from The American University in Cairo and a Master of Immunology degree from Al Azhar University. He received an advanced diploma in monitoring and evaluation of international programs from Carleton University in Canada, among other certified M&E diplomas from institutions in the UK, the Netherlands and the United States. He has strong experience leading teams in evaluations and related assignments in 18 countries throughout the Middle East and North Africa (MENA) region and East Africa and has authored many reports and publications. Tammam has led evaluation teams in various sectors for several international organizations and donors in more than 18 countries. He has worked for UNICEF in six countries in the Water, Sanitation, and Hygiene (WASH), nutrition, and education sectors. Recently, he conducted an evaluation of USAID- and Department for International Development (DFID)-funded WASH programs in Yemen and Iraq on behalf of Save the Children. His final evaluation for UN Women Jordan was named by UN Women Head Quarters as the highest-rated evaluation of 2017 in the MENA region.

Magdy Mohamed Aly Mokhtar

Senior Utility Water Expert

Magdy Mohamed Aly Mokhtar has 38 years of experience in project management, institutional development projects, and operation and maintenance of water and wastewater systems. He spent 15 years with the Alexandria wastewater authority and has technical diplomas from the Hanns-Seidel Foundation and the Technical University in Munich, Germany. He has participated as an Operations and Maintenance (O&M) specialist in seven major USAID-funded wastewater treatment projects as well as three evaluation missions for projects funded by KfW, the German Development Bank. He has experience in wastewater treatment, O&M management, laboratory methods, regulatory requirements, and strengthening institutional aspects of water utilities in the areas of commercialization, water audit, and water-loss reduction.

Mahfouz Shalaby

M&E Consultant

Mahfouz Shalaby has a BSc degree in engineering from the University of Suez Canal. He has more than 23 years of professional experience in development assistance, including a number of international donor-funded programs. He has participated in several projects in the power and water sectors, including an energy program funded by the African Development Bank (AfDB) in 2015. From 2006 to 2011, he served as a Monitoring and Evaluation (M&E) specialist for the European Union-financed South Sinai Regional Development Program (SSRDP) in Egypt.

Ahmed Okasha

Statistician

Dr. Ahmed Okasha holds a PhD from the School of Computing at Britain's University of Kent and a MSc. in Statistics from the Faculty of Economics and Political Science at Cairo University, where he now works as an assistant professor. He has more than 20 years of experience as a statistician at organizations and research centers including the Social Research Center (SRC) at The American University in Cairo (AUC), Germany's Die Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, the Arab League, and the International Organization for Migration (IOM). He helped plan labor market observatories in Egypt by developing and implementing training modules related to labor market indicators, questionnaires, and data entry and database tools, and writing statistical report workshops. He conducted statistical analysis of QED's Mid-Term Performance Evaluation on the Strengthening of Entrepreneurship and Enterprise Development (SEED) activity and the Egypt-Level Counter-Trafficking in Persons Assessment.

Hanan Shawky

Field Coordinator

Hanan Shawky has more than 20 years of experience with major donor-funded projects and governmental and Non-Governmental Organizations (NGOs). She has provided administrative and logistical support for events and study tours and overseen the daily operations of project activities and financial management, carrying out and coordinating human resources and procurement actions in accordance with donor procedures and regulations.

EXECUTIVE SUMMARY

In April 2019, USAID/Egypt commissioned an ex-post evaluation of two programs under the Egypt Utilities Management (EUM) assistance agreement: 1) Twelve Fixed Amount Reimbursement Agreements (FARAs) in Assiut and Sohag governorates under the Water and Wastewater Small-Scale Construction Program and 2) an additional twenty one FARAs under the Job Creation Through Essential Services Delivery (JCESD) program in Assiut, Sohag, Luxor, and Qena governorates. Services to Improve Performance Management, Enhance Learning and Evaluation (SIMPLE) project assembled an evaluation team to undertake this performance evaluation.

EVALUATION PURPOSE AND EVALUATION QUESTIONS

The evaluation set out to examine the effectiveness of interventions undertaken by the Water and Wastewater Small-Scale Construction Program and the JCESD under EUM. The team also examined the programs' sustainability five years post-implementation to provide recommendations and identify approaches that could be institutionalized across USAID/Egypt's future utility activities. The evaluation's primary audience is USAID/Egypt, specifically the Office of Economic Growth (OEG). Its findings and recommendations will also be useful for Egypt's Holding Company for Water and Wastewater (HCWW) and its subsidiary water and wastewater companies that directly implemented the programs.

The evaluation specifically addressed five Evaluation Questions (EQs) as follows:

EQ1 – Why were the program interventions considered a critical need as defined by stakeholders? How were program interventions selected?

EQ2 – How effective were the delivered interventions at achieving the planned outcomes as stated in the program design, when comparing the status at the end of the activity (2014/2015) versus today (2019)?

EQ3 – Sustainability: To what extent are the facilities continuing to be maintained by qualified staff following Standard Operating Procedures (SOPs) and maintenance plans established during the life of the activity?

EQ4 – To what extent are water companies currently exhibiting best practices in project management as a result of engaging with the interventions?

EQ5 – What aspects of the intervention contributed to sustainability?

PROJECT BACKGROUND

Although 97 percent of Egypt's population have access to potable water, consistent water quality remains a major challenge, especially in rural areas which primarily depend on groundwater wells for water. Samples from these wells do not meet Egyptian standards for potable water as they contain high levels of chemical, mineral, and biological contaminants. Poor rural sanitation management also compounds this issue at the intervention sites. Just 25 percent of rural households are connected to sewer lines, while the remainder have some type of underground indoor storage (e.g., a septic tank or belowground waste disposal vault) which is often out of date and prone to leakage. The result is that polluted waterways, wastewater ponding, and generally unsanitary conditions have become the norm in rural areas. Untreated wastewater flows into surface water sources and contaminates groundwater supplies.

In the first program under evaluation, USAID supported the improvement of potable water quality in several areas through a \$30-million small-scale construction program to build or refurbish eight Wastewater Collection (WWC) systems and four potable Water Treatment Plants (WTPs) in Assiut and Sohag governorates through the Holding Company for Water and Wastewater (HCWW) and the subsidiary water and wastewater companies (SCs) in those governorates. In the case where the WTP's serviced area was close to the surface water, it was transferred to an adequate treatment process (slow sand filtration). For service areas not near a surface water source, iron and manganese removal units (oxidation and filtration) were constructed. In this context, the program had two overall objectives: (1) providing new or improved reliable potable water and sanitation services to underserved areas in Assiut and Sohag and (2) creating project implementation units in the Assiut and Sohag SCs that are capable of

implementing and managing the companies' future new investments. The program was designed to operate in collaboration with the Water and Wastewater Sector Support (WWSS) program in its capital investment planning and program/project monitoring and management tasks. The program ended on March 31, 2015.

The second program, JCESD, was a \$20-million program that supported the replacement or rehabilitation of old water pipelines as well as the installation of new household connections in underserved areas. Deteriorating pipes are a source of contamination, and poor water quality and their replacement was an important part of this program. In addition, wastewater networks connected houses to a pump station that handles wastewater discharge from the whole village. This program was implemented through the SCs in nine governorates but only four (Assiut, Sohag, Qena, and Luxor) fall under the scope of this evaluation. The core outcomes of the JCESD program were improving potable water and sanitation services to underserved communities in the targeted governorates while also creating job opportunities for daily workers, who were seriously impacted by Egypt's post-revolution economic downturn. The program ended on September 30, 2014.

EVALUATION DESIGN, METHODS AND LIMITATIONS

The design of the ex-post evaluation was carried out from May 4 to June 16, 2019. It was implemented as a descriptive study using a mixed methods data collection approach to address each evaluation question. The evaluation team identified distinct categories of stakeholders and direct beneficiaries, for which individual data collection tools were developed. A purposive sampling approach was adopted to select individuals from these groups to be interviewed during fieldwork conducted from June 18 to August 5, 2019. Finally, the team conducted statistical analysis of available quantitative customer service data in place of a household survey to address questions about service improvements.

The evaluation covered twelve facilities (four WTPs and eight WWC systems) targeted by the Water and Wastewater Small-Scale Construction Program in Assiut and Sohag governorates, as identified in the scope of work for conducting site visits. During site visits, the evaluation team conducted Key Informant Interviews (KIIs) and Group Discussions (GDs) among key stakeholders. The team also visited ten villages that received water and wastewater connections through the JCESD program, selected due to their proximity to each other for logistical reasons. The team developed nine data collection tools, but due to restrictions on direct communication with beneficiary households, a household survey was cancelled and only eight data collection tools were applied, including checklists for physical examination of plant facilities and Operation and Maintenance (O&M) processes. The evaluation team consulted a total of 161 individuals during fieldwork and site visits to the SCs and facilities in Assiut, Sohag, Luxor, and Qena governorates, in addition to the HCWW, USAID, and Chemonics Egypt in Cairo.

The evaluation team used content analysis to analyze the results of KIIs and GDs which also provided context for the interpretation of secondary and primary quantitative data gathered through the use of facility checklists. Quantitative data analysis included checklist analysis to support the observed findings in addition to the secondary data collected directly from the SCs' customer-satisfaction systems to compensate for the canceled household survey.

For quality assurance, all interview protocols and questionnaires were developed in both English and Arabic and piloted before being used in the field. At the end of each field visit, the evaluation team paid a courtesy visit to debrief the chairman of each SC and discuss what was accomplished during the visit. The team also conducted a mid-point fieldwork oral debrief with USAID. At the end of the fieldwork, the evaluation team held an oral debriefing/validation workshop on August 4 with the HCWW to identify and close data gaps and fact check preliminary findings.

FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

EQ1: WHY WERE THE PROGRAM INTERVENTIONS CONSIDERED A CRITICAL NEED AS DEFINED BY STAKEHOLDERS? HOW WERE PROGRAM INTERVENTIONS SELECTED?

FINDINGS

- For the small-scale construction program, investments and activities undertaken targeted specific locations in Egypt's poorest governorates (Assiut and Sohag). Selection criteria for targeted communities were clearly identified by USAID in order to make funding decisions. The SCs used their master plans which mapped the status of communities' water and wastewater facilities, to select communities that met the criteria and submitted them for USAID funding following a risk and environmental assessment.
- For the JCESD program, the established connections were working and serving the targeted communities' needs. Additionally, the wastewater collection systems prevented sewage flooding and protected the groundwater.
- The water connections provided did not cover the entire community as the scope of those FARAs was limited to certain locations based on the master plan. Additionally, some of those communities lacked wastewater networks and those who use groundwater encountered contamination from leaking septic tanks. This issue was raised by two of the SCs' planning departments prompting them to factor those communities into their master plans.

CONCLUSIONS

- For the small-scale construction program, the activities were found to support a critical need. Given the relative lack of investment and the contamination problems in these governorates, the interventions helped address a critical need for quality potable water and wastewater collection.
- For the JCESD, the program is considered timely and relevant to its objectives in terms of both its implementation modality and the targeted communities based on the priorities outlined in the master plan. All the connections served real community needs, however, the needs of underserved communities exceeded the available support. The FARAs implemented within the JCESD program were an opportunity for the staff of the SCs to implement practical knowledge gained through the WWSSP capacity-building component and were credited with major operational improvements.

RECOMMENDATIONS

R 1.1 The SCs should continue working on updating their master plans to select priority targeted communities for future interventions. Since the demand for water and wastewater connections is expected to remain high, SCs should continue to refine their criteria for prioritization as they go about these updates. This could be accomplished by using customer satisfaction and water flow/loss data when deciding on future investments.

EQ2: HOW EFFECTIVE WERE THE DELIVERED INTERVENTIONS AT ACHIEVING THE PLANNED OUTCOMES AS STATED IN THE PROGRAM DESIGN, WHEN COMPARING THE STATUS AT THE END OF THE ACTIVITY VERSUS TODAY?

FINDINGS

- The implementation mechanism for the activities under evaluation signed between USAID and SCs was Government to Government (G2G). G2G agreements enable the United States Government (USG) to fund partner governments directly for a specific project or non-project activity such as capacity building. This modality was developed to achieve technical objectives while supporting sustainable partnership and compliance with all USAID legal and policy requirement. Based on interviews with the heads of the four SCs, the companies were held to a very specific and well-defined standard for completion and quality before payment was received under the G2G agreement. SC staff added that the technical assistance from Chemonics was critical in enabling them to meet these standards by improving their internal capacity and practices.
- In 2011, prior to the start of the small-scale construction program, the data from water samples collected at the governorate level showed chemical and biological pollution. After the activities were implemented and commissioned, the 2018 samples showed improvements in Luxor, Qena and Assiut, while a slight decline has taken place in Sohag. Moreover, samples from areas serviced by the WTPs supported by USAID showed positive trends and were 100 percent compliant with Egyptian water quality standards.
- WTPs' focus on sampling water from the outgoing flow after treatment with limited samples to be examined from the supplying wells and no initial treatment within the groundwater wells before the process.
- On the designed capacities of the small-scale construction activities, pump stations were designed to handle water flow from 2009 to 2037 as a first stage and from 2037 to 2050 as a second stage. Based on the technical assessment and observation checklists, current operational capacity is still below designed capacity by more than 50 percent. In some facilities, one pump operating for two to three hours per day is enough to lift the needed flow.
- Water flow in all stations is consistent except in the Banho pump station in Sohag governorate which is continuously interrupted because the submersible pumps are frequently showing high amps due to clogging. Banho station has three pumps: one in operation, one on standby and one in the warehouse. The main issue is that all pumps are a "closed impeller" type, rather than "open impeller" pumps. This causes interruption of the flow and has implications with the future increase of the flow as confirmed by the station maintenance team.
- The water and wastewater connections established under the JCESD program were all working and serving 772,000 beneficiaries, which is ten percent more people than the number initially targeted at the program design stage.
- The SCs staff received capacity building from Chemonics during the period from 2012 to 2015. This contributed to the institutionalization of knowledge and practices and the successful implementation of activities. During GDs, the wastewater collection staff expressed high satisfaction with the work done by the small construction activities. They reported improved skills, knowledge, and practices in handling routine station work, enabling them to provide better

service to communities. The technical observation checklist of daily practices at the stations also supported this finding.

- On cost-effective initiative and financial sustainability of SCs, the companies piloted innovative initiatives such as energy-saving strategies, through utilizing gained knowledge to enhance cost-effective practices. SCs utilized the new hydraulic analysis skills to pinpoint and minimize water loss. The activities paved the way for adapting cost-effective approaches by investing in service-delivery improvements, such as piloting energy efficiency units, chemical optimization, and leak detection. The autonomy of the SCs supported local decision-making and allowed room for better communication with local end users.

CONCLUSIONS

- The G2G aid modality was relevant and effective in achieving the interventions' planned outcomes. It minimized risk for USAID and led to the enhancement of the SCs' capacities.
- The four WTPs and eight Wastewater (WW) facilities were functional and serving the needs of targeted villages. The flow of water and WW systems were below the design capacity, which is an indicator of good performance and sustainability of facilities for the design lifetime, as this excess capacity allows for future expansion of the water network. However, in Alarayaa and Shandaweel WTPs in Sohag and Meer WTP in Assiut, new wells will be needed in the future to reach the full design capacity in order to supply the plants.
- Due to the difference in the level of water contamination in the WTPs supporting wells, limited testing of those wells compromises the effectiveness of treatment as well as the cost and the future utilization of water coming from a specific well. All this may be due to a lack of initial flushing of groundwater wells prior to the treatment process.
- USAID and the HCWW contributed to sector reform. Through the implementation of the JCESD program, SCs managed to deliver water connections to deprived communities. The existence of a knowledge-transfer strategy would have promoted the systematic transfer of practices and operational measurements after the interventions building human-resource capacities.
- The transformation of SCs from affiliated entities to local government to autonomous subsidiaries bolstered their control over local decisions and helped them provide better services to local communities. Since the activities' completion, the SCs are taking positive steps towards ensuring financial sustainability by minimizing expenditures and maximizing resources.

RECOMMENDATIONS

R 2.1 To enhance the efficiency of water treatment, the SCs should conduct bacteriological and iron and manganese concentration testing starting from the supply wells before pumping water to the stations in order to more accurately determine the level of treatment needed for each supporting well as they vary in their level of water contamination. Currently the water is being treated at the stations from multiple wells simultaneously in a single treatment. However, determining the bacteriological contamination of each well first could reduce treatment costs by drawing only from the less contaminated wells and/or treating the contaminated well individually. Accordingly, groundwater wells should be tested individually and flushed periodically to avoid the growth of harmful bacteria.

R 2.2 In order to conduct the above recommended testing efficiently, each SC should have a central lab to run regularly these more complicated tests. A local lab is also recommended in each WTP to run daily

samples according to basic parameters: pH, turbidity, chlorides, Total Dissolved Solids (TDS), hardness, residual chlorine, total coliform, and algae count. Such routine testing at each plant, while initially costly, could save money in the long run, as companies would be armed with accurate data about their sources could treat water more efficiently and effectively.

R 2.3 It is recommended that USAID and the HCWW/SCs utilize the extra capacities of all stations, as wastewater facilities can be connected to sanitation networks, and the designed capacity of such facilities allows for further connections through 2037, taking into account the expansion of existing wastewater systems in targeted governorates.

R 2.4 Despite the efforts undertaken by the HCWW and SCs to transfer knowledge gained through capacity building activities, a systematic knowledge-transfer strategy should be designed and applied to maximize the impact and ensure the sustainable transfer of knowledge to employees who join the SCs after the conclusion of the interventions.

EQ3: TO WHAT EXTENT ARE THE FACILITIES CONTINUING TO BE MAINTAINED BY QUALIFIED STAFF FOLLOWING STANDARD OPERATING PROCEDURES AND MAINTENANCE PLANS ESTABLISHED DURING THE LIFE OF THE ACTIVITY?

FINDINGS

- For the small-scale construction activities, in all twelve facilities, the operational plans were updated through 2019. Reviewing the operation books and daily logs, all operations data were found to be recorded in each facility. The Operations and Maintenance (O&M) manuals developed through the interventions and approved by the HCWW are being utilized in all WTPs and WW facilities. Staff are using Standard Operating Procedures (SOPs) and Standard Maintenance Procedures (SMPs). All SOPs and SMPs are printed in a readable size in Arabic and posted near equipment.
- According to the SCs data, at the governorate level, including communities supported and not supported by the small-scale construction program, the percentage of resolved water quality complaints has significantly increased at all SCs since the end of the project.

CONCLUSIONS

- The performance of staff and the operational capacity of WTPs and WW facilities targeted by the small-scale construction program are generally satisfactory with some variation among facilities. Facilities O&M is being conducted routinely according to SOPs. Staff understand the steps and apply the instructions. The SCs and the HCWW monitor facilities' maintenance and operations plans via the MASTER program to track and record O&M Processes for every working station.
- The small-scale construction facilities operate efficiently, with generally high customer satisfaction with water quality and few complaints.

RECOMMENDATIONS

R 3.1 Based on the technical situational analysis conducted, it is recommended that SCs take the following actions:

- All facilities should undertake flow meter readings every two hours and record them in the operations log.

- For safety, diesel tanks in all facilities should be situated in a concrete enclosure, not directly on the ground.
- SCs should work with operation teams to develop Operations Emergency Plans for all facilities.
- Despite not being part of the design of implemented small-scale construction activities, chlorine gas cylinders should be seated over a scale to ensure continuous monitoring of how much gas is being used.

R 3.2 The O&M staff should undergo advanced training on technical areas such as standby generators maintenance, and electrical control panel types along with the function of each component. SCs should scale the use of SOPs to other facilities that were not supported by USAID.

EQ4: TO WHAT EXTENT ARE WATER COMPANIES CURRENTLY EXHIBITING BEST PRACTICES IN PROJECT MANAGEMENT AS A RESULT OF ENGAGING WITH THE INTERVENTIONS?

FINDINGS

- In terms of investing in human capital, SCs have a new generation of future leaders in various departments. With the support of top management, this new cohort has utilized gained capacity building and in turn enhanced the performance of various departments. For example, the planning departments at SCs are currently able to conduct feasibility studies by utilizing Geographical Information System (GIS) and hydraulic analysis skills. Many of those studies influence decisions on the prioritization of projects. The capacity building undertaken within the activities emphasized the importance of investing in human capital. Following activities completion, there has been an increased focus on human-capital investment at all SCs and more funds have been allocated for training over the last five years. Investment in human capital came in the form of capacity enhancement through basic-training programs and improved work conditions in terms of salaries and facilities.
- The political support and the leadership of top management at the four SCs showed that they are keen to ensure the sustainability of implemented investments.
- In terms of the operational performance of SCs, the MASTER program is well utilized in all USAID supported facilities. However, data is manually collected from all locations and is not connected to other systems such as the Monitoring, Analysis and Reporting System (MARS) or ADVAC, a direct accounting system, limiting the implementation of the cost-center approach.
- SCs' training plans are prepared annually and include promotion-based training modules as well as needs-based training. However, other more specific training was highlighted as a need.

CONCLUSIONS

- USAID played a key role in the sector reform resulting in enhancing the capacity of the SCs' management through implemented capacity building activities. SCs utilization of data is still at the level of reporting (e.g., customer satisfaction and/or O&M data) and there is limited evidence on data utilization.
- Existing systems are functioning however need to be connected to each other. The integrated cost center approach is very limited despite the initiatives of some SCs, such as Qena SC, to enhance that practice through the asset management program with a vision of linking it to the O&M and inventory.

- Despite the on-going capacity-building activities by the SCs, still there is a need for a more advanced and specific training module for staff at the different departments.

RECOMMENDATIONS

R 4.1 The HCWW and SCs should encourage management at the district level to utilize data coming from the various systems to spread the culture of informed decision-making.

R 4.2 The HCWW should work on the automatization of the MASTER program, linking it to asset-management software, to enable the companies to better monitor O&M milestones and better manage their assets.

R 4.3 USAID and HCWW should support SCs to focus on applying a cost-center approach to enhance the efficiency of resource utilization and support the emerging leadership of the SCs at local levels.

R 4.4 The SCs and HCWW should provide staff with advanced capacity building, e.g., advanced training in International Federation of Consulting Engineers (FIDIC) standards and conflict resolution to staff at the contracts/procurement department in SCs.

EQ5: WHAT ASPECTS OF THE INTERVENTION CONTRIBUTED TO SUSTAINABILITY?

FINDINGS

- Prior to funding the programs, USAID required SCs to conduct feasibility studies to ensure the relevance and sustainability of foreseen investments. SCs conducted such studies based on their master plans, in order to prioritize selected projects. This has become a sustainable new norm for the SCs. SCs also conducted feasibility studies and environmental risk assessments, and Environmental Monitoring and Mitigation Plans (EMMP) at the start of the small-scale construction activities.
- USAID selected the facility sites in clusters to have full control over the process, from the construction of WTP/WW facilities through service delivery to end users. Such practice ensured the successful completion and provision of sustainable services.

CONCLUSIONS

- There were improvements of the technical proposals and implementation plans prepared by the SCs within the JCESD FARAs. Each new technical proposal had benefited from the lessons learned from previous ones which resulted in technical improvements along the way as a result of conducting the various required assessments.
- Conducting feasibility studies, environmental risk assessments, and EMMP at the start of the small-scale construction activities contributed to their sustainability as it pushed the SCs to provide in-depth plans on any potential risks that might hinder the implementation of those activities. During field visits to the JCESD program locations, the quality of the connections differed from one location to another, with improved materials used to complete the FARAs that were done towards the end of the program. As verified during field visits, during the initial group of FARAs the connections were made using polypropylene pipes, while the most recently completed FARAs used more durable steel ones.

- The selection of targeted WTPs and WW facilities is aligned with USAID’s development approach of providing a sustainable quality service and has been critical to ensuring a sustainable working result for end users.

RECOMMENDATIONS

R 5.1 SCs should ensure that all WTPs and WWC systems including those that were not supported by the USAID, conduct risk and environmental assessments before establishing the facilities.

R 5.2 SCs should ensure that all WTPs and WWC systems including those that were not supported by the USAID apply and use MASTER¹, especially in Sohag.

¹ A software for tracking and recording the Operations and Maintenance processes for every working station.

INTRODUCTION

Under the Egypt Utilities Management (EUM) Assistance Agreement, the Water and Wastewater Small-Scale Infrastructure and Sector Reform component funded six main activities for a total value of \$123 million. Only two of these activities are subject to this evaluation: 1) Twelve Fixed Amount Reimbursement Agreements (FARAs) in Assiut and Sohag governorates and 2) An additional 21 FARAs under the Job Creation through Essential Services Delivery (JCESD) program in Assiut, Sohag, Luxor, and Qena governorates.

The original objective of the 1997 EUM Assistance Agreement was to improve access to water and sanitation by addressing three program elements: safe water access, basic sanitation, and water and sanitation policy and governance. When the program first started, it funded four large infrastructure activities in the Alexandria, Fayoum, Beni Suef, and Minya governorates. A total of \$315 million was originally budgeted for these activities.

Unemployment in Egypt was growing rapidly and had reached an official rate of 12.6 percent in 2012, its highest level in 10 years. In order to help overcome the increase in unemployment, USAID supported the creation of short-term job opportunities by applying different implementation mechanisms to activities in the existing portfolio. In this context, the Mission increased funding to small-scale infrastructure to stimulate short-term job creation in the water and wastewater sector, as an implementation mechanism that could be quickly expanded, used labor-intensive construction methods, and could provide immediate short-term employment in parts of the country that were greatly impacted by the economic downturn. Below is a table with basic information on the activities under evaluation.

Table 1: Details on the Activities under the Evaluation Scope

PROGRAM	WATER AND WASTEWATER SMALL-SCALE CONSTRUCTION PROGRAM	JOB CREATION THROUGH ESSENTIAL SERVICES DELIVERY
Assistance Agreement #	263-02704	
Implementing Partner	Water and Wastewater Companies in Upper Egypt	
Life of Activity	January 27, 2010 – March 31, 2015	
FARAs Amount	US \$ 30 Million	US \$ 20 Million
Active Geographic Regions	Focus of the Evaluation: Upper Egypt	
	Assiut, Sohag	Assiut, Sohag, Luxor, Qena
Development Objectives (Dos)	2.3 Strong economic growth based on sound policy expands opportunity and reduces poverty for all Egyptians	
USAID Technical Office	Office of Economic Growth (OEG), USAID/Egypt	

EVALUATION PURPOSE & EVALUATION QUESTIONS

EVALUATION PURPOSE

The purpose of this evaluation is to examine the effectiveness of the interventions undertaken by the Water and Wastewater Small-Scale Construction Program and the JCESD under EUM, and its continued sustainability five years after the programs ended, in order to identify approaches that could be institutionalized to enhance sustainability across USAID/Egypt's future utility activities. The findings and recommendations will support the ongoing management new activities implemented under USAID's water portfolio.

The intended audience for this evaluation is primarily USAID/Egypt, specifically Mission Management and the Office of Economic Growth (OEG). Other audiences include the Egyptian government's Holding Company for Water and Wastewater (HCWW) and its subsidiary water and wastewater companies. USAID/Egypt will share the evaluation report with the HCWW, the Subsidiary Companies (SCs), and the general public via the Development Experience Clearinghouse (DEC).

EVALUATION QUESTIONS

The evaluation specifically addressed five Evaluation Questions (EQs):

- EQ1 – Why were the program interventions considered a critical need as defined by stakeholders? How were program interventions selected?
- EQ2 – How effective were the delivered interventions at achieving the planned outcomes as stated in the program design when comparing the status at the end of the activity (2014/2015) versus today (2019)?
- EQ3 – Sustainability: To what extent are the facilities continuing to be maintained by qualified staff following standard operating procedures and maintenance plans established during the life of the activity?
- EQ4 – To what extent are water companies currently exhibiting best practices in project management as a result of engaging with the interventions?
- EQ5 – What aspects of the intervention contributed to sustainability?

PROJECT BACKGROUND

PROBLEM STATEMENT

Although potable water is accessible to 97 percent of Egypt's population, water quality still remains a major challenge, especially in rural areas. Many rural villages depend on groundwater wells as their primary water source. Water samples from these wells do not comply with Egyptian standards for potable water, with especially high levels of nitrates, iron, and manganese. As a result, the water has excessive turbidity and hardness.

USAID has supported the improvement of potable water quality in several areas. The type of support varied depending on whether the serviced area was near a source of surface water. If so, the surface water underwent an adequate treatment process (slow sand filtration). In case it was not, iron and manganese removal units (oxidation and filtration) were constructed at the existing well locations. Additionally, USAID arranged for the installation of transmission water pipelines and new household connections in underserved areas and replaced old, deteriorated pipelines, which are considered a major source of contamination, as infiltration of contaminants decreases the quality of the water.

Apart from concerns about the quality of potable water, rural sanitation management also represented a major challenge to improving water quality (especially in eliminating nitrates) at the intervention sites due to pollution from untreated wastewater that has flowed into the Nile River and groundwater sources. Conventionally, sanitation is managed by transferring wastewater from a given residence to a wastewater treatment system built outside the boundary of human settlement. Currently, rural residential houses are on some form of an indoor wastewater system; in other words, approximately 25 percent of rural households are connected to sewer lines, while the remaining 75 percent have some type of underground indoor storage (e.g., a septic tank or house vault). This problem has been further exacerbated by population growth, which led to an expansion of these settlements to neighboring waterways, resulting in an increase in illegal raw wastewater dumping. It is also worth noting that the volume of wastewater is rising as a consequence of perennial irrigation and increased provision of drinking water. Visible manifestations of unsanitary conditions include heavily polluted waterways, street dampness, and occasional wastewater ponding, which are the norm in rural areas.

USAID supported the construction of wastewater collection systems in eight villages in Assiut and Sohag governorates. The systems included household chambers that collect wastewater from villagers' houses to manholes and through pipelines to a station that pumps the whole villages' wastewater discharge to an existing wastewater treatment plant.

PROJECT DESCRIPTION

Under the EUM Assistance Agreement, the Water and Wastewater Small-Scale Infrastructure and Sector Reform component funded six main programs for a total value of \$123 million. Only two of these programs are subject to this evaluation:

1. Twelve small scale construction activities in Assiut and Sohag Governorates: a \$30-million program supported the construction of eight wastewater collection systems and four potable water treatment plants in rural areas in Assiut and Sohag Governorates. The program had two overall objectives: (1) providing new or improved reliable potable water and sanitation services to underserved areas in these two governorates; and (2) creating project implementation units in the Assiut and Sohag utilities that are capable of implementing and managing the companies' future new investments. The program was designed to collaborate with the Water and Wastewater Sector Support (WWSS) program in its capital investment planning and program/project monitoring and management tasks. The program ended on March 31, 2015.
2. Twenty-One FARAs under the JCESD program: a \$20-million program intended to support the Government of Egypt's (GOE's) efforts to expand or improve potable water and sanitation services to underserved communities in the governorates of Beni Suef, Minya, Assiut, Sohag, Qena, Luxor, Aswan and North and South Sinai, while also creating job opportunities for daily workers who were seriously impacted by the post-revolution downturn. It consisted of small-scale projects (from \$10,000 to \$175,000 per project), such as extending or replacing small potable water pipelines or installing house connections. The JCESD program benefited from the existing WWSS program, which assisted implementing institutions at every stage of project preparation (e.g., proposal, contracting, project supervision) and monitored implementation. Also, the program created project implementation units in the different utilities that were capable of implementing and managing the companies' future investments. The scope of the evaluation of this component includes Assiut, Sohag, Qena, and Luxor. The program ended on September 30, 2014.

EVALUATION METHODS & LIMITATIONS

The design of the ex-post evaluation was carried out from May 4 - June 16, 2019. It was implemented as a descriptive study using a mixed methods data collection approach to address each evaluation question. The evaluation team identified distinct categories of stakeholders and direct beneficiaries, for which individual data collection tools were developed. A purposive sampling approach was adopted for selecting individuals from these groups to be interviewed. The list of the stakeholders identified as part of the evaluation scope is listed in Table 2.

Table 2: Stakeholder Categories

SITE	STAKEHOLDERS CATEGORY
Cairo	HCWW chairman and other relevant staff - USAID staff – Chemonics Egypt relevant staff
Assiut & Sohag	Leadership and staff of subsidiary water and wastewater companies and Staff of eight wastewater facilities and four potable water treatment plants
Luxor & Qena	Leadership and staff of subsidiary water and wastewater companies

Following the desk review, the field work took place from June 18 to August 5, 2019, for evaluating the two programs' activities:

SMALL-SCALE CONSTRUCTION PROGRAM

The evaluation covered twelve facilities targeted by the Water and Wastewater Small-Scale Construction Program including four Water Treatment Plants (WTPs) and eight Wastewater Collection (WWC) systems, as identified in the scope of work for conducting site visits as follows:

- A) In Assiut:
 - Four WWC systems (Beni Semee, El Akadma, El Zeira, and Beni Edris) and
 - Two potable WTPs (Baheeg and Meer).
- B) In Sohag:
 - Four WWC systems (Banga, Banho, Beni Ammar, and Hamooda) and
 - Two potable WTPs (Shandaweel and Nagaa Alarayaa).

During site visits, a purposive sampling methodology was applied for Key Informant Interviews (KIs) and Group Discussions (GDs) among key stakeholders. The evaluation team developed a checklist to assess the sustainability of investments, including physical equipment and applied Operation and Maintenance (O&M) processes and practices in targeted facilities. In all WTPs in Assiut and Sohag, the water quality was tested, including the physical, chemical, and biological parameters, specifically measuring pH, turbidity, chlorides, Total Dissolved Solids (TDS), hardness, residual chlorine, total coliform, and algae count.

JOB CREATION THROUGH ESSENTIAL SERVICES DELIVERY PROGRAM

The evaluation team also visited 10 villages with water and wastewater connections related to the Job Creation through Essential Services Delivery (JCESD) program, as clarified in Table 3 below. Household connections were sampled based on convenience due to the proximity of locations.

Table 3: Water and Wastewater Connections Visited

#	DATE (DD/MM/YYYY)	GOVERNORATE	VILLAGE/SATELLITE	CONNECTIONS
1	10/07/2019	Assiut	Bany Zaid el Akrad – El Fath	Water Connections
2	11/07/2019	Assiut	Ezbat el sheikh Ahmed sleem Maghraby- Dayrout	Water Connections
3	11/07/2019	Assiut	Ezbat el Manhy -Massarah- Dayrout	Water Connections
4	11/07/2019	Assiut	Ezbat Shenoda	Water Connections ²
5	15/07/2019	Sohag	El Sheikh Makram	Wastewater Connections
6	15/07/2019	Sohag	Nagea El Ashraf / Fadel Akhmem	Wastewater Connections
7	16/07/2019	Sohag	Gezeerat al Hareef – Sakolta	Water Connections
8	21/07/2019	Luxor	Abu El Goud Village	Water Connections
9	24/07/2019	Qena	Dandara Village	Water Connections
10	24/07/2019	Qena	El Kahragla village	Water Connections

DATA COLLECTION

June 18 – August 5, 2019

The team developed nine data collection tools but due to restrictions on direct communication with beneficiary households, a household survey was cancelled and only eight data collection tools were implemented, including checklists for the physical examination of plant facilities and processes.

Two teams of two-persons each collected the primary data. Team one included the team leader and a Monitoring and Evaluation (M&E) specialist, and primarily interviewed stakeholders at the Subsidiary Companies (SCs). Team two included a subject matter expert, who conducted all physical examinations and examined the lab results of water quality available on-site in potable WTPs, supported by a note-taker to digitize the group discussions and interviews conducted at the plant facilities.

The evaluation team consulted a total of 161 individuals during fieldwork and site visits to SCs and facilities in Assiut, Sohag, Luxor, and Qena governorates in addition to the HCWW, USAID, and Chemonics Egypt in Cairo.

DATA ANALYSIS

The evaluation team used content analysis across all qualitative data to track recurring themes that were supplemented by outlier themes. Such analysis of KIIs and GDs provided insights into the interpretation of secondary quantitative data as well as of primary data gathered by the evaluation team through the use

² Planned visit to Ezbat Shenoda has not been completed due to unexpected blockage of the road leading to this site.

of facility checklists. Content analysis provided contextualization for the quantitative-based findings and informed actionable recommendations and best practice in support of future project designs. Quantitative data analysis included checklist analysis to support the observed findings in addition to the secondary data collected directly from the SC systems on customer satisfaction. Both quantitative and qualitative findings were triangulated and integrated to cross-validate results, draw conclusions, and develop recommendations. This use of mixed methods enabled triangulation via several means to examine the same subject from different vantage points, thereby strengthening the validity, reliability, and integrity of the observed findings.

QUALITY ASSURANCE

All interview protocols and questionnaires were developed in both English and Arabic and piloted before being used in the field. Raw data was digitized and shared regularly during data collection to enable ongoing review and analysis. Data analysis workshops were convened at the end of each governorate field visit and after the end of the field work to validate findings across the team and identify gaps. Upon the completion of all data collection, the evaluation team conducted an 11-day data analysis workshop to analyze findings, draw conclusions, and develop recommendations in preparation for debriefing and report writing.

Additionally, a SIMPLE quality-assurance specialist joined the first visit of each site. To ensure KIs and GDs were accurately captured, they were conducted by two persons, a note taker and an evaluator/team leader. Senior SIMPLE and QED headquarters staff conducted additional quality assurance reviews. At the end of each field visit, the evaluation team paid a courtesy visit to debrief the chairman of each SC and discuss what was accomplished during the visit. The team also conducted a midpoint fieldwork oral debriefing with USAID. Finally, at the end of the fieldwork, the evaluation team held an oral debriefing/validation workshop with the HCWW to reveal and close data gaps and do a fact check of preliminary findings.

LIMITATIONS AND CHALLENGES

LIMITATIONS ON DATA COLLECTION

A planned household survey to assess the quality of water service was planned but had to be cancelled due to restrictions on survey data collection based on the advice of the HCWW. To compensate for this, the evaluation team requested secondary data from the HCWW and SCs, on customer satisfaction as well as the number of beneficiaries supported by targeted facilities.

CHALLENGES

The household connections visited were based on convenience due to the proximity of their locations, and some sites were excluded due to security concerns raised by the SCs. Accordingly, besides visiting permitted planned locations, the evaluation team visited additional randomly selected locations. No substantial differences were found between the randomly selected locations and those that were sampled for convenience.

FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

EVALUATION QUESTION I

WHY WERE THE PROGRAM INTERVENTIONS CONSIDERED A CRITICAL NEED AS IDENTIFIED BY STAKEHOLDERS? HOW WERE PROGRAM INTERVENTIONS SELECTED?

SMALL-SCALE CONSTRUCTION PROGRAM

Findings



Evaluation team visiting Meer Water Treatment Plant, Assiut, July 2019.

The selected communities served by small-scale construction activities in Assiut and Sohag lacked quality potable water and a wastewater collection and disposal system prior to the program implementation. In villages served by those construction activities, people had previously relied on water directly pumped from the Nile or from deep wells that were contaminated with high levels of iron and manganese, causing health problems. Targeted villages with the pump stations in Assiut and Sohag had long suffered from sewage flooding the streets and contamination of the environment. Targeted populations were using septic tanks to dispose of wastewater.

The Selection criteria for target villages included the total number of beneficiary users, and the possibility of delivering a service that reaches end users' houses that were built in compliance with official regulations and not on agricultural lands or government-owned properties, and were not supported by other entities, including the National Organization for Potable Water and Sanitary Drainage. The selection criteria for the targeted communities were clearly determined by USAID in the project appraisal document in order to approve funding the SCs' technical proposals. SCs used their master plans, mapping the status of communities water and wastewater facilities, to select villages that best fit the selection criteria, following a risk and environmental assessment.

Conclusions

- Given the relative lack of investment and the contamination issues in these governorates, the interventions were useful in addressing a critical need for quality potable water and wastewater collection.

“USAID Interventions met the needs of the serviced areas as they were poor and suffering from lack of sanitation and/or high-quality potable water.” – USAID stakeholder interviewed.

JCESD PROGRAM

Findings

As per the feasibility studies conducted prior to the program implementation, the villages selected for the JCESD activities in Assiut, Sohag, Qena, and Luxor lacked quality potable water connections as well as wastewater collection systems, leading to health problems from water-borne diseases. The villagers were relying on groundwater polluted from septic tanks and agricultural pesticides and fertilizers. In parallel and to sustain such investment, the HCWW/SCs conduct community-based awareness-raising activities to support water-saving and water-friendly practices that aim to avoid the contamination of water with wastewater leakages.

The targeted governorates are among Egypt's poorest. The percentage of people living in poverty in the targeted governorates, according to data from the Central Agency for Public Mobilization and Statistics (CAPMAS), Egypt's state statistics agency, is outlined below.

Table 4: Poverty Rate in Targeted Governorates in 2009 and 2018

GOVERNORATE	POVERTY RATE 2009*	POVERTY RATE 2018
Assiut	68.21%	66.70%
Sohag	51.34%	59.60%
Qena	40.12%	41.20%
Luxor	28.33%	55.30%
EGYPT (AVERAGE)	28.94%	32.50%

*Before the intervention

The implementation of the JCESD program took place on a rolling basis and in phases, from 2011 to 2015, so once a SC completed a FARA, it could apply for a second, allowing a room for improved performance and better management of implemented activities.

Conclusions

- The program interventions were relevant and timely as reported during KIs by the heads of the four SCs who expressed huge operational improvements as a result of implemented activities under the 21 FARAs of the JCESD program. SCs utilized the learning gained from the Water and Wastewater Sector Support Program (WWSSP) capacity-building component to manage this program, which was highly relevant to their staff members acquired skills.
- The program addressed the needs of targeted communities determined according to the master plan. And despite the fact that established connections exceeded the targets identified in the program design and scope of work, there are still needs that require further interventions. Accordingly, some households are still reliant on untreated groundwater and/or using septic tanks for wastewater collection, leaving their communities susceptible to contamination through leakage. These issues have been raised by Sohag and Assiut SCs' planning sectors.

Recommendations

R 1.1 The SCs should continue working on updating their master plans to select priority targeted communities for future interventions. Since the demand for water and wastewater connections is

expected to remain high, SCs should continue to refine their criteria for prioritization as they go about these updates. This could be accomplished by using customer satisfaction and water flow/loss data when deciding on future investments.

“The JCESD project used a large number of workers, which increased construction costs, but the project had a fast and effective social impact.” Sohag Water and Wastewater Company Stakeholder Interviewed.

“Before JCESD FARAs, the company was only able to make replacements and renew old networks, but FARA projects 1,2, and 3 helped the company extend water services to remote villages.” Qena Water and Wastewater Company Stakeholder Interviewed.

EVALUATION QUESTION 2

HOW EFFECTIVE WERE THE DELIVERED INTERVENTIONS AT ACHIEVING THE PLANNED OUTCOMES AS STATED IN THE PROGRAM DESIGN, WHEN COMPARING THE STATUS AT THE END OF THE ACTIVITY (2015) VERSUS TODAY (2019)?

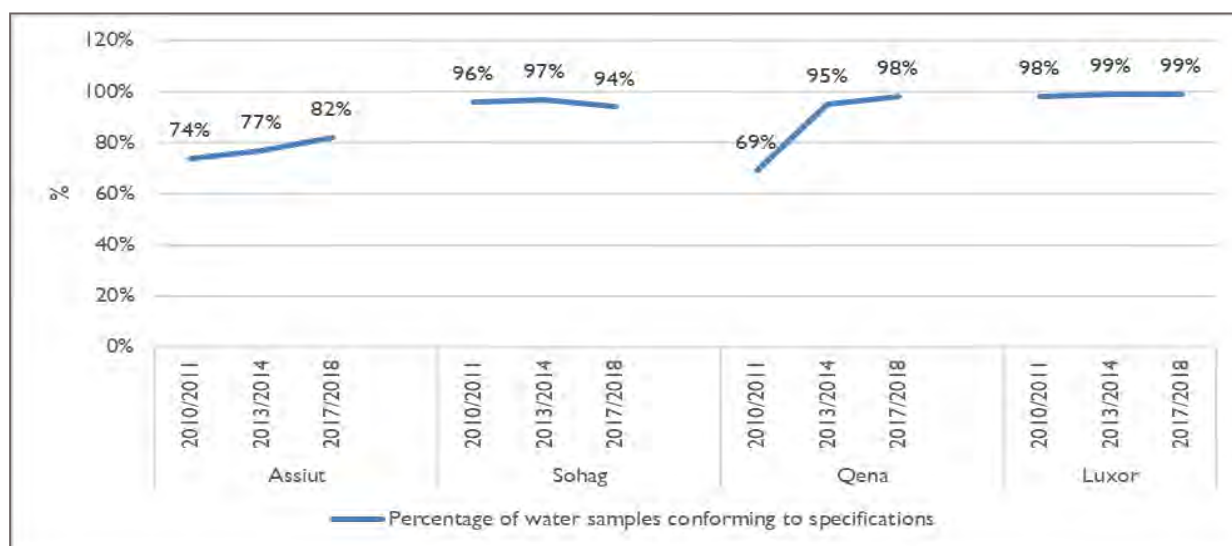
Overall, the interventions were found to be effective at achieving their planned outcomes. Based on interviews with the heads of the four SCs, the Government-to-Government (G2G) model was found to be highly relevant aid modality for targeted newly established companies. It minimized risk for USAID because the companies were held to a very specific and well-defined standards for completion and quality before payment was received under the G2G agreement. SC staff further stated that receiving technical assistance from Chemonics was critical in enabling them to meet these standards by improving their internal capacity and practices. Furthermore, verifiable improvements were made in the quality of water and operation of the various plants and the water and wastewater networks were expanded. More specific findings are included below on particular aspects of the programs.

OUTCOME ANALYSIS OF SMALL-SCALE CONSTRUCTION PROGRAM

Findings

Analysis of potable water sample data in 2011 showed that the pollution was chemical and biological, and the water needed proper disinfection. The 2018 sample results showed a significant improvement in water-quality at the governate level, mainly in Luxor, Qena and Assiut. However, a slight decline has been taking place in Sohag that could be attributable to the fact that more plants not targeted by these interventions were incorporated into the sampling. However, plants supported by USAID programming had a 100 percent compliance rate. Figure 1 below highlights the change in the quality of water produced by all WTPs managed by each subsidiary company during the period from 2010/2011 to 2017/2018.

Figure 1: Percentage of Water Samples Meeting the Egyptian Quality Standards in Subsidiary Companies (All WTPs at Governorate Level)



Source: Monitoring, Analysis, Reporting System (MARS) Key Performance Indicators Database, Economic Analysis Department, Holding Company for Water and Wastewater.

Samples from areas serviced by WTPs supported by USAID showed 100 percent compliance with Egyptian water-quality standards. Table 5 provides a detailed analysis of the performance of WTPs targeted by the interventions in Assiut and Sohag governorates.

Table 5: Current Technical Situation Analysis of the WTPs in Assiut and Sohag³

	SOHAG	SOHAG	ASSIUT	ASSIUT
PERFORMANCE CRITERIA	WTP ALARAYAA	WTP SHANDAWHEEL	WTP BAHEEG	WTP MEER
FLOW UTILIZATION Average flow/Design flow	66%	50%	37%	32%
SOP and SMP Usage	Routinely used	Routinely used	Routinely used	Routinely used
Sampling plan	Needs better sampling plan	Sampling plan is satisfactory	Sampling plan is satisfactory	Needs better sampling plan
WATER QUALITY Number of samples comply with the regulation	100%	100%	100%	100%
Lab analysis QA/AC	Satisfactory	Satisfactory	Need Improvement	Need Improvement
Structures condition	Good and maintained	Good and maintained	Good and maintained	Good and maintained
Electrical panels Condition	Working and clean	Working and clean	Working and clean	Working and clean
Flow meters	Working	Working	Working	Maintenance required

³ The technical analysis is based on the site visits and the data gathered from the official records available at the water facilities in Assiut and Sohag governorates.

	SOHAG	SOHAG	ASSIUT	ASSIUT
PERFORMANCE CRITERIA	WTP ALARAYAA	WTP SHANDAWHEEL	WTP BAHEEG	WTP MEER
Flow meter reading	Not frequently during the day	Not frequently during the day	Not frequently during the day	Not frequently during the day
Chlorination utility	Working and clean, it needs neutralization tower. (Safety issue.)	Working and clean, it needs neutralization tower. (Safety issue.)	Working and clean, it needs neutralization tower. (Safety issue.)	Working and clean, it needs neutralization tower. (Safety issue.)
Staff quality	O&M staff is well trained and aware of their job requirements.	O&M staff is well trained and aware of their job requirements.	O&M staff is well trained and aware of their job requirements.	O&M staff is well trained and aware of their job requirements.
Operation data processing & reporting	Need more training	Need more training	Need more training	Need more training
Safety measures and standards	Applied very well	Applied very well	Applied very well	Applied very well
Specific training required	Troubleshooting, problem prediction, O&M data analysis and meaning, correlation of process control data. Report writing.	Troubleshooting, problem prediction, O&M data analysis and meaning, correlation of process control data. Report writing.	Troubleshooting, problem prediction, O&M data analysis and meaning, correlation of process control data. Report writing.	Troubleshooting, problem prediction, O&M data analysis and meaning, correlation of process control data. Report writing.

In targeted WTPs, FGDs with plant staff indicated that water samples were usually taken from the outflow after treatment, with limited samples from the supporting wells. Due to the difference in the level of water contamination in the WTPs supporting wells, limited testing of those wells compromises the effectiveness of treatment and the future water flow from certain wells. This is due to the lack of initial flushing within the groundwater wells before treatment, per the procedure outlined by the plant staff. Water sample results from WTPs supporting wells before the filtration process provided insight into the situation of each well and its water quality. For example, Al-Araya WTP was getting water from six wells. Water sample results from each well (see Table 6 below) indicated that Well 6 has high turbidity, iron, and magnesium levels and thus needs attention.

Table 6: Technical Situation Analysis of Supporting Wells of Al-Arayaa WTP in Sohag⁴

AL-ARAYAA WTP		LIMIT LEVEL	6.5-8.5	1	500	1000	0.3	0.4
PERIOD	WELL NO.	RESIDUAL CHLORINE	pH ⁵	TURBIDITY	T. HARDNESS	TDS	IRON	MANGANESE
	#	mg/l		NTU	mg/l	mg/l	mg/l	mg/l
Average before Filtration unit	1	0	7.5	2.9	394	786	0.1	0.4
Average before Filtration unit	2	0	7.54	0.4	388	666	0.1	0.7
Average before Filtration unit	3	0	7.5	4.7	412	720	0.2	0.8
Average before Filtration unit	5	0	7.54	3.6	420	706	0.2	0.1
Average before Filtration unit	6	0	7.5	8.8	492	7.33	0.4	0.8
Average After Filtration Unit		1.3	7.2	0.57	394	750	0.11	0.095

Conclusions

- Based on the customer data and water quality compliance testing records, the four WTPs and the eight wastewater (WW) facilities are functional and serving the needs of the targeted villages.

Recommendations

R 2.1 To enhance the efficiency of water treatment, the SCs should conduct bacteriological and iron and manganese concentration testing starting from the supporting wells before pumping water to the stations in order to more accurately determine the level of treatment needed for each supporting well as they vary in their level of water contamination. Currently the water is being treated at the stations from multiple wells simultaneously in a single treatment. However, determining the bacteriological contamination of each well first could reduce treatment costs by drawing only from the less contaminated wells and/or treating the contaminated well individually. Accordingly, groundwater wells should be tested individually and flushed periodically to avoid the growth of harmful bacteria.

R 2.2 In order to efficiently conduct the above recommended testing, each SC should have a central lab to run regularly these more complicated tests. A local lab is also recommended in each WTP to test samples daily according to the basic parameters: pH, turbidity, chlorides, Total Dissolved Solids (TDS), hardness, residual chlorine, total coliform, and algae count. Such regular testing at each plant, while initially costly, may save money in the long run by arming companies with more accurate data about the quality of their water sources and treat water more efficiently and effectively.

“We are waiting for more assistance from USAID to support building a new central lab. This will enable us to better monitor the quality of water, especially for heavy metals and other toxic materials.” Luxor Water and Wastewater Company Stakeholder Interviewed.

⁴ The technical analysis is based on the data gathered from the official records available at Al-Arayaa Water Treatment Plant in Sohag governorate.

⁵ pH is a figure expressing the acidity or alkalinity of a solution on a scale on which 7 is neutral, lower values are more acidic and higher values are more alkaline.

DESIGNED CAPACITIES OF THE SMALL CONSTRUCTION ACTIVITIES

Findings

Per the documentation of the small – scale construction activities, the pump stations were designed to handle water flow from 2009 to 2037 as a first stage, and from 2037 to 2050 as a second. The details of the station capacities and operating hours were assessed by the evaluation team's technical expert. The results of the assessment are detailed below in Table 7.

Table 7: Assessment of Water Treatment Plants and Wastewater Collection Facilities' Operational Capacity in Assiut and Sohag Governorates⁶

Gov.	Site	Tot. no. of pumps	Operating pumps	Pump Capacity	Pump Capacity	Daily Flow (design)	Daily Flow (Actual)	Utilization	Oper. Hrs	Calculated
				L/s	m3/hr	m3/d	m3/d	%		m3/d
Assiut	Meer WTP	5	2	25	90	6480	1640	25	9	4320
Assiut	Baheeg WTP	3	1	60	216	5184	1800	35	8.3	5184
Assiut	Beni Edris WWC	2	1	54	194.4	4666	600	13	3.1	4666
Assiut	Al Ziera WWC	4	1	120	432	10368	1200	12	2.8	10368
Assiut	Alakadma	4	2	125	450	10800	6500	60	7.2	21600
Assiut	Beni Semee	3	1	120	432	10368	950	9	2.2	10368
Sohag	Shandaweel WTP	5	3	50	180	10800	5372	50	9.9	12960
Sohag	Alarayaa WTP	5	2	50	180	5400	3550	66	9.9	8640
Sohag	Banho	2	1	88	317	15206	633	4	2.0	7603
Sohag	Beni Ammar	2	1	45	162	7779	450	6	2.8	3888
Sohag	Banga	2	1	138	496.8	23846	1100	5	2.2	11923
Sohag	Hamooda	2	1	19	68.4	3283	137	4	2.0	1642

Based on the technical assessment and observation checklist, current operational capacity is still below designed capacity by more than 50 percent. In some facilities, one pump operating for two to three hours per day is enough to adequately lift the flow.

Water flow is continuously interrupted at the Banho pump station because the submersible pumps are frequently showing high amps due to clogging. An investigation by the facility's maintenance team found the pump type was a closed impeller instead of an open impeller, which is more effective.

Conclusions

- As the flow of water and WW systems is below the design capacity, facilities are sustainable for the design lifetime assuming enough water flow and demand in the future. This is due to the existence of an operational capacity to add more connections and supply more water to a larger

⁶ The technical assessment is based on the data gathered from the official records available at the water and wastewater facilities in Assiut and Sohag governorates.

area. Had these systems been at or above capacity it would not have met the future needs of the community and therefore, not met the goals of these activities. However, in Alarayaa, Shandaweel, and Meer, new wells for WTPs will be needed in the future to reach the full design capacity.

Recommendations

R 2.3 It is recommended that USAID and HCWW/SCs utilize the extra capacities existing in those stations, as wastewater facilities have the capacity to be connected to sanitation networks, and the designed capacity of such facilities allows further connections through 2037, considering the expansion of wastewater systems in targeted governorates.

OUTCOME ANALYSIS OF JCESD PROGRAM

Findings

For each FARA of the JCESD program, a detailed study was done by the SCs to assess the amount of daily labor needed, with details on the costs of each connection. This in turn enhanced the effectiveness of implementation and minimized the occurrence of change orders.

The water and WW connections established under the JCESD program are all working and serving 10 percent more people than the number initially targeted at the program design stage. More than 772,000 beneficiaries had been served compared to the 700,000 that were originally targeted as verified through customer data. Table 8 provides a detailed description of achieved targets within the JCESD program.

Table 8: Planned and Achieved Targets of the JCESD Program⁷

Ser. No.	Gov.	FARA No.	Total of Contract Value	Progress Installed Water Pipes (m)	Progress Installed Wastewater Pipes (m)	Progress No. of House Connections (New)	Progress No. of House Connections (Modified)	Progress Number of Labor Utilized	Number of Beneficiaries (Capita)
1	Sohag	7	11,280,881	96,400		1,418	0	45,120	138,640
2	Sohag (WW)	8	3,918,268	0	7,693	597	0	11,222	6,390
3	Sohag (WW)	9	6,710,915	0	13,930	1,188	0	25,754	30,150
4	Assiut	7	9,448,154	82,490		2,478	960	37,250	137,530
5	Assiut	8	5,864,150	48,120	0	2,484	0	23,430	41,540
6	Assiut	9	5,637,240	50,420	0	1,918	320	22,630	22,380
7	Qena	1	8,224,480	61,300		2,556	655	29,500	81,850
8	Qena	2	6,204,319	44,865		2,284	368	20,208	26,520
9	Qena	3	6,107,136	45,405		2,609	676	16,501	89,919
10	Luxor	1	5,648,095	34,834		489	1,586	16,357	38,830
11	Luxor	2	5,230,610	25,600		150	2,267	14,715	67,872
12	Luxor	3	5,166,365	24,681		89	2,540	14,751	91,313
Total			79,440,613	514,115	21,623	18,260	9,372	277,438	772,934

⁷ USAID FARAs Program/Engineering Support Services, Final Report, Chemonics Egypt, July 2015.

Conclusions

- The technical assistance provided to the SCs by USAID through the JCESD and supported by the HCWW were effective in improving the SCs management and operational practices and introducing and institutionalizing the use of the MASTER Program, SOPs for stations which in turn enabled SCs to provide a better-quality water. Furthermore, it helped expand the water supply network bringing in new customers.

Recommendations

R 2.4 USAID and the SCs should build on the investments in wastewater stations, where capacities are underutilized, by adding wastewater networks and end-user connections that serve deprived communities.

CAPACITY BUILDING COMPONENT OF THE SCS DEPARTMENTS

Findings

During the project timeline, USAID contracted with Chemonics to help build the capacities of SCs' staff members. Core training topics for the planning sector were GIS and hydraulic analysis. Topics for the procurement department included the preparation of tender documents, the bidding process, and contract evaluation.

Chemonics' capacity-building support to the SCs enhanced the capacities of staff and contributed to the success of the activities' implementation as well as the institutionalization of new knowledge and practices. Chemonics had developed a website to host materials developed as part of this effort. However, since the end of the program, the site is no longer live, and the materials are not readily available. Interviewed staff reported that while individuals may have hard copies or personal soft copies, there is no centralized or systematic way to access the material across the SCs. Based on interviews and review of the background documents, a clear, structure knowledge transfer strategy was not implemented as part of the capacity building activities.

“Due to the technical support received from Chemonics, the project planning staff have been able to improve their skills and follow new methodologies in line with new regulations”, Assiut Water and Wastewater Company Stakeholder Interviewed.

“The capacity/skills of SC staff working in the planning sector (GIS, hydraulic analysis, master planning) have been built through interventions and the assistance received from Chemonics. I consider this investment as valuable as the building of new facilities because it leads to the sustainability of activities to develop the SC.” Sohag Water and Wastewater Company Stakeholder Interviewed.

The wastewater collection system staff expressed satisfaction with the capacity building work done through the FARA projects, reporting an improvement in their skills, knowledge, and practices in handling the stations' routine work, thereby enabling them to provide better service to the served communities. The technical observation checklist examining the daily practices at the stations also supported this finding.

“Baheeg Village and the other villages served by the WTP suffered before to get clean water, as they were using hand pumps to get water that had to be boiled before usage because of contamination.” WTP Stakeholder Interviewed in Assiut.

Conclusions

- Staff capacities improved though the systematic transfer of knowledge was not well documented. The existence of a knowledge-transfer strategy would have improved the systematic transfer of practices and operational measurements after the interventions ended, especially in building human-resource capacities and passing on skills and information.

Recommendations

R 2.5 Despite the efforts undertaken to transfer the knowledge gained through capacity building activities, a systematic knowledge-transfer strategy should be designed and applied to maximize the impact and ensure the sustainable transfer of knowledge to employees who join the SCs after the conclusion of the interventions.

COST EFFECTIVE INITIATIVE TO ENSURE FINANCIAL SUSTAINABILITY

Findings

The capacity developed by the JCESD program paved the way for the SCs to adapt and explore cost-effective approaches and invest in service-delivery improvements which in turn enhanced their financial sustainability and reduced operational costs. They were able to pilot an energy efficiency unit and introduce energy saving practices such as using solar power instead of electricity for plants operation and using hydraulic analysis to identify specific pipes for repair instead of replacing whole sections to reduce water loss. This is in addition to the chemical optimization and leak detection. The autonomy of the SCs also supported local decision making and allowed a room for better communication with end users at the local level. Figure 2 below illustrates the trend in water loss for each subsidiary company during the period from 2010/2011 – 2017/2018.

Figure 2: Percentage of Water Leakage by Subsidiary Companies



Source: Monitoring, Analysis, Reporting System (MARS) Key Performance Indicators Database, Economic Analysis Department, Holding Company for Water and Wastewater.

“The technical and contractual specifications have been improved through FARA projects, and we are better able to set technical specifications ourselves.” Luxor Water and Wastewater Company stakeholder interviewed.

Conclusions

- The SCs’ transformation from affiliated entities to local government to autonomous subsidiaries gave them more control over local decisions and helped them provide better services to communities. Since the completion of the activities, SCs are taking positive steps towards ensuring financial sustainability by minimizing expenditures and maximizing resources.

Recommendations

R 2.6: Given the autonomy of the SCs and their subsequent ability to explore cost effective approaches such as forming energy efficiency units, these successful initiatives should be systematically assessed and expanded as appropriate.

EVALUATION QUESTION 3

TO WHAT EXTENT ARE THE FACILITIES CONTINUING TO BE MAINTAINED BY QUALIFIED STAFF FOLLOWING STANDARD OPERATING PROCEDURES AND MAINTENANCE PLANS ESTABLISHED DURING THE LIFE OF THE ACTIVITY?

Findings

The evaluation team visited the 12 facilities using a checklist to verify documents, operational plans, logs, and operational data to verify that SOPs and maintenance plans were still being followed. The team also conducted GDs with staff and found the following:

- Operations and Maintenance (O&M) manuals developed through the interventions and approved by the HCWW were being utilized at all the WTPs and WW facilities visited. Staff were using Standard Operating Procedures (SOPs) and Standard Maintenance Procedures (SMPs). All SOPs and SMPs were posted in big, readable print in Arabic beside all equipment. Operational plans were updated through 2019 and recorded in each station.
- For the WW pump facilities, there was a record for the operations staff during each shift with the operating hours of the pumps, their amperage and pressure, the generator’s operating hours, fuel consumption, and operation temperature; the electrical panels’ amperage, voltage, and power factor; and the depth of water in the sump pumps. This is in addition to recording the preventive maintenance tasks and the materials used, the work orders and equipment failures, unusual operations events, and safety procedures logbooks.
- For the WTPs, the operations staff kept records for each shift with the pumps’ operating hours, their amperage and pressure, the generator’s operating hours, fuel consumption, and operation temperature; the electrical panels’ amperage, voltage, and power factor; the depth of water in the ground tank, the chlorine dose, and its concentration in the treated water; and lab data showing that 100 percent of the station’s samples were in compliance with regulations based on the official records.
- At both the WTP and WW facilities, the operations staff used standard forms and logs to record daily measurements and events such as pump operation logs, standby generator logs, chlorination logs, and consumption rates as well as monthly operation reports and monthly operations parameters.

- During the GDs with WTPs' staff in Assiut and Sohag, the following was highlighted:
 - Staff feel safer applying the correct safety measures for operating in confined spaces and dealing directly with wastewater.
 - Staff have all the operation manual and pump specifications, and the training helped them operate the pump station and maintain the sewer correctly.
 - Not all plants use the MASTER software, which documents operations and maintenance plans and processes conducted at the station level because it has not been rolled out to some of the smaller plants. However, the plants that do use it routinely apply the required preventive maintenance to keep equipment in good condition and document the corrective maintenance on work orders. This software is standalone, with limited connections to other departments systems such as assets, inventory, or customer satisfaction systems. This means that multiple systems must be used and checked and information that should be linked automatically has to be manually verified.
 - The collection system operates routinely, according to the SOP manual.

Conclusions

- The performance of staff and the operational capacity of WTPs and WW facilities targeted by the small-scale construction program was satisfactory according to the checklist developed based on the operations and maintenance best practices and supported by the examined documents. However, there were minor variations among facilities as detailed in tables 5, 9 and 10. Facilities O&M is conducted routinely, according to SOPs. Staff understand the steps and apply the instructions. This is being monitored and reported to the HCWW by each SC for every facility through the MASTER program.

Table 9: Current Technical Situation Analysis of Targeted Wastewater Collection Systems in Assiut Governorate⁸

ASSIUT WW Collection System				
PERFORMANCE CRITERIA	BENI SEMEE	EL ZEIRA	AL AKADMA	BENI EDRIS
FLOW UTILIZATION Average flow/Design flow	16%	11%	59%	20%
SOP USING	Routinely used	Routinely used	Routinely used	Routinely used
SMP USING	Routinely used	Routinely used	Routinely used	Routinely used
Structures condition	Good maintained	Good maintained	Good maintained	Good maintained
Electrical panels Condition	Working and clean	Working and clean	Working and clean	Working and clean
Flow meters	Working	Working	Working	Working
Flow meter reading	Not frequently during the day	Not frequently during the day	Not frequently during the day	Not frequently during the day
Staff quality	O&M staff are well trained and aware of their job requirements.	O&M staff are well trained and aware of their job requirements.	O&M staff are well trained and aware of their job requirements.	O&M staff are well trained and aware of their job requirements.

⁸ The technical assessment is based on the site visits and the data gathered from the official records available at the wastewater facilities in Assiut governorate.

ASSIUT WW Collection System				
PERFORMANCE CRITERIA	BENI SEMEE	EL ZEIRA	AL AKADMA	BENI EDRIS
Safety measures and standards	Applied very well	Applied very well	Applied very well	Applied very well
Specific training required	Troubleshooting, problem prediction, data. Report writing.	Troubleshooting, problem prediction, data. Report writing.	Troubleshooting, problem prediction, data. Report writing.	Troubleshooting, problem prediction, data. Report writing.

Table 10: Current Technical Situation Analysis of Targeted Wastewater Collection Systems in Sohag Governorate⁹

SOHAG WW Collection System				
PERFORMANCE CRITERIA	BANGA	BANHO	BENI AMMAR	HAMOODA
FLOW UTILIZATION Average flow/Design flow	5%	4%	6%	4%
SOP USING	Routinely used	Routinely used	Routinely used	Routinely used
SMP USING	Routinely used	Routinely used	Routinely used	Routinely used
Structure condition	Good maintained	Good maintained	Good maintained	Good maintained
Electrical panels condition	Working and Clean	Working and Clean	Working and Clean	Working and Clean
Flow meters	Working	Working	Working	Maintenance required
Staff quality	O&M staff are well trained and aware of their job requirements	O&M staff are well trained and aware of their job requirements	O&M staff are well trained and aware of their job requirements	O&M staff are well trained and aware of their job requirements
Operation data processing and reporting	Need more training	Need more training	Need more training	Need more training
Safety measures and standards	Applied very well	Applied very well	Applied very well	Applied very well
Specific training required	Troubleshooting, Problem prediction, data. Report writing.	Troubleshooting, Problem prediction, data. Report writing.	Troubleshooting, Problem prediction, data. Report writing.	Troubleshooting, Problem prediction, data. Report writing.

Recommendations

R 3.1 Based on the technical situational analysis, it is recommended that SCs take the following actions:

- All facilities should undertake flow meter reading every two hours and record them in the operations log.
- For safety, diesel tanks in all facilities should be situated in concrete enclosures rather than directly on the ground.

⁹ The technical assessment is based on the site visits and the data gathered from the official records available at the wastewater facilities in Sohag governorate.

- SCs should work with operation teams to develop operations emergency plans for all facilities.
- Despite not being part of the design of implemented small-scale construction activities, chlorine gas cylinders should be situated on a scale to ensure the continuous monitoring of the amount of gas being used.

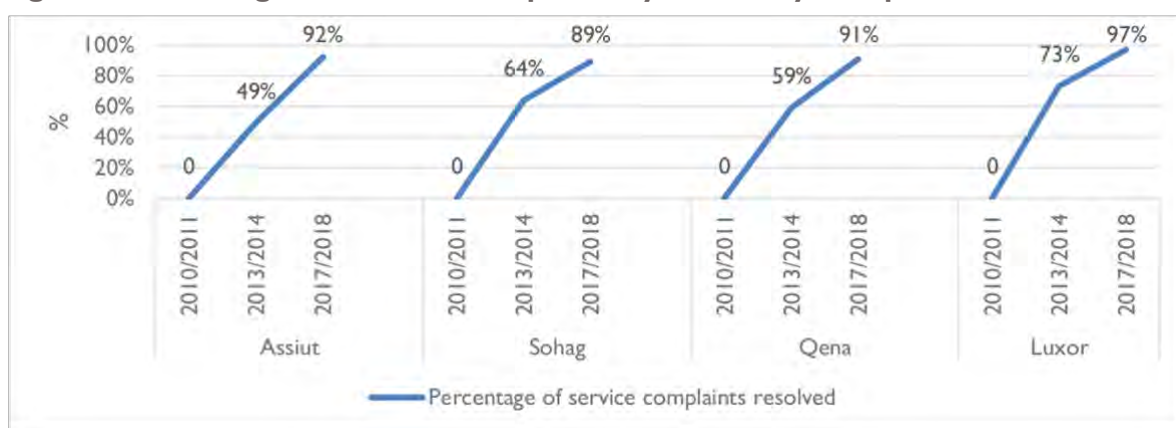
R 3.2 The O&M staff should undergo advanced training in technical areas such as standby generators maintenance and electrical control panel types and the function of each component. A detailed description of training needs as expressed by the various sectors at SCs is listed in Annex VI.

CUSTOMER SATISFACTION

Findings

In terms of addressing complaints about water quality, at the governorate level including communities serviced by WTPs that were not targeted by the small-scale construction activities, the percentage of resolved complaints has significantly increased during the period from 2010/2011 to 2017/2018 in all SCs.

Figure 3: Percentage of Resolved Complaints by Subsidiary Companies



Source: Monitoring, Analysis, Reporting System (MARS) Key Performance Indicators Database, Economic Analysis Department, Holding Company for Water and Wastewater.

From the customer service complaints data available, the number of water quality related complaints decreased in some of the areas serviced by the WTPs that benefited from the interventions, specifically in Sohag governorate. However, a more comprehensive analysis is required to definitively determine whether implemented activities were directly linked to the improvement.

Conclusions

- The facilities are operating efficiently with high customer satisfaction with water quality and limited complaints.

Recommendations

R 3.3 SCs should scale the usage of Standard Operating Procedures (SOPs).

EVALUATION QUESTION 4

TO WHAT EXTENT ARE WATER COMPANIES CURRENTLY EXHIBITING BEST PRACTICES IN PROJECT MANAGEMENT AS A RESULT OF ENGAGING WITH THE INTERVENTIONS?

Findings

INVESTING IN HUMAN CAPITAL

SCs have a new generation of future leaders that is taking the lead in various departments with the support of top management. This cohort has utilized the capacity-building component to enhance their departments' performance. They are also able to conduct feasibility studies by utilizing GIS and hydraulic analysis, which influence project prioritization decisions.

In the KIs, the SCs chairmen rated the skills of the various departments and the extent to which they were exhibiting practices that helped the companies fulfill their mandate. Their ratings were as follows:

Table 11: Capacities Improved by Targeted Sector at Subsidiary Companies

TO WHAT EXTENT DID THE IMPLEMENTED ACTIVITIES ENABLE IMPROVED CAPACITY-BUILDING OF THE SECTORS AND DEPARTMENTS OF SCS?					
#	RATING SCALE: FROM 1 (POOR) TO 5 (VERY GOOD)	SOHAG	ASSIUT	QENA	LUXOR
1	Planning Sector	4	5	5	4
2	Customer Service Department	4	4	4	4
3	Hotline-Emergency Department	4	4	4	4
4	Issuing Bills Center	5	5	4	4
5	Procurement/Contracts Department	5	5	4	5
6	Project Sector	5	5	5	5
7	Training Department	5	4	4	4
8	Laboratory Department	4	4	4	4
9	Operations and Maintenance	4	4	5	4

“As a result of the USAID interventions, we have the ability to prepare all the required documents, from contracts to implementation supervision documents, and the implementation made under company engineers’ supervision during JCESD project.” Assiut Water and Wastewater Company Stakeholder Interviewed.

The capacity-building undertaken within implemented activities emphasized the importance of investing in human capital. Following their completion, an increased focus was placed on human capital investment at all SCs. While unable to provide exact figures, interviewees at the four SCs stated that more was spent on training in the last five years (from 2014 to 2019). Investment in human capital came in the form of capacity enhancement through basic training programs and improved work conditions in terms of higher salaries or better work facilities. Additionally, the political support and the leadership of top management at the four SCs showed that the companies’ managers are keen to ensure the sustainability of the implemented investments.

Similarly, the ratings provided by the former activities Project Implementation Unit (PIU) staff at SCs in Assiut, Sohag, Qena and Luxor governorates showed the improvement in the SCs project management

processes and practices. Table 12 below outlines the ratings of the effectiveness of the various capacity-building components.

Table 12: Rating of the Effectiveness of Implemented Capacity-Building Components

CAPACITY BUILDING COMPONENT	RATING BY SC			
	SOHAG	ASSIUT	QENA	LUXOR
RATING SCALE: FROM 1 (POOR) TO 5 (VERY GOOD)				
A. Introduce, activate and support the implementation of quality control plans.	4	4	4	5
B. Introduce and apply environmental protection measures.	3	5	5	5
C. Development of proposals and feasibility studies.	5	5	4	4
D. Development of tender documents, tendering and awarding procedures to contract consulting firms to provide design and construction management services for new projects.	5	5	5	4
E. Introduce procedures for site handover.	5	5	5	5
F. Introduce follow up measures and forms for implementation works and progress reporting.	5	4	5	5
G. Application of environmental protection measures.	4	5	4	4
H. Application of safety and occupational health rules.	5	5	5	5
I. Application of O&M manuals.	5	5	5	4
J. Introduce the practice of regularly meetings among SCs follow-up teams' consultants and contractors for progress review, facilitation of internal coordination, project steering, and follow-up.	5	4	5	5
K. Introduce periodic management reviews for progress in project implementation.	5	5	5	5
L. Develop inventory for commodities procured in compliance with the FARAs procurement section.	3	4	4	4

Conclusions

- USAID's work through building the capacity of SCs' management has been a key part of its overall sector reform efforts. SCs' utilization of data is still at the level of reporting (e.g., customer satisfaction, O&M data). Limited evidence is available on the extent of data utilization in the decision-making process.

Recommendations

R 4.1 HCWW and the SCs should support the management at the district level to utilize data coming from the various systems to spread a culture of informed decision-making.

SCS OPERATIONAL PERFORMANCE

Findings

The SCs' organogram have been updated in previous years to accommodate the expansion of roles and responsibilities and address work needs based on practices learned from the capacity-building component of the program and utilizing available resources.

The MASTER program is well utilized in all USAID supported facilities. However, data is manually collected from all locations, and it is not connected to other systems such as the MARS or ADVAC, limiting the implementation of the cost center approach.

“The staff is using the MASTER software for routine preventive maintenance to keep the equipment in a good condition. Since we started using MASTER software and apply the SOPs, SMPs, and preventive maintenance, corrective maintenance work orders for major equipment failures became almost zero. The MASTER is used now in six big WTPs, which is half of the total WTPs in Luxor.” WTP Luxor Water and Wastewater Stakeholder Interviewed.

The SCs’ training plans are prepared annually and include promotion-based training as well as basic training required for job performance. However, this focus does not allow for other advanced needs-based training specific to each SC requirements.

“Specialized technical training courses for all sector staff are badly needed in order to preserve the gains made by the WWSSP interventions.” Assiut Water and Wastewater Company Stakeholder Interviewed.

“Using HYDROCOM program to link the local regions with the Centre and with other as the bills issuing unit is needed. Advanced training for all customer services staff on dealing with the public is also very important and required to improve the SC services.” Assiut Water and Wastewater Company Stakeholder Interviewed.

Conclusions

- Existing systems are functional, however need to be connected to each other. The integrated cost center approach is very limited despite the initiatives of some SCs, such as Qena SC, to enhance that practice through the asset management program with a vision of linking it to the O&M and inventory.
- Despite the on-going capacity-building activities by the SCs, there is still a need for a more advanced and specific training module for staff at the various departments.

Recommendations

R 4.2 The HCWW should work on the automatization of the MASTER program linking it to the asset management software, to enable the companies to better monitor the O&M milestones and better manage their assets.

R 4.3 USAID and the HCWW should support SCs to focus on applying the cost center approach, to enhance the efficiency of resources utilization and support the emerging leadership of the SCs at local levels.

R 4.4 SCs and HCWW should provide staff with advanced capacity building, e.g., advanced training on FIDIC standards and conflict resolution to staff at the contracts/procurement department at SCs.

“The capacity-building component left a great impact on all the employees of the company in terms of building their capabilities and developing their skills. Moreover, the training materials shared were so useful. However, what is missing at the moment is a training database that includes the names of trainees, courses and training materials. Assiut Water and Wastewater Company Stakeholder Interviewed.

EVALUATION QUESTION 5

WHAT ASPECTS OF THE INTERVENTION CONTRIBUTED TO SUSTAINABILITY?

Findings

USAID asked that SCs conduct a feasibility study to ensure the relevance and sustainability of foreseen investments. SCs conducted such studies based on their master plans, in order to prioritize selected projects, a practice that has become a sustainable new norm among them. SCs also conducted feasibility studies and environmental risk assessments, and Environmental Monitoring and Mitigation Plans (EMMP) at the start of the small-scale construction activities.

USAID selected the facility sites in clusters in order to have full control over the process, starting with the WTP/WW facilities all the way to service-delivery to end users.

Conclusions

- There were improvements in the technical proposals and implementation plans prepared by the SCs within the JCESD FARAs. Each new technical proposal had benefited from the lessons learned during previous ones which resulted in technical improvements along the way as a result of conducting the various required assessments.
- Conducting feasibility studies, environmental risk assessments, and EMMP at the start of the small-scale construction activities contributed to their sustained effect as these measures forced the SCs to provide in-depth analysis on potential risks that could hinder the implementation of those activities, hence ensured sustainability. For example, conducting field visits to the JCESD program locations showed differences in the quality of the connections from one location to another, with better materials used within the FARAs that were done towards the end of the program. During the initial group of FARAs the connections were built using polypropylene pipes, while the later FARAs used more durable steel ones.
- The selection of targeted WTPs and WW facilities is aligned with USAID development approach of providing a sustainable quality service, one that has been critical to ensuring a sustainable working result for end users.

Recommendations

R 5.1 SCs should ensure that all WTPs and WW collection systems including those that were not supported by the USAID conduct risk and environmental assessments before establishing the facilities.

R 5.2 SCs should ensure that all WTPs and WW collection systems including those that were not supported by the USAID apply and use the MASTER O&M software, especially in Sohag.

ANNEX I: STATEMENT OF WORK

ATTACHMENT 1 - STATEMENT OF WORK

Ex-Post Evaluation of the water and wastewater small-scale construction program, and the Job Creation through Essential Services Delivery in Upper Egypt under the Egypt Utilities Management (EUM) Assistance Agreement

I. Evaluation Rationale

A. Evaluation Purpose

The USAID/Egypt Mission is conducting an ex-post evaluation of its water and wastewater small-scale construction program, and the Job Creation through Essential Services Delivery in Upper Egypt under the Egypt Utilities Management (EUM) Assistance Agreement. The purpose of the evaluation is to examine the effectiveness of the interventions under EUM, and in particular the continued sustainability of the interventions three years after the activities ended, in order to identify approaches to ensure sustainability that can be institutionalized across all utility activities at USAID/Egypt in the future.

B. Audience and Intended Uses

The primary audience of the evaluation report will be USAID/Egypt, specifically the Office of Economic Growth (OEG). Secondary audiences include the Government of Egypt Holding Company for Water and Wastewater (HCWW) and its subsidiary water companies that directly implemented the program.

USAID/Egypt will review and share the executive summary, final report and recommendations with the HCWW, and the general public via the Development Experience Clearinghouse (DEC).

II. Summary Information

Activity Name	Water and wastewater small-scale construction program, and the Job Creation through Essential Services Delivery.
Implementer	Water and Wastewater Companies in Upper Egypt
Assistance Agreement #	263-02704
Total Estimated Ceiling of the Evaluated Activity	\$40,000,000 (see P.4 for details)
Life of Activity	January 2010 - March 2015
Active Geographic Regions	Assiut, Sohag, Luxor, Qena, Aswan, Minia, Beni Suef in Egypt
Development Objective(s) (DOs)	2.3 Strong economic growth based on sound policy expands opportunity and reduces poverty for all Egyptians
USAID Office	Office of Economic Growth (OEG), USAID/Egypt

III. Background

The original objective of the EUM Assistance Agreement in 1997 was to improve access to water and sanitation through addressing three program elements: safe water access, basic sanitation, and water and sanitation policy and governance. When the project first started, it funded four large infrastructure activities in Alexandria, Fayoum, Beni Suef and Minia. A total of \$315 million was originally planned for these activities. In 2006, a new component was added to the project to fund Small Scale Infrastructure and Sectoral Reform Activities. An agreement was reached with Ministry of International Cooperation (MIC) to allow residual funds of about \$6 million from the large infrastructure activities to be transferred to the Small-Scale Infrastructure and Sectoral Reform Activities component.

In 2007, as part of a major reprogramming exercise, \$75 million was allocated to water and wastewater activities. This additional funding support came after the substantial achievements of the GOE such as initiating the decentralization and corporatization of the water and wastewater sector in Egypt. Sector reform accomplishments include the establishment of the Holding Company for Water and Wastewater (HCWW) and its subsidiaries in each governorate and the Egyptian Water Regulatory Agency (EWRA). In addition, the GOE, at that time, had allocated large sums from its own budget for infrastructure activities in underserved areas of Egypt and requested USAID support in funding Program Management costs for its large water/wastewater capital investment program as part of the sectoral reform activities.

In the post-revolution period, the Embassy and USAID identified short-term job creation as one of the highest priorities for the use of foreign assistance funding to help Egyptians whether the rapidly worsening condition of the Egyptian economy. Tourism receipts, foreign direct investment, and therefore foreign exchange reserves have plummeted after the revolution.

Unemployment was growing rapidly and had reached 12.6% in 2012, its highest level in 10 years. It was determined at that time that the quickest way to create short-term jobs would be by using implementation mechanisms in the existing portfolio rather than new projects. In 2011, the Mission decided to increase funding to the Small Scale Infrastructure to stimulate short-term job creation in the water and wastewater sector as this was an implementation mechanism that could be expanded quickly, had a proven track record, used labor-intensive construction methods, and could provide immediate short-term employment in parts of the country that were badly hurt by the economic downturn.

Main activities:

The Water and Wastewater Small Scale Infrastructure and Sector Reform component has funded the following activities:

- o **The Water and Wastewater Sector Policy Reform (WWSPR 2) Program** (Direct Contract: \$9 million): This program provided technical assistance to both the EWRA and the

HCWW. The focuses of the program were to assist the Ministry to hire senior staff for EWRA, assist selected subsidiary companies to outsource functions to the private sector, provide assistance on the development of a HCWW financial plan, improve the commercial focus of subsidiary companies, assist in upgrading technical functions in the subsidiaries and provide Monitoring Information Systems (MIS) development assistance to both the HCWW and EWRA. The program ended September 30, 2008. (Not in the scope of this evaluation)

- o **Nine Fixed Amount Reimbursement Agreements (FARAs) (\$24 million):** These FARAs supported the construction of seven wastewater systems and two potable water treatment plants in rural areas in Minia, Beni Suef and Fayoum. The program ended September 30, 2009. (Not in the scope of this evaluation)
- o **The Water and Wastewater Sector Support (WWSS) Activity (Task Order under USAID IQC: \$20 million):** This program provided institutional strengthening and capacity building for HCWW and its subsidiaries and focused on increasing the financial and commercial viability of existing water and wastewater companies. The program also helped to establish new regional water and wastewater subsidiaries (Assiut, Sohag, and Sinai), and build the capacity of staff, increase managerial, technical and operational efficiency, improve the quality of services, and expand access to water and sanitation services. The program ended on September 15, 2013. (Evaluated previously in 2012, and not in the scope of this evaluation)
- o **The Water Policy and Regulatory Reform (WPRR) Activity (Task Order under USAID IQC: \$20 million):** This program provided institutional strengthening and capacity building to the MWWU (Ministry of Housing at that time) and EWRA, and focused on strengthening the policy, legal, and regulatory framework for water and wastewater. The project supported the development and implementation of key reforms and capacity building in these government institutions to provide policy direction and effective oversight to the sector. The program ended on September 15, 2013. (Evaluated previously in 2012, and not in the scope of this evaluation)
- o *** Twelve Fixed Amount Reimbursement Agreements (FARAs) in Assiut and Sohag Governorates (\$30 million) (IP. Assiut and Sohag Potable Water and Sanitation Companies):** These FARAs supported the construction of eight wastewater collection systems and four potable water treatment plants in rural areas in the Assiut and Sohag governorates. The program had two overall objectives: 1) providing new/improved reliable potable water and sanitation services to underserved areas in these two governorates, and 2) creating project implementation units in the Assiut and Sohag utilities that are capable of implementing and managing the companies' future new investments. The program was designed to collaborate with the WWSS program in its capital investment planning and program/project monitoring and management tasks.

The program ended on March 31, 2015. (Within the scope of this evaluation)

- *** Twenty one Fixed Amount Reimbursement Agreements (FARAs) under the Job Creation through Essential Services Delivery (JCESD) program (\$20 million)(IP: Potable Water and Sanitation Companies in respective governorates):** The JCESD program was intended to support the GOE's efforts to expand/improve potable water and sanitation services to underserved communities in the governorates of Beni Suef, Minia, Assiut, Sohag, Qena, Luxor, Aswan and North and South Sinai, while also creating job opportunities for daily workers who were seriously impacted by the post-revolution economy. It consisted of small-scale projects (from \$10,000 to \$175,000 per project) such as extending or replacing small potable water pipelines or installing house connections. The JCESD activity benefited from the existing Water and Wastewater Sector Support (WWSS) program, which provided assistance to the implementing institutions at every stage of project preparation (proposal, contracting, project supervision, etc.) and to monitor implementation. Also, the program created project implementation units in the different utilities that are capable of implementing and managing the companies' future investments. The program ended on September 30, 2014. (Within the scope of this evaluation)

Lists basic project information, including the public narratives that appear on the mission website and project fact sheets.

Gov.		Activity	Implementer	Start Date	End Date	Mech.	Amount in US\$
Assiut	1	Baheeg Water Treatment Plant	Assiut Potable Water & Sanitation Company	1/27/2010	9/30/2013	FARA	2,100,988
Assiut	2	Beni Semee Wastewater Collection System	Assiut Potable Water & Sanitation Company	1/27/2010	12/31/2014	FARA	2,301,607
Assiut	3	El Akadma Wastewater Collection System	Assiut Potable Water & Sanitation Company	1/27/2010	3/31/2015	FARA	3,626,650
Assiut	4	El Zeira Wastewater Collection System	Assiut Potable Water & Sanitation Company	1/27/2010	6/30/2013	FARA	2,989,676
Assiut	5	Beni Edris Wastewater Collection System	Assiut Potable Water & Sanitation Company	1/27/2010	6/30/2013	FARA	1,958,122
Assiut	6	Meer Water Treatment Plant	Assiut Potable Water & Sanitation Company	1/27/2010	3/31/2013	FARA	904,951
Assiut	7	Assiut Potable Water Pipelines Improvements and House connections, Phase II	Assiut Potable Water & Sanitation Company	11/20/2013	9/30/2014	FARA	773,752
Assiut	8	Assiut Potable Water Pipelines Improvement and House Connections	Assiut Potable Water & Sanitation Company	10/27/2011	12/31/2012	FARA	1,480,396
Assiut	9	Assiut Potable Water Pipelines Improvements and House connections, Phase II	Assiut Potable Water & Sanitation Company	11/21/2012	7/31/2013	FARA	833,702
		Sub-Total					16,969,844
Sohag	1	Sohag Potable Water Pipelines Improvement and House Connections	Sohag Potable Water & Sanitation Company	6/5/2011	12/31/2012	FARA	1,248,490

Gov.		Activity	Implementer	Start Date	End Date	Mech.	Amount in US\$
Sohag	2	Sohag Waste water Collection System Expansion and House Connections	Sohag Potable Water & Sanitation Company	6/15/2012	3/31/2013	FARA	499,983
Sohag	3	Sohag Waste water Collection System Expansion and House Connections	Sohag Potable Water & Sanitation Company	11/20/2013	9/30/2014	FARA	915,005
Sohag	4	Banga Wastewater Collection System	Sohag Potable Water & Sanitation Company	1/27/2010	6/30/2013	FARA	4,861,620
Sohag	5	Banho Wastewater Collection System	Sohag Potable Water & Sanitation Company	1/27/2010	6/30/2013	FARA	3,216,469
Sohag	6	Beni Ammar Wastewater Collection System	Sohag Potable Water & Sanitation Company	1/27/2010	3/31/2013	FARA	3,160,263
Sohag	7	Hamooda Wastewater Collection System	Sohag Potable Water & Sanitation Company	1/27/2010	12/31/2012	FARA	1,363,084
Sohag	8	Shandaweel Water Treatment Plant	Sohag Potable Water & Sanitation Company	1/27/2010	9/30/2012	FARA	1,254,845
Sohag	9	Naguaa El Araya Water Treatment Plant	Sohag Potable Water & Sanitation Company	1/27/2010	9/30/2012	FARA	900,396
Sub-Total							17,420,154
Luxor	10	Luxor Potable Water Pipelines Improvements and House connections, Phase II	Luxor Potable Water & Sanitation Company	3/20/2014	9/30/2014	FARA	678,053
Luxor	11	Luxor Potable Water Pipelines Improvement and House Connections	Luxor Potable Water & Sanitation Company	2/5/2012	9/30/2012	FARA	736,701
Luxor	12	Luxor Potable Water Pipelines Improvements and House connections, Phase II	Luxor Potable Water & Sanitation Company	4/8/2013	12/31/2013	FARA	668,831
Sub-Total							2,083,585
Qena	13	Qena Potable Water Pipelines Improvements and House connections, Phase II	Qena Potable Water & Sanitation Company	3/20/2014	9/30/2014	FARA	822,137
Qena	14	Qena Potable Water Pipelines Improvements and House connections, Phase II	Qena Potable Water & Sanitation Company	3/14/2013	12/31/2013	FARA	803,106
Qena	15	Qena Potable Water Pipelines improvement and House Connections	Qena Potable Water & Sanitation Company	10/27/2011	12/31/2012	FARA	1,211,706
Sub-Total							2,836,950
Total							39,310,533

IV. Development Hypothesis

Although potable water availability is almost at 97 percent in Egypt, the quality of water still represents a major challenge facing the sector, especially in rural areas. Many locations in rural areas depend on groundwater (well water) as the primary source for water. Testing of water samples collected from these wells revealed that the water is not in compliance with Egypt's standards for potable water quality, with especially high levels of Nitrates, Iron, and Manganese. As a result, the water has excessive turbidity and "hardness". USAID supported the improvement of the potable water quality in several areas. The support depended on whether the serviced area is close to surface water. If so, surface water was transferred to an adequate treatment process (slow sand filtration) that was provided. If not, construction of Iron and Manganese removal units (oxidation and filtration) at the existing water well locations was provided. Additionally, USAID supported the installation of transmission water pipelines and new household connections in underserved areas and replaced deteriorated old pipelines that are considered a major source of contamination as infiltration of contaminants decreases the quality of the water.

Rural sanitation management still represents the largest barrier to improving water quality (especially Nitrates) due to the high pollution contribution of untreated wastewater that flows into the Nile River and the groundwater. Massive resources are needed to tackle this major problem. Conventionally, sanitation is measured by the possibility of transferring wastewater from houses to wastewater treatment systems that are built outside human settlement boundaries. Rural residential houses are currently on some type of indoor wastewater system.

Approximately 25 percent of these buildings are connected to sewer lines; the other 75 percent have some type of underground indoor storage such as a septic tank or house vault. Population growth has also led to an expansion of these settlements over the waterways, which has resulted in an increase in illegal raw wastewater dumping into waterways. The water table is rising as a consequence of perennial irrigation and increased provision of drinking water. Visible manifestations of unsanitary conditions include heavily polluted waterways; street dampness and occasional wastewater ponding are the norm in rural areas. USAID supported the construction of wastewater collection systems in eight villages in Assiut and Sohag governorates. The systems included household chambers that collect wastewater from villagers' houses to manholes and through pipelines to a pump station that pumps the whole village wastewater discharge to an existing wastewater treatment plant.

Critical Assumptions

- The bilateral relationship between the GOE and the USG remains positive and fully collaborative;
- The HCWW and its subsidiary water companies maintain their employees and current operations as part of their sustainability plan; and
- Funding/resources are available to implement planned activities.

V. Relevant Documentation

The COR, through USAID/Egypt's Economic Growth Office, will provide relevant activity documents within 10 days of award of the contract. These documents include:

1. Original fixed amount reimbursement agreement and amendments
2. Purchase Order for monitoring and engineering support services.
3. Feasibility study reports, weekly progress reports, monthly reports
4. Final WWSS Report (2013) September 2013
5. Activity M&E Plan (PO: AID-263-O-14-00001)
6. WWSS /WWPR Evaluation Report (2012)
7. Supporting documentation to show the link between the previous technical assistance and capacity building activities and how the water companies have incorporated what was provided (trainings and technical assistance) into their current operations.
8. Available performance monitoring data such as laboratory test results for water before and after the newly established treatment process. Secondary data from **Central Agency for Public Mobilization and Statistics (CAPMAS)** and the water companies will be available to the evaluation team.

In addition to the above list, the evaluation document review shall consider other secondary literature determined relevant by the evaluation team.

VI. Evaluation Questions

The evaluation will answer the following questions focusing on results, performance of facilities and sustainability of service:

Questions	Suggested Data Sources (*)	Suggested Data Collection Methods	Data Analysis Methods
1. Why were the program interventions considered a critical need (as defined by stakeholders? How were program interventions selected?)	- Progress Reports - Staff from Holding Company for Water and Wastewater - Staff from Water and Wastewater companies in target areas. - Officials from governorates and municipalities.	- Desk Review - Key informant interviews. - Survey	

Questions	Suggested Data Sources (*)	Suggested Data Collection Methods	Data Analysis Methods
2. How effective were the delivered interventions at achieving the planned outcomes as stated in the program design, when comparing the status at the end of the activity versus today?	- Activity progress reports. - Staff from Holding Company for Water and Wastewater - Staff from Water and Wastewater companies in target areas. - Laboratories test results (before/after)	- Desk review - Laboratories test results (3+ years after activity close- out) - Key informant interviews. - Secondary data available	- Comparing between expected number of beneficiaries and actual number of people receiving improved services. - Ensure water test results meet standards.
3. Sustainability: To what extent are the facilities continuing to be maintained by qualified staff following standard operating procedures and maintenance plans established during the life of the activity.	- Activity progress reports - Staff from Holding Company for Water and Wastewater - Staff from Water and Wastewater companies in target areas. - Staff on sites and examine any documentation related to operation and maintenance. - Actual visits to facilities	- Desk Review - Key informant interviews. - Survey - Direct observation checklists	- Ensure existence of Operation logs, standard operating procedures (SOPs) and maintenance schedules.
4. To what extent are Water Companies currently exhibiting best practices in project management as a result of engaging with the interventions?	- Activity progress reports - USAID Staff - Staff from Holding Company for Water and Wastewater - Staff from Water and Wastewater companies in target areas.	- Desk Review - Key informant interviews - Survey	- Examine proposals and reports.

Questions	Suggested Data Sources (*)	Suggested Data Collection Methods	Data Analysis Methods
5. What aspects of the intervention contributed to sustainability?	- Activity progress reports - USAID Staff - Staff from Holding Company for Water and Wastewater - Staff from Water and Wastewater companies in target areas.		

VII. Evaluation Design and Methodology

Evaluators will use a mix of quantitative and qualitative data collection and analysis methods to answer the questions of interest in this evaluation. All person-level data should be disaggregated by sex.

Data Collection Methods:

The evaluation team must develop data collection tools that are consistent with the evaluation questions to ensure high-quality analysis. The evaluation team is required to share data collection tools with the USAID Evaluation Program Manager for review, feedback and/or discussion 5 business days prior to scheduled meetings. The evaluation team may also review additional resources to the extent necessary to perform its work. The local evaluation team members must also complete the document review prior to the team planning meeting.

Data collection methods may include a combination of the following:

- Desk review of relevant documentation: USAID/Egypt will provide the Evaluation Team with soft or hard copies of the activity related documents immediately upon award, if not previously provided.
- Key informants' interviews.
- Group discussions with beneficiaries and other counterparts and stakeholders.

Interviews and Site Visits:

Fieldwork will take place in Assiut, Sohag, and Luxor. Key Informants and Group Interviews will include, but may not be limited to:

- USAID/Egypt Office of Economic Growth Activity Manager.

- Chemonics Egypt staff who provided technical assistance to water companies and monitoring services to USAID.
- Staff from Holding Company for water and wastewater in Cairo.
- Staff from water and wastewater Companies in Assiut, Sohag, and Luxor.
- Staff from municipalities and maybe Governors.
- Beneficiaries: local citizens and water companies' staff.

The evaluation team must provide a more detailed explanation of the proposed methodology for collecting data. A list of interviewees and key stakeholders will be provided by USAID immediately upon award, if not previously provided.

Data Analysis Plan

Prior to the start date of data collection, the evaluation team must develop and present for USAID/Egypt review and approval a data analysis plan that details how focus groups and key informants' interviews will be transcribed and analyzed; what procedures will be used to analyze qualitative and quantitative data from key informant and other stakeholder interviews; and how the evaluation will weigh and integrate qualitative data from these sources with quantitative data from performance indicators and the activity performance monitoring records to reach conclusions about the effectiveness and efficiency of activities. Additionally, the data analyses plan should describe how the evaluation team will conduct analyses of available secondary data, for example, beneficiaries' data based on CAPMAS lab tests results and other secondary data tracked by the HCWW and its subsidiaries.

Data Limitation

USAID expects that all issues affecting validity be discussed and documented during the evaluation planning meeting. Measures to mitigate these issues will be addressed with all team members and USAID in the implementation phase and detailed in the final report. The evaluation team should consider limitations associated with an ex-post evaluation design. The evaluation team will confront issues of attrition of staff and recall bias, which needs to be considered in interpreting any findings that result from this evaluation.

VIII. Evaluation Products

A. Deliverables

- o USAID Team Planning Meeting: A team planning meeting must be held in USAID/Egypt at the outset of the evaluation. This meeting will allow USAID/Egypt to discuss the purpose, expectations, and agenda of the assignment with the Evaluation Team. In addition, the team will:
 - Finalize team members' roles and responsibilities;
 - Review and make recommendations for improving the precision of evaluation questions;

- Review and finalize the assignment timeline;
 - Present and discuss data collection methods, instruments, tools and guidelines; and
 - Review and clarify any logistical and administrative procedures for the assignment.
- O Work Plan: A well-written, detailed methodology and data analysis plan (evaluation design, data analysis steps and detail, operational work plan) must be prepared by the team and discussed with USAID during the planning meeting. An interview schedule will be submitted as part of the work plan. USAID will provide the evaluation team with an initial list of interviewees, from which the evaluation team can work to create a more comprehensive list. The evaluation team will construct an interview schedule that includes different stakeholders, and then share with USAID the updated lists of interviewees and schedule as meetings/interviews take place and informants are added to/deleted from the schedule. A final list must be sent to USAID within three working days after the USAID Team Planning Meeting. The evaluation team should submit the Work Plan and evaluation methodology to the Evaluation Manager for approval.
- O Evaluation Design: The evaluation team must submit to the Evaluation Manager an evaluation design (which will become an annex to the Evaluation report). The evaluation design will include: (1) a detailed evaluation design matrix that links the Evaluation Questions in the SOW to data sources, methods, and the data analysis plan; (2) draft questionnaires and other data collection instruments or their main features; (3) the list of potential interviewees and sites to be visited and proposed selection criteria and/or sampling plan (must include calculations and a justification of sample size, plans as to how the sampling frame will be developed, and the sampling methodology); (4) known limitations to the evaluation design; and (5) a dissemination plan. Data collection instruments will be shared with USAID's Evaluation Program Manager for review, feedback and/or discussion and approval 5 business days prior to the start of fieldwork.
- O Mid Term Briefing: The evaluation team is expected to hold a mid-term briefing to discuss the status of data collection and preliminary findings. This presentation will be scheduled as agreed upon during the Team Planning Meeting. This briefing is mainly for the EG Office and is to present preliminary findings, conclusions, and emerging recommendations.
- O Fieldwork de-brief to the subsidiary companies: The evaluation team is expected to hold a debriefing to discuss the preliminary findings as a result of data collection with the heads of the subsidiary companies. This presentation will be scheduled as agreed upon during the Team Planning Meeting.
- O Final Briefing presentation: The evaluation team must present their final findings to USAID/Egypt and HCWW within 15 business days after conducting the field visits. The Mission debriefing must include a discussion of achievements and issues as well as recommendations for the future activities designs and implementation. The team must

consider any USAID/Egypt and HCWW comments and revise the draft report as appropriate.

- **Draft Report:** The draft evaluation report should be consistent with the guidance provided in Section IX: Final Report Format. The report will address each of the questions identified in the SOW and any other issues or additional questions added to the evaluation that the team considers to have a bearing on the objectives of the evaluation. Any such issues can be included in the report only after consultation with USAID. The team leader will submit a draft report of findings as per the attached timeline, Conclusions and recommendations to QED/SIMPLE for review and comment. QED will submit the draft evaluation report to the USAID Evaluation Manager within 15 business days of the team leader's departure. The written report must clearly describe findings, conclusions and recommendations for future programming. The submission date for the draft evaluation report will be determined in the evaluation work plan. Once the initial draft evaluation report is submitted, it must undergo a peer review and the Mission will have 10 business days in which to review and comment on the initial draft, after which point the Evaluation Manager will submit the consolidated comments to the evaluation team.
- **Final Report and Data Sets:** The final report must be submitted within 7-10 business days from receiving USAID's comments. The final report must not exceed 30 pages in length (not including appendices, lists of contacts, etc.). The format must include an executive summary, table of contents, glossary, methodology, findings, and conclusions. The report must be submitted initially in English, electronically, within ten business days and later, an Arabic translation of the Executive Summary must be submitted. All project data and records will be submitted in full and should be in electronic form in easily readable format, organized and documented for use by those not fully familiar with the intervention or evaluation, and owned by USAID. At the time of submission, the final English language report, interviews and data sets must be submitted on a flash drive to the evaluation program manager. Printed and electronic copies of USAID approved evaluation products will be delivered to USAID within 10 business days of written approval of 1) the final evaluation report, 2) the final executive summary (English and Arabic), 3) anonymized datasets and supporting technical documentation (English only).
- o USAID/Egypt intends to disseminate the report within USAID and to stakeholders. All quantitative data collected by the evaluation team must be provided in machine-readable, non-proprietary formats as required by USAID's Open Data policy (see ADS 579). The anonymized data should be organized and documented for use by those not sufficiently familiar with the activity or the evaluation. USAID will retain ownership of all datasets developed.

IX. Evaluation Report Requirements

I. FINAL REPORT FORMAT

The evaluation final report should include; executive summary; background of the local context and the strategies/projects/activities being evaluated; the evaluation purpose and main evaluation questions; the methodology or methodologies; the limitations to the evaluation; findings, conclusions, and recommendations. For more detail, see “How-To Note: Preparing Evaluation Reports” and ADS 201mah, USAID Evaluation Report Requirements. An optional evaluation report template is available in the Evaluation Toolkit.

The executive summary should be no more than 5 pages in length and summarize the purpose, background of the project being evaluated, main evaluation questions, methods, findings, conclusions, and recommendations and lessons learned (if applicable). The executive summary should also be translated into Arabic.

The evaluation methodology shall be explained in the report in detail. Limitations to the evaluation shall be disclosed in the report, with particular attention to the limitations associated with the evaluation methodology (e.g., selection bias, recall bias, unobservable differences between comparator groups, etc.)

The annexes to the report shall include:

- The Evaluation SOW;
- All data collection and analysis tools used in conducting the evaluation, such as questionnaires, checklists, and discussion guides;
- All sources of information, properly identified and listed, including secondary literature review; and
- Signed disclosure of conflict of interest forms for all evaluation team members, either attesting to a lack of conflicts of interest or describing existing conflicts.
- Any “statements of difference” regarding significant unresolved differences of opinion by funders, implementers, and/or members of the evaluation team.
- Summary information about evaluation team members, including qualifications, experience, and role on the team.

In accordance with ADS 201, the contractor will make the final evaluation reports publicly available through the Development Experience Clearinghouse within three months of USAID formal written approval of the final report (English and a translated version in Arabic, executive summary (English and Arabic).

CRITERIA TO ENSURE THE QUALITY OF THE EVALUATION REPORT

Per [ADS 201maa](#), Criteria to Ensure the Quality of the Evaluation Report, draft and final evaluation reports will be evaluated against the following criteria to ensure the quality of the evaluation report.¹

- Evaluation reports should represent a thoughtful, well-researched, and well-organized effort to objectively evaluate the strategy, project, or activity.
- Evaluation reports should be readily understood and should identify key points clearly, distinctly, and succinctly.
- The Executive Summary of an evaluation report should present a concise and accurate statement of the most critical elements of the report.
- Evaluation reports should adequately address all evaluation questions included in the SOW, or the evaluation questions subsequently revised and documented in consultation and agreement with USAID.
- Evaluation methodology should be explained in detail and sources of information properly identified.
- Limitations to the evaluation should be adequately disclosed in the report, with particular attention to the limitations associated with the evaluation methodology (selection bias, recall bias, unobservable differences between comparator groups, etc.).
- Evaluation findings should be presented as analyzed facts, evidence, and data and not based on anecdotes, hearsay, or simply the compilation of people's opinions.
- Findings and conclusions should be specific, concise, and supported by strong quantitative or qualitative evidence.
- If evaluation findings assess person-level outcomes or impact, they should also be separately assessed for both males and females.

If recommendations are included, they should be supported by a specific set of findings and should be action-oriented, practical, and specific.

The final evaluation report must be submitted to USAID/Egypt's Evaluation Program Manager in electronic format (Microsoft Word) as well as printed and bound copies (five copies in English and five in Arabic). The Arabic translation of the executive summary must be submitted to USAID within 7 working days after USAID formal written approval of the evaluation report. The entire report must be no longer than 30 pages, single-spaced in Gill Sans MT font, size 12 type font. The evaluation report is not to exceed the 30 page. All data and materials are to be surrendered to and will remain the property of USAID.

¹ See **ADS 201mah, USAID Evaluation Report Requirements** and the Evaluation Report Review Checklist from the Evaluation Toolkit for additional guidance.

X. Evaluation Management

A. Logistics

USAID will provide overall direction to the evaluation team, identify key documents, and assist in facilitating a work plan. USAID will assist in arranging meetings with key stakeholders identified by USAID prior to the initiation of field-work. The evaluation team is responsible for arranging other meetings as identified during the course of this evaluation and advising USAID/Egypt prior to each of those meetings.

The evaluation team is also responsible for arranging transportation as needed for site visits in and around Cairo and other governorates. USAID can assist with hotel arrangements if necessary, but the evaluation team will be responsible for arranging its own work/office space, computers, internet access, printing, and photocopying. The evaluation team is also responsible for procuring and paying for translation services for interviews, reports and any other evaluation-related task. Evaluation team members will be required to make their own lodging and travel payments. USAID personnel will be made available to the team for consultations regarding sources and technical issues, before and during the evaluation process.

B. Scheduling

Work is to be carried out over a period of approximately 16 weeks. Each week will be a 6 working day week.

1. Desk Review
2. Preparation for data collection tools
3. Team planning meeting with USAID including submission of the draft schedule of data collection interviews, draft methodology, and data analyses plan
4. Submission of final methodology, final schedule of data collection interviews and data analysis plan
5. Conduct data gathering
6. Conduct compilation and analysis
7. Oral Debriefing session with USAID
8. Draft Report and Executive Summary in English
9. USAID will provide written comments to the evaluation team as the per the draft report peer review outcome. USAID reviews within 10 business days from draft report submission
10. Final Report in English
11. Arabic, Executive Summary

C. Team Composition:

The team shall include the following personnel and all efforts should be made for the team to be composed of a balanced number of male and female members.

Evaluation Team Leader (Key Personnel):

The team leader should be a local water and wastewater utility expert with extensive experience in leading evaluation teams and conducting monitoring and evaluation for utilities' performance. The team leader should have 10 years of experience in designing monitoring and evaluation systems, leading data collection teams, analyzing data and summarizing findings. Maintain strong written and verbal communication skills in both English and Arabic.

Team members:

1) Senior Utility/Water Expert (Key Personnel): The Evaluation Team shall include a local utility/water expert. It is strongly recommended that the following characteristics be reflected in the utility/water Expert: fluency in English and Arabic language; 8-10 years of past experience in monitoring and evaluation of similar development projects; extensive field experience in Egypt or the MENA region; strong written and verbal communication skills.

2) Senior Monitoring and Evaluation Expert (Key Personnel): The Evaluation Team shall include a local senior monitoring and evaluation expert. The following characteristics must be reflected in the monitoring and evaluation expert in order to maximize use of time and effectiveness of the evaluation; 5-7 years past experience in monitoring and evaluation of water/utility development projects with sufficient experience and proven track record in conducting-post evaluations, the expert must have strong analytical skills to be able to analyze quantitative secondary data and extensive field experience in Egypt; and strong written and verbal communication skills in English and Arabic.

3) The Local Logistics Coordinator: A local consultant will serve as local logistics coordinator. The person should be fluent in written and spoken English and Arabic. He/she will provide logistical, administrative, and clerical support to the team. He/she will have at least four years of experience in an administrative support role.

XI. Estimated LOE

Task/Deliverable	Team Leader	Utility/Water Expert	M&E Local Expert	Logistical Support Coordinator
Review background documents, draft work plan, methodology and data collection tools	15 days	15 days	15 days	0
Team Planning meeting and meeting with USAID/Egypt	7 days	7 days	7 days	0
Data collection. Includes interviews with key stakeholders (stakeholders and USAID staff) and site visits	10 days	10 days	10 days	15 days
Discussion, analysis, and draft evaluation report in country	15 days	15 days	15 days	0
Exit briefing with the EG Team and Debrief meeting with USAID and key stakeholders (preliminary report due to USAID); and presentation to Mission	5 days	5 days	5 days	0
USAID/Egypt provides consolidated comments on draft report	0 days	0	0	0
Team revises draft report and submits final to USAID	5 days	5 days	5 days	0
Translation of Executive Summary	3 days	3 days	3 days	

Task/Deliverable	Team Leader	Utility/Water Expert	M&E Local Expert	Logistical Support Coordinator
Submission of final report to the USAID DEC	1 day	1 day	1 day	
Total estimated LOE	61 days	61 days	61 days	15 days

Annex 1

Results to Date:

The program to be evaluated was initiated in January 2010, and the latest activity in this program was completed in March 2015. The program faced several challenges during implementation due to the unrest conditions and economic crises in Egypt that followed the January 2011 uprising. All the activities were completed and commissioned. In Sohag and Assiut, 12 facilities were completed, which included four water treatment plants (one surface water plant, and three ground water plants). These facilities improved the water quality for almost 140,000 people living in the service area of the plants. Additionally, eight wastewater collection systems that included household connections, collection pipelines and manholes, pump station and a force main pipeline were completed providing adequate wastewater service to more than 90,000 people living in the service areas that received wastewater service for the first time. The activities included the installation of more than 6,000 new household connections.

Under the job creation through essential services delivery component, 21 activities were completed between May 2011 and September 2014 in the governorates of Beni Suef, Minia, Assiut, Sohag, Qena, Luxor, Aswan, and North and South Sinai. More than 850 km of pipelines were installed. Additionally, more than 25,000 new household connections were installed, and 20,000 existing household connections were transferred to new pipelines. The total number of beneficiaries is almost 1.8 million, and 460,000 labor/days were created during the implementation of these interventions.

ANNEX II: EVALUATION METHODS AND LIMITATIONS

The design of the ex-post evaluation was carried out from May 4 to June 16, 2019. It was implemented as a descriptive study using a mixed methods data collection approach to address each evaluation question. The evaluation team identified distinct categories of stakeholders and direct beneficiaries for which individual data collection tools were developed. A purposive sampling approach was adopted for selecting individuals from these groups to be interviewed. The list of the stakeholders identified as part of the evaluation scope is listed in Table I.

Table I: Stakeholder Categories

Site	Stakeholders Category
Cairo	HCWW chairman and other relevant staff - USAID staff - Chemonics Egypt relevant staff
Assiut & Sohag	Leadership and staff of subsidiary water and wastewater companies and Staff of eight wastewater facilities and four potable water treatment plants
Luxor & Qena	Leadership and staff of subsidiary water and wastewater companies

Following desk review, the field work took place from June 18 to August 5, 2019, for evaluating the two programs' activities:

SMALL-SCALE CONSTRUCTION PROGRAM

The evaluation covered twelve facilities targeted by the Water and Wastewater Small-Scale Construction Program including four Water Treatment Plants (WTPs) and eight Wastewater Collection (WWC) systems, as identified in the scope of work for conducting site visits as follows:

A) In Assiut:

- Four wastewater collection systems (Beni Semee, El Akadma, El Zeira and Beni Edris) and
- Two potable water treatment plants (Baheeg and Meer).

B) In Sohag:

- Four wastewater collection systems (Banga, Banho, Beni Ammar and Hamooda) and
- Two potable water treatment plants (Shandaweel and Nagaa El Araya).

During site visits, a purposive sampling methodology was applied for Key Informant Interviews (KIIs) and Group Discussions (GDs) among key stakeholders. The evaluation team developed a checklist to assess the sustainability of investments including physical equipment and applied processes and practices in targeted facilities. In all WTPs in Assiut and Sohag the water quality was tested including the physical, chemical and biological parameters, specifically, measuring; pH, turbidity, chlorides, Total Dissolved Solids (TDS), hardness, residual chlorine and total coliform, and algae count.

JOB CREATION THROUGH ESSENTIAL SERVICES DELIVERY PROGRAM

The evaluation team also visited 10 villages with water and wastewater connections related to the Job Creation Through Essential Services Delivery (JCESD) program as clarified in Table 2 below. Household connections were sampled based on convenience due to proximity of locations.

Table 2: Water and Wastewater Connections Visited

#	DATE (DD/MM/YYYY)	GOVERNORATE	VILLAGE/SATELLITE	CONNECTIONS
1	10/07/2019	Assiut	Bany Zaid el Akrad – El Fath	Water Connections
2	11/07/2019	Assiut	Ezbat el sheikh Ahmed sleem Maghraby- Dayrout	Water Connections
3	11/07/2019	Assiut	Ezbat el Manhy -Massarah-Dayrout	Water Connections
4	11/07/2019	Assiut	Ezbat Shenoda	Water Connections. ¹⁰
5	15/07/2019	Sohag	El Sheikh Makram	Wastewater Connections
6	15/07/2019	Sohag	Nagea El Ashraf / Fadel Akhmem	Wastewater Connections
7	16/07/2019	Sohag	Gezeerat al Hareef – Sakolta	Water Connections
8	21/07/2019	Luxor	Abu El Goud Village	Water Connections
9	24/07/2019	Qena	Dandara Village	Water Connections
10	24/07/2019	Qena	El Kahragla village	Water Connections

DATA COLLECTION

June 18 –Aug. 5, 2019

The team developed nine data collection tools but due to restrictions on direct communication with beneficiary households, a household survey was cancelled and only eight data collection tools were implemented, including checklists for the physical examination of plant facilities and processes.

Two teams of two-persons each collected the primary data. Team one included the team leader and M&E specialist and primarily interviewed stakeholders at the Subsidiary Companies (SCs). Team two included a subject matter expert, who conducted all physical examinations and examined the lab results of water quality available on-site in potable water treatment plants, supported by a note taker to digitize the group discussions and interviews conducted at the plant facilities.

The evaluation team consulted a total of 161 individuals during fieldwork and site visits to SCs and facilities in Assiut and Sohag, and household connections in Luxor, Qena, Assiut and Sohag governorates in addition to the HCWW, USAID and Chemonics Egypt in Cairo. The full list of consulted stakeholders and applied data collection tools are mapped in table 3 below.

¹⁰ Planned visit to Ezbat Shenoda has not been completed due to unexpected blockage of the road leading to this site.

Table 3: Number of Stakeholders Consulted and Developed Data Collection Tools

#	GOVERNORATE	ENTITY	No. of INDIVIDUALS CONSULTED	TOOLS
1	Cairo	USAID	3	Tool #1: KII with USAID
1	Cairo	Chemonics Egypt	3	Tool # 9: KII with Chemonics Egypt
1	Cairo	HCWW	5	Tool # 2: KII with Chairman of Holding Company for Water and Wastewater (HCWW)
Sub Total Cairo			11	
2	Assiut	SC Chairman	1	Tool # 3: KII with Chairman of Water and Wastewater Subsidiary Companies (SCs)
2	Assiut	Subsidiary Company Sectors	24	Tool # 5: KII with Subsidiary Water and Wastewater Companies Staff involved in Small-Scale Construction and JCESD Activities Implementation
2	Assiut	Operation and Maintenance (O&M) - Water Treatment Plants (WTPs) / Pump Stations and Wastewater Networks at Subsidiary Companies	1	Tool # 4a: KII with the Head of Water Sector at Assiut Water and Sohag Wastewater Company
2	Assiut	Operation and Maintenance (O&M) - Water Treatment Plants (WTPs) / Pump Stations and Wastewater Networks at Subsidiary Companies	1	Tool # 4b: KII with the Head of Wastewater Sector (Pump Station)
2	Assiut	Operation and Maintenance (O&M) - Water Treatment Plants (WTPs) / Pump Stations and Wastewater Networks at Subsidiary Companies	1	Tool # 4c: KII with the Head of Wastewater Sector (Network)
2	Assiut	WTPs / Pump Stations / Wastewater Networks (On Site)	8	Tool # 6a: GD with Operation and Maintenance Staff Involved in Activity Interventions
2	Assiut	WTPs / Pump Stations / Wastewater Networks (On Site)	6	Tool # 6b: GD with Operation and Maintenance and Lab Staff Involved in Activity Interventions Related to Water Treatment Plants
2	Assiut	WTPs / Pump Stations / Wastewater Networks (On Site)	6	Tool # 6c: GD with Operation and Maintenance Staff Involved in Activity Interventions Related to Pump Stations
2	Assiut	WTPs / Pump Stations / Wastewater Networks (On Site)	8	Tool # 7: Checklists To be Applied on Site in Assiut Governorates
Sub Total Assiut			56	
3	Sohag	SC Chairman / SC Consultant	2	Tool # 3: KII with Chairman of Water and Wastewater Company

#	GOVERNORATE	ENTITY	No. of INDIVIDUALS CONSULTED	TOOLS
3	Sohag	Subsidiary Company Sectors	16	Tool # 5: KII with Subsidiary Water and Wastewater Companies Staff involved in Small-Scale Construction and JCESD activities Implementation
3	Sohag	Operation and Maintenance (O&M) -Water Treatment Plants (WTPs) / Pump Stations and Wastewater Networks at Subsidiary Companies	2	Tool # 4a: KII with the Head of Water Sector
3	Sohag	Operation and Maintenance (O&M) -Water Treatment Plants (WTPs) / Pump Stations and Wastewater Networks at Subsidiary Companies	2	Tool # 4b: KII with the Head of Wastewater Sector (Pump Station)
3	Sohag	Operation and Maintenance (O&M) -Water Treatment Plants (WTPs) / Pump Stations and Wastewater Networks at Subsidiary Companies	2	Tool # 4c: KII with the Head of Wastewater Sector (Network)
3	Sohag	WTPs / Pump Stations / Wastewater Networks (On Site)	9	Tool # 6a: GD with Operation and Maintenance Staff Involved in Activity Interventions Related to Wastewater Collection Systems
3	Sohag	WTPs / Pump Stations / Wastewater Networks (On Site)	6	Tool # 6b: GD with Operation and Maintenance and Lab Staff Involved in Activity Interventions Related to Water Treatment Plants
3	Sohag	WTPs / Pump Stations / Wastewater Networks (On Site)	9	Tool # 6c: GD with Operation and Maintenance Staff Involved in Activity Interventions Related to Pump Stations
3	Sohag	WTPs / Pump Stations / Wastewater Networks (On Site)	8	Tool # 7: Checklists To be Applied on Site in Sohag Governorate
Sub Total Sohag			56	
4	Qena	SC Chairman / SC Consultant	1	Tool # 3: KII with the Chairman of Water and Wastewater Company
4	Qena	Subsidiary Company Sectors	13	Tool # 5: KII with Subsidiary Water and Wastewater Companies Staff involved in Small-Scale Construction and JCESD activities Implementation
Sub Total Qena			14	
5	Luxor	SC Chairman / SC Consultant	1	Tool # 3: KII with Chairman of Water and Wastewater Company
5	Luxor	Subsidiary Company Sectors	23	Tool # 5: KII with Subsidiary Water and Wastewater Companies Staff involved in FARAs and JCESD activities Implementation
Sub Total Luxor			24	

#	GOVERNORATE	ENTITY	No. of INDIVIDUALS CONSULTED	TOOLS
TOTAL NUMBER OF INDIVIDUALS CONSULTED			161	

DATA ANALYSIS

The evaluation team used content analysis across all of qualitative data to track recurring themes supplemented by outlier themes. Such analysis of KIs and GDs provided insights into the interpretation of secondary quantitative data as well as of primary data gathered by the evaluation team through the use of facility checklists. Content analysis provided contextualization for the quantitative-based findings and informed actionable recommendations and best practice in support of future project designs. Quantitative data analysis included checklist analysis to support the observed findings in addition to the secondary data collected directly from the SCs' systems on customer satisfaction. Both quantitative and qualitative findings were triangulated and integrated to cross-validate results, draw conclusions, and develop short- and long-term recommendations. This use of mixed methods enabled triangulation via several means to examine the same subject from different vantage points, thereby strengthening the validity, reliability, and integrity of the observed findings.

QUALITY ASSURANCE

All interview protocols and questionnaires were developed in both English and Arabic and piloted before being used in the field. Raw data was digitized and shared regularly during data collection to enable ongoing review and analysis. Data analysis workshops were convened at the end of each governorate field visit and after the end of the field work to validate findings across the team and identify gaps. Upon the completion of all data collection, the evaluation team conducted an 11-day data analysis workshop to analyze findings, draw conclusions, and develop recommendations in preparation for debriefing and report writing.

Additionally, a SIMPLE quality-assurance specialist joined the first visit of each site. To ensure KIs and GDs were accurately captured, they were conducted by two persons, a note taker and an evaluator/team leader. Senior SIMPLE and QED headquarters staff conducted additional quality assurance reviews. At the end of each field visit, the evaluation team conducted a debriefing with the chairman of each SC to discuss what was accomplished during the visit as a courtesy. The team also conducted a midpoint fieldwork oral debriefing with USAID. Finally, at the end of the fieldwork, the evaluation team held an end-of-fieldwork oral debriefing/validation workshop with the HCWW to reveal and close data gaps and do a fact check of preliminary findings.

LIMITATIONS AND CHALLENGES

LIMITATIONS ON DATA COLLECTION

A planned household survey to assess the quality of water service was planned but had to be cancelled due to restrictions on survey data collection based on the advice of the HCWW. To compensate for this, the evaluation team requested secondary data from the HCWW and SCs, on customer satisfaction as well as the number of beneficiaries supported by targeted facilities.

CHALLENGES

The household connections visited were based on convenience due to the proximity of their locations, and some sites were excluded due to security concerns raised by the SCs. Accordingly, besides visiting

permitted planned locations, the evaluation team visited additional randomly selected locations. No differences were found between the randomly selected locations and those sampled for convenience.

ANNEX III: DATA COLLECTION INSTRUMENTS LIST

No	DEVELOPED DATA COLLECTION TOOL
1	Key Informant Interview with United States Agency for International Development (USAID)
2	Key Informant Interview with Chairman of the Holding Company for Water and Wastewater (HCWW)
3	Key Informant Interview with Chairman of Subsidiary Water and Wastewater Company
4	4a: Key Informant Interview with the Head of Water Sector at Assiut and Sohag Water and Wastewater Companies
4	4b: Key Informant Interview with the Head of Wastewater Sector (Pump Station) at Assiut and Sohag Water and Wastewater Companies
4	4c: Key Informant Interview with the Head of Wastewater Sector (Network) at Assiut and Sohag Water and Wastewater Companies
5	Tool # 5: Key Informant Interview with Subsidiary Water and Wastewater Companies Staff involved in Small-Scale Construction and JCESD Activities Implementation
6	6a: Group Discussion with Operation and Maintenance Staff Involved in Activity Interventions Related to Wastewater Collection Systems at Assiut and Sohag Water and Wastewater Companies
6	6b: Group Discussion with Operation and Maintenance and Lab Staff Involved in Activity Interventions Related to Water Treatment Plants at Assiut and Sohag Water and Wastewater Companies
6	6c: Group Discussion with Operation and Maintenance Staff Involved in Activity Interventions Related to Pump Stations at Assiut and Sohag Water and Wastewater Companies
7	Checklists To be Applied on Site in Assiut and Sohag Governorates:
7	a) Sewer Checklist, b) Water Treatment Plant Checklist, C) Pump Station Checklist
8	Questionnaire for Household Survey – End User Survey*
9	Key Informant Interview with Chemonics Egypt

*Note: Due to limitations during fieldwork, the household survey questionnaire (Tool # 8) was not applied.

ANNEX III (A): DATA COLLECTION INSTRUMENTS – ENGLISH

TOOL #1: KEY INFORMANT INTERVIEW WITH USAID

Date of the Meeting: _____/_____/_____

Time of the Meeting: Hour: _____ From: _____

Interviewee Name and Contact Details:

Position:

Notes taken by:

Introductory Statement

Thank you for agreeing to meet with us today.

USAID/Egypt has contracted this evaluation team through SIMPLE to conduct the Ex-Post Evaluation of The Water and Wastewater Small-Scale Construction Program and Job Creation through Essential Services Delivery in Upper Egypt under the Egypt Utilities Management (EUM) Assistance Agreement. As an important stakeholder in EUM, your experience and insights are essential to this evaluation, so we appreciate you taking the time to meet with us.

The main purpose of this evaluation is to:

Examine the effectiveness of the interventions under EUM.

Assess the continued sustainability of the interventions three years after the activities ended.

Identify approaches to ensure sustainability that can be institutionalized across utility activities at USAID/Egypt in the future.

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Questions

What was the situation of water and sanitation before the implementation of the USAID funded FARAs and JCESD activities in targeted governorates? EQ1

Were there any targets (House connections, Labors/days how these targets had been determined with respect to job creation within the JCESD activity? EQ2

How did the USAID ensure that the two FARAs and JCESD activities (subject to evaluation) are aligned with HCWW strategic development plans and priorities of local government and beneficiary population? EQ1

Were the interventions (of the two projects) implemented as planned? What were the main problems, if any, encountered during implementation of activities? EQ2

From your perspective, how effective were the subsidiary companies in implementing the FARAs and JCESD activities? EQ2,

To what extent do you think the subsidiaries have the capacity to sustain implemented interventions? EQ3, EQ4, EQ5

How did the FARAs and JCESD activities (subject to evaluation) contribute to enhancing the subsidiary companies' technical (Planning Sector / Projects sector / Procurement sector / Project implementation sector / Maintenance and Operation Department) capacity? EQ 2

What are the strengths and weaknesses of using a G2G agreement in supporting the water and wastewater companies? EQ2, EQ5

How effective was the G2G agreements, as an aid modality, in supporting the water and wastewater sector and ensuring sustainability of the activities? EQ5

Were USAID G2G reporting requirements for the two FARAs and JCESD activities (subject to evaluation) sufficient? (AMEP/PIRS-Q reports) How could reporting requirements be improved in future G2G interventions? EQ2, EQ5.

How did USAID ensure the sustainability of implemented FARAs and JCESD activities? EQ3, EQ5

From your perspective, what are the key factors that could enhance the sustainability of the FARAs and JCESD activities? And what are the key challenges that may hinder it? EQ5

Was systematic performance monitoring and reporting on performance indicators conducted during the implementation period by any of the stakeholders; i.e., Holding Company for Water and Wastewater, USAID, local water and wastewater companies, Chemonics Egypt, other? EQ2

Were standards of data quality and the methods for assessing quality and integrity of data established DQA? EQ2

Did the EUM interventions (Two projects under evaluations) align with HCWW strategic development plans? EQ1

Did the Two projects FARAs and JCESD activities align with the priorities of the Subsidiaries, local end users?

How Targets and Priorities were identified – Kindly elaborate? EQ1, EQ5

Were organizational capacity assessments of the implementing potable water and wastewater companies conducted periodically during the implementation period? If Yes, Please identify frequencies and Results? EQ2, EQ4

Thank you for your time and collaboration.

TOOL # 2: KEY INFORMANT INTERVIEW WITH CHAIRMAN OF HOLDING COMPANY FOR WATER AND WASTEWATER

Date of the Meeting: _____/_____/_____

Time of the Meeting: Hour: _____ From:

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Interviewee Name and Contact Details: _____

Position: _____

Notes taken by: _____

Introductory Statement

Thank you for agreeing to meet with us today.

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Questions

How was the need for the FARAs and JCESD activities FARAs and JCESD activities identified in targeted governorates? EQ1

Were the FARAs and JCESD activities for the two projects part of the strategic national plan for water and wastewater and governorates master plans? EQ1

Were there any consultations with the local governorates and company subsidiaries in needs identification?

What was their role in the activities designed? EQ1

How were the activities implemented? Were there any challenges during implementation for each project?

If yes, what are they? EQ2

What were the measurements in place to ensure the sustainability of implemented activities (if any) (e.g. Maintenance and Operation – Training, Emergencies plan, Reports, etc.)-? EQ3, EQ4

What are the key factors that could hinder the capacity of the company and the subsidiaries to sustain implemented interventions? What are your suggestions to overcome such hindrances? EQ5

Were organizational capacity assessments of the implementing potable water and wastewater companies conducted periodically during the implementation period? With what frequency? How do you monitor activities implementation to ensure efficient delivery of targeted outputs/outcomes? EQ2

To what extent are the subsidiaries capable to ensure the sustainability of FARAs and JCESD activities (in terms of qualified staff, efficient operations, project management, etc.)? Are there any challenges that could hinder their capacity to sustain activities? If yes, what are they? EQ3, EQ4, EQ5

What needs to change or be maintained for the potable water and wastewater company to operate in a manner that FARAs and JCESD investments and their corresponding outputs/outcomes can be sustained? EQ5

Are there local financial resources allocated to sustain EUM potable water and wastewater investments (e.g. cover recurrent costs)? EQ5

What aspects of Two EUM Projects investments (e.g., on-going capacity building of staff) are critical for sustaining targeted development outcome(s)? EQ3, EQ5

To what extent does the implementation of water and wastewater projects by the national companies (subsidiaries) contribute to enhancing local ownership and local institutional capacity? What are the missing factors (if any) that are required to enhance the sustainability and effectiveness of implemented projects? EQ3, EQ4, EQ5

Are there any aspects, based on the implementation of the FARAs, recommended to be considered in future agreements? (EQ1, EQ2, EQ3, EQ4, EQ5)

Thank you for your time and collaboration.

TOOL # 3: KEY INFORMANT INTERVIEW WITH CHAIRMAN OF SUBSIDIARY WATER AND WASTEWATER COMPANY

Date of the Meeting: _____/_____/_____

Time of the Meeting: Hour: _____ From:

Interviewee Name and Contact Details: _____

Position: _____

Notes taken by: _____

Introductory Statement

Thank you for agreeing to meet with us today.

USAID/Egypt has contracted this evaluation team through SIMPLE to conduct the Ex-Post Evaluation of The Water and Wastewater Small-Scale Construction Program and Job Creation through Essential Services Delivery in Upper Egypt under the Egypt Utilities Management (EUM) Assistance Agreement. As an important stakeholder in EUM, your experience and insights are essential to this evaluation, so we appreciate you taking the time to meet with us.

The main purpose of this evaluation is to:

Examine the effectiveness of the interventions under EUM.

Assess the continued sustainability of the interventions three years after the activities ended.

Identify approaches to ensure sustainability that can be institutionalized across utility activities at USAID/Egypt in the future.

Your participation in this discussion will contribute to the evaluation findings and recommendations. Your responses to the key informant interview will be kept anonymous. Thank you for your valued contribution to this important initiative.

#	Question	Answer
	How was the need for the JCESD activities identified? Were these activities part of the governorate master plan? EQ 1	
	Were there any consultations with the local community while identifying the needs? EQ 1	
	How were the activities designed? What were the selection criteria of targeted villages and sites (within the villages)? Please describe the situation of targeted communities in terms of access and quality of potable water and sanitation services in selected villages prior to the EUM intervention? EQ 1	
	What were the targets of the outputs of the JCESD activities? How were they determined? To what extent were they achieved? (e.g. number of beneficiaries, number of jobs created for unskilled labor, number of household connections, improved quality of water, better access to sanitation services? EQ 2.	
	Describe how the activities were implemented. Were there any challenges during implementation? If yes, what were they? EQ 2	

#	Question	Answer
	How did you monitor the implementation of the activities to ensure efficient delivery of targeted outputs/outcomes? EQ 2	
	How “have you ensured” and “how are you continuing to ensure” the sustainability of implemented interventions? If any? EQ 2	
	What are the key factors, if any, that could hinder the WWC’s capacity to sustain implemented interventions? What are your suggestions to overcome such hindrances? EQ 5	
	Were there any organizational capacity assessments conducted of the company prior to, during and post the implementation period? If yes, with what frequency? EQ 3, EQ 4	
	What needs to change or be maintained for the company to operate in a manner that JCESD investments and their corresponding outputs/outcomes can be sustained? EQ 5	
	Are there local financial resources allocated to sustain EUM potable water and wastewater investments (e.g. cover recurrent costs)? EQ 5	
	To what extent does the implementation of water and wastewater projects by local WWC’s contribute to enhancing local ownership and improved local institutional capacity? What are the missing factors (if any) that are required to enhance the sustainability and effectiveness of implemented projects? EQ 3, EQ 4, EQ 5.	
	Has any Equipment been replaced or upgraded since Project completion? EQ2, EQ 3	Yes..... 1 No..... 2
	To what extent has the technical assistance provided within JCESD activities enhanced the WWC’s institutional capacity (qualifications of staff, process, use of standardized manuals, etc.)? Explain how? EQ 3, EQ 4	
	Please circle all that apply then rate the services with 5 = most useful to you, 0 Not Applicable n/a) EQ3, EQ4	

EUM-Supported Activity	Usefulness scale (1 is the least useful and 5 is the most useful)					
Introduce, activate & support to the implementation of quality control plans	0	1	2	3	4	5
Introduce & apply environmental protection measures	0	1	2	3	4	5
Development of proposals & feasibility studies	0	1	2	3	4	5
Development of tender documents, tendering & awarding procedures to contract consulting firms to provide design & construction management for new projects	0	1	2	3	4	5
Introduce procedures for site hand-over	0	1	2	3	4	5
Introduce follow up measures & forms for implementation of works & progress reporting	0	1	2	3	4	5
Application of environmental protection measures	0	1	2	3	4	5
Application of safety & occupational health rules	0	1	2	3	4	5
Application of O&M manuals	0	1	2	3	4	5

#	Question	Answer
	Introduce the proper management of regular meeting between work teams, consultants & contractors for progress review, facilitation of internal coordination, project steering & follow-up	
	Introduce periodic management reviews for progress in project implementation	0 1 2 3 4 5
	Develop inventory for commodities procured in compliance with the FARAs procurement section	0 1 2 3 4 5
	G Other _____	0 1 2 3 4 5
	H Not applicable because we have not used any USAID-funded capacity building services	

Questions for Small-Scale Construction Projects implemented in Assiut and Sohag

How were the activities designed? What were the selection criteria of targeted villages and sites (within the villages)? Please describe the situation of targeted communities in terms of access and quality of potable water and sanitation services in selected villages prior to the EUM intervention? EQ 1

Please describe the Quality Assurance/Quality Control procedures used in the labs of the water treatment plant and the standard procedures used in the lab? EQ 2

What are the key factors, if any, that could hinder the WWC's capacity to sustain implemented interventions? What are your suggestions to overcome such hindrances? EQ 5

What needs to change or be maintained for the company to operate in a manner that FARA investments and their corresponding outputs/outcomes can be sustained? EQ 5

To what extent does the implementation of water and wastewater projects by local WWC's contribute to enhancing local ownership and improved local institutional capacity? What are the missing factors (if any) that are required to enhance the sustainability and effectiveness of implemented projects? EQ 3, EQ 4, EQ 5.

Thank you for your time and collaboration.

TOOL # 4A: KEY INFORMANT INTERVIEW WITH THE HEAD OF WATER SECTOR AT ASSIUT AND SOHAG WATER AND WASTEWATER COMPANIES

Date of the Meeting: _____/_____/_____

Time of the Meeting:

Hour:

From:

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Interviewee Name and Contact Details:

Position:

Notes taken by:

Introductory Statement

Thank you for agreeing to meet with us today.

USAID/Egypt has contracted this evaluation team through SIMPLE to conduct the Ex-Post Evaluation of The Water and Wastewater Small-Scale Construction Program and Job Creation through Essential Services Delivery in Upper Egypt under the Egypt Utilities Management (EUM) Assistance Agreement. As an important stakeholder in EUM, your experience and insights are essential to this evaluation, so we appreciate you taking the time to meet with us.

The main purpose of this evaluation is to:

Examine the effectiveness of the interventions under EUM

Assess the continued sustainability of the interventions three years after the activities ended.

Identify approaches to ensure sustainability that can be institutionalized across utility activities at USAID/Egypt in the future.

Your participation in this discussion will contribute to the evaluation findings and recommendations. Your responses to the key informant interview will be kept anonymous. Thank you for your valued contribution to this important initiative.

#	Question	Answer
1	Were you engaged in the implementation of the FARA activities? EQ1	
3	To what extent was your company involved in the FARA activity design? EQ1, EQ2	
3	What are the qualifications of the operations staff? EQ3, EQ4	
4	To what extent has FARA provided the needed support during implementation? How? EQ2, EQ3, EQ4	
5	Can you provide historical records of data showing lab analysis of the physical, chemical and biological parameters of the plant effluent compared to Egyptian standards over the previous three years for the EUM -WTP? EQ3, EQ4	
7	Please describe the QA/QC procedures used in the laboratories of the water treatment plant and the standard procedures used in the laboratories. EQ3, EQ4	
8	Are all stages of the treatment process implemented within the EUM FARA -WTPs intervention currently in operation? EQ2, EQ3	
9	To what extent has the EUM -JSECD technical assistance strengthened the water and wastewater company staff's technical capacity? EQ3, EQ4	
10	Do the operation staff work according to written Standard Operations Procedures (SOPs)? EQ3, EQ4	

#	Question	Answer
11	If, yes, by whom were the SOPs developed? EQ3	
12	When did the company start to use the SOPs? EQ3, EQ4	
13	Please describe how the water Treatment plant operation staff maintain daily logs and monthly reports? EQ3, EQ4	
14	How does management ensure continuing operations of the water plant in accordance with standard operation procedures during emergency situations (e.g. Pumps failure, power outage or high-water demand)? EQ3, EQ4	
15	Please describe the preventive and corrective maintenance plans applied in the Water Treatment Plant. EQ3, EQ4	
16	What is the format of the maintenance plan? (computerized system and specific software or just paper documentation) EQ3, EQ4	
17	Do the maintenance staff work according to a written Standard Maintenance Procedures (SMPs) Manual? EQ3, EQ4	
18	If yes, by whom was the SMP developed? EQ3	
19	How do the water plant maintenance staff keep the daily logs and monthly reports? EQ3, EQ4	
20	From your perspective, what needs to be changed or maintained for the WWC to operate in a manner that sustain EUM Project investments and their corresponding outputs/outcomes? EQ 5	

Thank you for your time and collaboration.

TOOL # 4B: KEY INFORMANT INTERVIEW WITH THE HEAD OF WASTEWATER SECTOR (PUMP STATION) AT ASSIUT AND SOHAG WATER AND WASTEWATER COMPANIES

Date of the Meeting: _____ / _____ / _____

Time of the Meeting:

Hour:

From:

Interviewee Name and Contact Details:

Position:

Notes taken by:

Introductory Statement

Thank you for agreeing to meet with us today.

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#	Question	Answer
1	Were you engaged in the implementation of EUM FARA – Pump Stations interventions?	
3	To what extent was your company involved in the EUM activity design?	
5	Please describe what was the support provided within the EUM FARA activities and to what extent did it address the sector needs?	
6	To what extent has the EUM JCESD technical assistance strengthened the water and wastewater company staff's technical capacity?	
7	Do the operation staff work according to written standard operating procedures (SOPs)?	
8	If, yes, by whom or what organization were the SOPs developed?	
9	How does senior management ensure continuous operation according to the SOPs?	
10	When did the organization start to use the SOPs?	
11	Please describe how the Pump station operation staff maintain the daily logs and monthly reports?	

#	Question	Answer
12	How does senior management ensure continuous operation of the Pump station in accordance with SOPs during emergency situations (e.g. pump failure, power outage or very high flow events)?	
13	Please describe the preventive and corrective maintenance schedule and plans applied in the Pump stations.	
14	What is the format of the maintenance plan (computerized system and specific software or just paper documentation)?	
15	Do the maintenance staff work according to a written standard maintenance procedures (SMPs)?	
16	If, yes, by whom or what organization were the SMPs developed?	
17	From your perspective, what needs to be changed or maintained for the WWC to operate in a manner that sustain EUM Project investments and their corresponding outputs/outcomes? EQ 5	
18	Do you have funds for sustaining EUM potable water and wastewater investments?	
21	From your perspective Were the equipment installed through EUM FARA projects can be sustained, maintained and replaced?	

Thank you for your time and collaboration.

TOOL # 4C: KEY INFORMANT INTERVIEW

WITH THE HEAD OF WASTEWATER SECTOR (NETWORK) AT ASSIUT AND SOHAG WATER AND WASTEWATER COMPANIES

Date of the Meeting:	____/____/____			
Time of the Meeting:	Hour:	From:		
Interviewee Name and Contact Details:				
Position:				
Notes taken by:				

Introductory Statement

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#	Question	Answer
1	Were you engaged in the implementation of the EUM FARA Activity (Wastewater networks)?	
3	To what extent was your company involved in the EUM activity design?	
4	To what extent has EUM provided needed support during the implementation phase.? How?	
5	Please describe what was the support provided within the EUM FARA activities and to what extent did it address the sector needs?	
6	Do the operation staff work according to written Standard Operations Procedures (SOPs)	
7	If yes, by whom were the SOPs developed?	
8	When did the organization start to use the SOPs?	
9	How does senior management ensure continuous operation according to the SOPs?	

#	Question	Answer
10	How do the network operation staff maintain daily logs and monthly reports?	
11	How does senior management continue operating the network according standard operation procedures during emergency situations (including sewer minor and major damages)?	
12	Describe the preventive and corrective maintenance plan applied in the network.	
13	What is the format of the maintenance plan? (i.e. computerized system and specific software or just paper documentation)	
14	Do the maintenance staff work according to a written Standard Maintenance Procedures (SMPs) manual?	
15	If yes, which organization provided the standard maintenance procedures (SMPs)?	
16	How does the Network maintenance staff keep daily logs and monthly reports?	
17	Has any major equipment required modification or upgrade been conducted since project completion? If yes, please explain.	
18	From your perspective, to what extent have the project interventions enhanced the capacity of the subsidiary?	
19	What could be the major factors that may hinder the sustainability of the EUM FARA Activity interventions?	

Thank you for your time and collaboration.

TOOL # 5: KEY INFORMANT INTERVIEW WITH SUBSIDIARY WATER AND WASTEWATER COMPANIES STAFF INVOLVED IN SMALL-SCALE CONSTRUCTION AND JCESD ACTIVITIES IMPLEMENTATION (PROJECT IMPLEMENTATION UNIT (PIU))

Name:

Current Position:

Position during EUM Activity:

Company Name:

Sector Within the WWC:

Gender ☐ Male ☐ Female

Professional background: _____

How many years of experience have you had in your current position? _____

Introductory Statement

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Assess the continued sustainability of the interventions three years after the activities ended.

Identify approaches to ensure sustainability that can be institutionalized across utility activities at USAID/Egypt in the future.

Your participation in this discussion will contribute to the evaluation findings and recommendations. Your responses to the key informant interview will be kept anonymous. Thank you for your valued contribution to this important initiative.

Questions

Guiding Questions:

What was your role in the EUM Activity?

Procurement / Contracts Sector

To what extent have the EUM interventions enabled capacity-building of the Procurement Department?

(from 1 (poor) to 5 (very good))

1	2	3	4	5
---	---	---	---	---

Describe the kind of capacity building skills have been acquired in procurement as a direct result of the EUM Activity?

- b.
- c.
- d.
- e.

Quantify how many staff from the procurement /Contract sector were trained in specific training topics as a direct result of the EUM Activity. #

Were you directly involved in the preparation of work contracts? If Yes, identify all that apply.

Preparing Tender Documents	
Bidding process	
Contract Evaluation (Technical / Financial)	
Awarding process	
Other	

Was the knowledge from the capacity building components of the EUM-JCSED Activity successfully transferred to the procurement /Contract staff? If yes, describe how the EUM capacity building activities have improved staff performance?

1.
2.
3.

During the EUM Activity, qualify the following statements, please score. (from 1 (poor) to 5 (Excellent)

Improved efficiency in concluding each procurement process :

1	2	3	4	5
---	---	---	---	---

Improvement in concluding contracts (taken less than four months compare to total number of tenders /contracts.

1	2	3	4	5
---	---	---	---	---

Extent of improvement in the quantity of processes being re-tendered:

1	2	3	4	5
---	---	---	---	---

Extent of improvement in the percentage of all EUM procurements that were officially cancelled and/or retendered due to technical, performance and/or cost considerations:

1		2	3	4	5
---	--	---	---	---	---

Extent of reduction in the quantity of contracts awarded on a single source basis:

1	2	3	4	5
---	---	---	---	---

Extent of reduction in the percentage of contracts subject to time overruns:

1	2	3	4	5
---	---	---	---	---

Extent of reduction in the percentage of contracts subject to cost overruns:

1	2	3	4	5
---	---	---	---	---

Planning Sector

To what extent has the EUM Activity enabled improved capacity-building of the Planning Sector?
(from 1 (poor) to 5 (very good))

1	2	3	4	5
---	---	---	---	---

Describe what kind of improvements in Planning capacity building was achieved as a direct result of the EUM Activity.

1.
2.
3.
4.
5.
6.

Quantify how many staff from the Planning Sector were trained in specific training topics as a direct result of the EUM Activity. #

1.
2.
3.
4.
5.

6.

What type of tools were introduced to the Planning Sector to improve performance monitoring as a direct result of the EUM Activity?

1.
2.
3.
4.

Describe what is different about the structure of the Planning Sector, if any, as a direct result of the EUM Activity.

1.
2.
3.
4.
5.
6.

What knowledge, skills and/or improved practices from the capacity building components of the EUM Activity were successfully transferred to the Planning Department staff to improve staff performance?

1.
2.
3.
4.
5.
6.

Projects Sector

To what extent has the EUM Activity enabled improved capacity-building of the Projects sector?

(from 1 (poor) to 5 (very good))

1	2	3	4	5
---	---	---	---	---

Describe what kind of improvements in Projects capacity building was achieved as a direct result of the EUM Activity.

1.
2.
3.
4.
5.
6.

How?

Quantify how many staff from the Projects Department were trained in specific training topics as a direct result of the EUM Activity. #

1.
2.
3.
4.

5.
6.

What type of tools were introduced to the Projects sector to improve performance monitoring as a direct result of the EUM Activity?

1.
2.
3.
4.
5.
6.

Describe what is different about the structure of the Projects sector, if any, as a direct result of the EUM Activity.

1.
2.
3.
4.
5.
6.

What knowledge, skills and/or improved practices from the capacity building components of the EUM Activity were successfully transferred to the Projects sector staff to improve staff performance?

1.
2.
3.
4.
5.
6.

Projects Implementation Department

To what extent has the EUM Activity enabled improved capacity-building of the Projects Implementation Department?

(from 1 (poor) to 5 (very good))

1	2	3	4	5
---	---	---	---	---

Describe what kind of improvements in Projects Implementation Department capacity building was achieved as a direct result of the EUM Activity.

1.
2.
3.
4.
5.
6.

Quantify how many staff from the Projects Implementation Department were trained in specific training topics as a direct result of the EUM Activity. #

What type of tools were introduced to the Projects Implementation Department to improve performance monitoring as a direct result of the EUM Activity?

1.
2.
3.
4.
5.
6.

What knowledge, skills and/or improved practices from the capacity building components of the EUM Activity were successfully transferred to the Projects Implementation Department staff to improve staff performance?

1.
2.
3.
4.
5.
6.

Describe what is different about the structure of the Projects Implementation Department, if any, as a direct result of the EUM Activity.

1.
2.
3.

Operation and Maintenance Sector

To what extent has the EUM Activity enabled improved capacity-building of the Operation and Maintenance Sector?

(from 1 (poor) to 5 (very good))

1	2	3	4	5
---	---	---	---	---

Describe what kind of improvements in Operation and Maintenance Sector capacity building was achieved as a direct result of the EUM Activity.

1.
2.
3.
4.
5.
6.

Quantify how many staff from the Operation and Maintenance Sector were trained in specific training topics as a direct result of the EUM Activity. #

1.

2.
3.
4.
5.
6.

What type of tools were introduced to the Operation and Maintenance Sector to improve performance monitoring as a direct result of the EUM Activity?

1.
2.
3.
4.

Describe what is different about the structure of the Operation and Maintenance Sector, if any, as a direct result of the EUM Activity.

1.
2.
3.
4.
5.
6.

What knowledge, skills and/or improved practices from the capacity building components of the EUM Activity were successfully transferred to the Operation and Maintenance Sector staff to improve staff performance?

1.
2.
3.
4.
5.
6.

Thank you for your time and collaboration.

TOOL # 6A: GROUP DISCUSSION WITH OPERATION AND MAINTENANCE STAFF INVOLVED IN ACTIVITY INTERVENTIONS RELATED TO WASTEWATER COLLECTION SYSTEMS AT ASSIUT AND SOHAG WATER AND WASTEWATER COMPANIES

Name(s):

Current Position:

Position during Project:

Company Name:

Sector Within the WWC

Gender ☐ Male ☐ Female

Professional background?

How many years of experience have you had in this current job?

Introductory Statement

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Assess the continued sustainability of the interventions three years after the activities ended.

Identify approaches to ensure sustainability that can be institutionalized across utility activities at USAID/Egypt in the future.

Your participation in this discussion will contribute to the evaluation findings and recommendations. Your responses to the key informant interview will be kept anonymous. Thank you for your valued contribution to this important initiative.

Questions:

Did you receive any technical assistance and capacity building within the EUM FARAs and JCESD activities? EQ2, EQ3

What were the capacity building activities received? EQ2, EQ3

To what extent did you manage to apply it in your daily work? EQ3

What is missing to enhance the potential and sustainability of its application? EQ3, EQ4

How do the WWC staff manage the maintenance of mechanical, electrical and civil works? EQ3, EQ4

What are the forms used to manage the maintenance work? EQ4

What are the criteria used to choose the maintenance staff? EQ3, EQ4

How do you manage the corrective maintenance of the collection system? EQ3, EQ4

What are the activities of the corrective maintenance? EQ3, EQ4

Which forms do you use to document the corrective maintenance? EQ3, EQ4

What is the major type of pipes of the collection system? EQ2

Do you have any problems from pipes corrosion? EQ2, EQ3

What equipment do you usually use to clean sewers? EQ3, EQ4

Thank you for your time and collaboration.

TOOL # 6B: GROUP DISCUSSION WITH OPERATION AND MAINTENANCE AND LAB STAFF INVOLVED IN ACTIVITY INTERVENTIONS RELATED TO WATER TREATMENT PLANTS AT ASSIUT AND SOHAG WATER AND WASTEWATER COMPANIES

Name(s):

Current Position:

Position during Project:

Company Name:

Sector Within the WWC

Gender ☐ Male ☐ Female

Professional background?

How many years of experience have you had in this current job?

Introductory Statement

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Questions

Did you receive any technical assistance and capacity building within the FARAs and JCESD activities? EQ2, EQ3

What were the capacity building activities received? EQ2, EQ3

To what extent did you manage to apply it in your daily work? EQ3

What is missing to enhance the potential and sustainability of its application? EQ3, EQ4

Are you aware of the criteria for the selection of the water treatment plant designs and water treatment plant controls? EQ1, EQ2

How do the WWC staff maintain the water treatment plant equipment? EQ3, EQ4

What are the criteria used to choose well qualified operation and laboratory staff to ensure sustainability of the plant good performance? EQ1, EQ3, EQ4

What is the average and maximum flow expected from the water treatment plant? EQ3, EQ4

Is the daily flow m3/d within the average design flow? EQ2

How are the sampling methods being managed by the laboratory? EQ3, EQ4

Could you provide us with the laboratory physical, chemical and biological analysis of the treated water done by the Central Laboratory and the Ministry of Health? EQ3, EQ4

How does the laboratory manage the data analysis? EQ3, EQ4

What are the procedures practiced by the laboratory to ensure QA/QC? EQ3, EQ4

Does the WWC regularly make training sessions to improve staff capacity? EQ3, EQ4

How do the WWC staff manage the maintenance of mechanical, electrical and civil works? EQ3, EQ4

What are the forms used to manage the maintenance work? EQ3, EQ4

What are the criteria used to choose the maintenance staff? EQ2, EQ3, EQ4

What are the activities of the corrective maintenance of the collection system and how do you manage it? EQ3, EQ4

Do the operation staff regularly measure the raw water and treated water flow? How? EQ3, EQ4

Do the maintenance staff have the tools to check the accuracy and calibration of the utilized equipment such as flow meters? EQ3, EQ4

Thank you for your time and collaboration.

TOOL # 6C: GROUP DISCUSSION WITH OPERATION AND MAINTENANCE STAFF INVOLVED IN ACTIVITY INTERVENTIONS RELATED TO PUMP STATIONS AT ASSIUT AND SOHAG WATER AND WASTEWATER COMPANIES

Name(s):

Current Position:

Position during Project:

Company Name:

Sector Within the WWC

Gender ☐ Male ☐ Female

Professional background?

How many years of experience have you had in this current job?

Introductory Statement

Thank you for agreeing to meet with us today.

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Questions:

Did you receive any technical assistance and capacity building within the EUM FARA and JCSED activities? EQ2, EQ4

What were the capacity building activities received? EQ3, EQ4

To what extent did you manage to apply it in your daily work? EQ2, EQ3,, EQ4

What is missing to enhance the potential and sustainability of its application? EQ3, EQ4

How do the WWC staff manage the maintenance of mechanical, electrical and civil works in the Pump station? EQ3, EQ4

What are the forms used to manage the maintenance work? EQ3, EQ4

What are the criteria used to choose the maintenance staff? EQ1, EQ3, EQ4

How do you manage the corrective maintenance of the Pump station? EQ3, EQ4

How do the maintenance staff document the activities of the corrective maintenance? EQ3, EQ4

How many pumps are usually in operation in the Pump station and how many are in standby? EQ3, EQ4

What is the average and maximum flow pumped daily by the Pump station? EQ3, EQ4

Does the flow fluctuate severely during the day? EQ3, EQ4

Have you notice high seasonal variation of the flow? EQ3, EQ4

Thank you for your time and collaboration.

TOOL # 7: CHECKLISTS TO BE APPLIED ON SITE IN ASSIUT AND SOHAG GOVERNORATES

a) Sewer Checklist

This checklist is to be used to evaluate the condition of the sewers as a part of the wastewater collection system, including valves, valve chambers and pipes to be used by the subject matter expert during the site visits.

Location / Village:

Date:

Criteria	Yes	No	Comments
<i>Maintenance Plans</i>			
The staff has maintenance (Corrective/preventive) plan.....	☐	☐	
The plan shows a clear timetable that specifies the date and time to perform each task.....	☐	☐	
The network sections to be maintained are specified in the plan.....	☐	☐	
The length of sewers to be maintained are specified in the plan.....	☐	☐	
The equipment used for sewer maintenance are specified in the plan.....	☐	☐	
<i>Corrosion control methods applied to protect the pipelines.</i>			
The WWC has equipment for corrosion inspection.....	☐	☐	
The WWC applies an appropriate method for corrosion control.....	☐	☐	

Criteria	Yes	No	Comments
<i>Emergency plans to cover the sewer minor and major damages.</i> The WWC prepares a list of the critical equipment that may fail and cause major disruptions to service..... The WWC has a list of common hypothetical emergency-related problems that could potentially arise..... The WWC has a list of mitigation measures for successfully resolving common emergency-related problems.....	☐ ☐ ☐	☐ ☐ ☐	
<i>General condition of the manholes and valve chambers.</i> Valve chambers are clean of debris and/or stones..... Valves are fully operational and tested..... Leaks on valve chambers, or on other parts of the network are reported..... Manhole covers are properly installed throughout the network..... The WWC maintains documentary photos of the general condition of manholes and valve chambers.....	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐	

B) Water Treatment Plant Checklist

This checklist will be used by the evaluation team during the site visits to evaluate the condition of the Water Treatment Plant (WTP).

Location / Village:

Date:

Criteria	Yes	No	Comments
Treatment Process			
The components of different treatment stages conform to the initial design.....	☐	☐	
The water plant layout complies with the initial design.....	☐	☐	
The design operation criteria are applied correctly.....	☐	☐	
Treatment process control parameters are effective.....	☐	☐	
Treatment plant equipment is in good condition.....	☐	☐	
The staff are well qualified to sustain the plant's current level of performance (equal to or greater than the 2015 end of EUM Activity's performance level)	☐	☐	
e.g., Equipment operation and handling chemicals & tools Operations Calculations Application of Safety Measures			

C) Pump Stations Checklist

This checklist will be used by the evaluation team during the site visits to evaluate the condition of the Pump Stations.

Location / Village:

Date:

Criteria	Yes	No	Comments
Operations			
Daily logs and monthly reports are maintained in a timely manner.....	☐	☐	
Operations manuals and forms are actively used.....	☐	☐	
Operation and Maintenance staff trained.....	☐	☐	
Standard forms are used to document operations activity.....	☐	☐	
Standardized reports are used to summarize the monthly/annual activity.....	☐	☐	
Operation staff are able to sustain the current level of operations equal to or greater than the end of EUM Activity performance levels.....	☐	☐	
The WWC retains copies of daily logs, forms and reports.....	☐	☐	
Maintenance Plans			
The staff apply corrective and preventive maintenance plans.....	☐	☐	
The maintenance plan uses appropriated forms issued or approved by the HCWW.....	☐	☐	
The plan shows a timetable that specifies the date and time maintenance tasks are to be performed.....	☐	☐	
Equipment used in the maintenance tasks is specified in the plan.....	☐	☐	
Emergency Plans (Pump Failure, Power outage or Very High Flow)			

Criteria	Yes	No	Comments
A list of critical equipment and potentially problematic issues is maintained.....	☐	☐	
The WWC has a list of common hypothetical emergency-related problems that could potentially arise.....	☐	☐	
The WWC has a list of mitigation measures for successfully resolving common emergency-related problems.....	☐	☐	
General Condition			
Motor Control Centers (MCCs) are clean.....	☐	☐	
Pump pressure gages are working.....	☐	☐	
Pump amperage gages are working.....	☐	☐	
Pump amperage conforms to pump design.....	☐	☐	
Pumps are clean.....	☐	☐	
Operating valves are fully functional.....	☐	☐	
Leaky pumps are reported as observed.....	☐	☐	
Leaky valves are reported as observed.....	☐	☐	
The ground floor is suitable for work.....	☐	☐	

TOOL # 8: QUESTIONNAIRE FOR HOUSEHOLD SURVEY - END USER SURVEY (BENEFICIARIES OF WATER AND WASTEWATER HOUSEHOLD CONNECTIONS)

Date of the Meeting: _____ / _____ / _____

Time of the Meeting: _____ Hour: _____ From: _____ To: _____

Notes taken by: _____

Introductory Statement

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#	Question	Answer
	Name of Person interviewed	
	Sex	Male..... 1 Female..... 2
	Age	 Years
	Job	
	Governorate	
	District	
	Village	
	Mobile number	
	Address	
	Housing type	Rent..... 1 Owned..... 2
	The number of people living in the House	
	The number of families living in the House	
	Education Level of Head of Household:	University Education 1 High school 2 Primary 3 Iterate 4 Read & Write 5

B. Water Connections for Luxor and Qena End-Users

Before installing the household water connections, what was your normal source of drinking water?	Tap in the street..... 1 Pump..... 2 Other (Specify) 3
Consider the time needed to make one round trip; i.e., from your home to the water source and back again. On the average, how many minutes did this take including the waiting time when the water source was busy?	< 5 minutes 1 5-10 minutes 2 11-30 minutes 3 31-60 minutes 4 >60 minutes 5 Don't know 6
Generally speaking, was the water source, prior to household connection, providing enough drinking water to meet your household needs?	Yes 1 No 2
In retrospect, do think that the water source provided good quality drinking water?	Yes 1 Not always..... 2 No 3 Don't know 4
What problems do you have with water quality? (Select all that apply)	Taste/Smell 1 Color 2 Mud/Sand 3 Other (specify) 4
At the time of your household connection, what percentage of other households in your village were not connected to the water network?	Yes 1 No 2
When did you hear for the first time about the household water connections project?	 Year
From whom or what source?	
Were the project's objectives and interventions clearly explained to you?	

C. Existing Water Source for the Household (EQ2)

Does your household have access to a safe water source for drinking?	Yes 1 No 2
If Yes: As of what date did your household have access to safe water?	
Does the water source consistently meet your household's drinking water need?	Yes 1 No 2
How has access to the existing water supply through your household connection improved your life?	Have clean water 1 Cleanliness..... 2 Less cost of having household water 3 Less diseases 4 Less time collecting water 5 Other (Specify) 6
Select all that apply.	
Are there any kinds of problems with the household water supply?	Yes 1 No 2

If Yes: Select all that apply.	Interrupted service (how often)? 1 Low pressure (how often)? 2 Bad taste and/or smell..... 3 Other (Specify) 4
Does someone come regularly to monitor water consumption at your water meter?	Yes 1 No 2
To what extent you are satisfied with the quality of potable water?	Excellent 1 Good 2 Acceptable..... 3 Poor 4
Why?	

D. Existing Wastewater Collection System

Does your household have access to a wastewater collection system?	Yes 1 No 2	
If yes: For how long have you had a sewer connection?		Go to Q39
If No: How do you deal with the wastewater?		
Do you face any problems with the sewer network?	Yes 1 No 2	
Is there someone responsible for the maintenance of the sewers in your neighborhood?	Yes 1 No 2	
Are your complains resolved in a timely manner?	Yes 1 No 2	
To what extent you are satisfied with the current sewer system?	Excellent 1 Good 2 Acceptable..... 3 Poor 4	
Why?		

E. Information related to WWC

On a scale of 1-5 (Circle) how satisfied you are with the level of services provided by WWC (where 5 is very satisfied and 1 is very dissatisfied)?	I do not know 1 2 3 4 5
---	--

Procedures for obtaining services	0	1	2	3	4	5
Payment facilities	0	1	2	3	4	5
House connections	0	1	2	3	4	5
Collection of bills	0	1	2	3	4	5
Maintenance and repair work	0	1	2	3	4	5
Respond to inquiries and requests	0	1	2	3	4	5
Dealing with complaints	0	1	2	3	4	5
Have you participated in any activities with the WWC?	Yes.....	1				
	No	2				
If Yes:	Awareness seminars.....	1				
What are those activities?	Conferences	2				
	Consultation sessions	3				
	Meetings	4				
	Local committees	5				
	Other	6				
To the best of your knowledge, do all the company's services reach the village?	Yes.....	1				
	No	2				
Can you tell us what changes you have experienced after the household connection(s) is completed?	Clean Environment					
	Better Health – less sickness					
	Less cost					
	Others					

Thank you for your time and collaboration.

TOOL # 9: KEY INFORMANT INTERVIEW WITH CHEMONICS EGYPT

Date of the Meeting: _____

Time of the Meeting: _____

Hour: _____ / _____ / _____
From: _____

To:	
-----	--

--	--

Interviewee Name and Contact Details:

Position:

Notes taken by:

Introductory Statement

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EQ2, EQ 3, EQ 4

#	Question	Answer
Institutional and Capacity Building Activities within the JCESD Program		
	Which of the following technical assistance did you provide to participating WWCs:	
	Operations and Maintenance	
	Project Management	
	Development of Standard Operating Procedures (SOPs)	
	Development of Standard Maintenance Procedures (SMPs)	
	Proper documentation	
	Monitoring	
	Other	
	Did you design the JCESD training activities in collaboration with the HCWW and its subsidiaries? Describe the process.	
	How did you select the capacity building activities contents (technical and managerial) for the WWC's? e.g. Needs Assessment?	

EQ2, EQ 3, EQ 4

#	Question	Answer
	How did you monitor the quality of the trainings and their impact on the training participants (satisfaction of participants, learning, effective implementation, impact on performance levels)?	
	In your view, how have the capacity building activities affected the WWC staff performance? Discuss by key specialization.	
	After the project ended, how did you ensure staff implementation of gained knowledge, and practices in the workplace?	
	What could be the challenges that may hinder the capacity of the HCWW/WWC's to employ what was learnt through the capacity building activities? What could be done to overcome such challenges?	
	To the best of your knowledge, what measures have been taken by the HCWW and/or the WWC to sustain impact of those trainings (TOT, Master Trainers, Manual, Curriculum, Refresher Courses? How are trainings funded since the end of the EUM Activity? Did you design a financial and administrative sustainability plan of the WWCs?	
	What are the challenges for the successful implementation of capacity building activities in the future? What did Chemonics do to address these challenges or mitigate risks?	
	What was the role of the PIUs? To what extent are they institutionally sustainable?	
Job Creation Through Essential Service Delivery (JCESD)		
	Please describe the job creation efforts carried out through JCESD.	
	What were the targets of planned outputs? Were they achieved?	
	Were standards of data quality and the methods for assessing quality and integrity of data established?	
	Was systematic performance monitoring and reporting on performance indicators conducted during the implementation period by any of the stakeholders; i.e., Holding Company for Water and Wastewater, USAID, local water and wastewater companies, Chemonics, other?	
	Were monitoring and evaluation efforts conducted by the potable water and wastewater company, or other key stakeholders, during the implementation period to assess the effects of EUM investments on 1) local ownership, 2) participating potable water and wastewater company staff's technical capacity and 3) medium and/or long-term sustainability of results?	
	In order to improve future program design, what needs to be sustained?	

EQ2, EQ 3, EQ 4

#	Question	Answer
	To what extent were the EUM activities in Assiut facilities implemented efficiently? Were there any delays in implementation or cost overruns? Were there any challenges in implementation?	

Thank you for your time and collaboration.

ANNEX III (B): DATA COLLECTION INSTRUMENTS – ARABIC

KII I

بروتوكول قياس خصرية معالكة المياه في فلسطين الولية

تاريخ الاستخدام		____/____/____	
وقت الاستخدام	من ساعة	حتى ساعة	
اسم الممثل الذي شارك			
الوظيفة			
اسم القطاع/اللقاء			
تسجيل للقاء مع خفة			

لمقدمة:

نذكركم في المنطقة التي يجري إجراء هذا اللقاء ونوعيتها ج الرقيام للوكالة الدولية للتقنية المائية في فلسطين الولية مشروع خدمات تحسين الأداء وتعزيز تلك التقييم والتقييم SIMPLE ج راعيتهم حقبعد لقاء مشروع معالكة المياه والصرف الصحي (Construction of Wastewater Collection Systems and Water Treatment Plants) ولتحقيق الخدمات الأساسية صعيد صر (JCESD) بموجب بشيرة الدعم دارة المرفق للصحية. نحن أعضا فريق التقييم وتتطلب من المراقبة كجزء من أعمال التقييم.

جن شراكتكف ذوو المنشأة ذات اذية خصة بحيث أنكم من أصحاب المصلحة الذين ينفذون المشروعين لشراكتهم مع عليهم ومحل للتقييم. وسو تس اذم شراكتكف ذوو المنشأة ف دعمت لاج وتوصيات فرق التقييم في ماضي خاص: درلص عليا لشراكتهم مع محل للتقييم.

تقييم للتدامة ا لشراكتهم بعد مرور شهورات في انتهاء من التقييم. قتراح لياتلحيز للتدامة ا لشراكتهم ا لفي هذا مبحث من خ ل للوكالة الدولية للتقنية المائية في فلسطين الولية مع الحكومة للصحية.

مكارتكهم ليعزز من نتائج توصيات هذا التقييم. كم ان كدلكم أن سلكتم بالخدمات التي ج ذا البروتوكول راق للتقييم ا ودون الشك عن ذية لشراكتهم.

لي تصد الوضع السابق الخلق وبالشرب والصر الص ح بل لم يحدث الموت فخلق في ذل شر وعين؟ EQ1

EQ2 JCESD؟ لاي تمت حيثلك ال من تفات؟

ما ذللكم من الت اعطه ال وطله مولي قاتني ل دولي و USAID التخذ من ان الشم لشر و عت تحت الت قيص من الشم الخ ا
ست ريني ق لشر كة ق قيص ال صريه وض من أولي ات ال م خلطات و لشر كة ات ال م قيدة؟ EQ1

ذلت متقي ذأعمال الشروع بقلال مخ ا ال ه ا؟ وما ذى الشكال ويبري الة لى ظهرت لئاء التقي ذجن وجد ت؟ EQ2

من وجه من ظرك اي ترى مدى لفساءة أداء الشركات التابعة لميت ففى تقيد أعمال الال شروعين EQ2؟

الى أي مدى يتوقع أن لذي الشركات التابعة والقدرة / تلل فاعل على بلت دامة التدخ تالت تم تفي ذذا؟ EQ3,4,5

أي سلك اذمت أعمال الميكرو عرفت حيلين القدرات الفيزية لفق الاعات والتخ لي ا- الميكرو عات - الميكرو د - جدار قضي ذال ميكرو عات - التشنغل والصير لة لشر كات المبت فة؟ EQ2

ما ذيقا القوة والضرع ف ملتخدامبشوية G2G ف دعمشركاتاليو والصر الص ح ؟ EQ2 ، EQ5

ما هي فاعلي نفوذات G2G التي قد تميل لتقييد أو تشجيع الاعالي والصرح وضمان نيل تدفقات؟ EQ5

EQ5. ، EQ2 ال متقاي؟ عمال G2G ارقج عدد و تقويم التقارير (AMEP/PIRS – Q reports) ي كننت حرين

لي عملت الولاية دي في دولي على مضمان لمتدامة رش اة ال في ذة ف ج ارال شروعين؟ EQ3 ، EQ5
من وج ه من ظرك، ما ذ ال عوامل ال في اليتي لمن أنت عزز لل متدامة رش اة ال في ذة ف ج ارال شروعين؟ وما ذ ال تحي ات ال في اليتي عالت
قوت هي قذ لك؟ EQ5

ذل قامت أي ج ه ه من الج ه ات الشك ارك قبل الشك ارك وع بمتابعة م في ه ج ق ل ش ك ر ات ء خ لف ت رة ا ل ف ي ف ي ن و ع ل ع س ل ف ي ل ا ل م ا ل ، ا ل ل ا ك ر ك ة
 ا ل ف ي ل ع ل ف ي و ا ل ف ي ل و ا ل ف ي ل و ا ل ف ي ل و ا ل ف ي ل و ا ل ف ي ل و ا ل ف ي ل و ا ل ف ي ل و ا ل ف ي ل و ا ل ف ي ل و ا ل ف ي ل و ا ل ف ي ل و ا ل ف ي ل و a ل ف ي ل و a ل ف ي ل و
 ل ج ت ؟ EQ2

ذلت مبيعات دار معيار لضبط الجودة البيانات ومدى قتها وفائتها على مدارال شروع وDQA ؟ لم اذا؟

ذلت فقلت دخ الت مشروعي تحت النعيم مع خ الت اور ستريلي حي اول شرك الق بليض؟ EQ1

ذلت ملكي شركا ال شركو عي مع أول بيات الشرك كالتبعية والسلك ان الح عييين ؟ لي تمت صلي اة
يات وال م لفتنغات ؟ ن ر ج
التبضي ح. EQ1 ، EQ5

ذلت مع جرائع تعقيد لم قدرات الصافي على كركات هي لوالى كارب والى كرك الحى ك ح قبل وثلى اعطي ذال شى ك روع ؟ ف حلة جك قن عم، نرجو الت بصرى ح دورى ذنوال تعقيدات وما ذى تتلجها EQ2 ، EQ4

تاریخ انجام

_____ / _____ / _____

[illegible][illegible]

تقيم ملتدامة اشرافه لاذقعد مرور ثسنوات فحى اتواء من التويذ.

شركاءنا في المقام الأول هم من تلج وتوصلات هذا الفريق. كما ان كدال كم أن مساهماتنا في خدام تلج هذا لبروتوكول راق للفريق اودون الشك عن ذية الاشراقين.

_____ / _____ / _____

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الوظيفة

تس حجل للقاء عب معوفة

نذكركم في المنطقة التي جراء هذا اللقاء وذويك ف ج الرقيام للوكلة ا مولي قنينة الدلي قنناتي مكرور خدمتت ملين ا داء وتخير
 انك ا لتقويم والتقييم **SIMPLE** جراء تقويم حقب عدق داء مكرور جعاء مح الت معالجة لايو والصكر (لصكح Construction of
 Wastewater Collection Systems and Water Treatment Plants) ولحق فرص عمل من لتقويم لخدمات اسكسلي ف
 صعد صر (JCESD) بموجب بشقي الداعم دارة لاملق لاصرية. جنا ا عضا عبق لتقويم وتب منو لزيارة ك جزء من اعمل لتقويم.

تقديم ملتدامة ارشاة الف ذب بعد مرور ثس سنوات على اتواء من التويذ.

فتراح الي اتعني زلت دامة اشارة المخ ا تفني هذا متقب من خل الوكالة ا مريكي القلتني مة لدولي قبلتعاون مع الاحشومة لاصرية.

USAID.GOV

م	سؤال	0	1	2	3	4	5
	تقديم وشيخيل ودع تنفيذ خ ا ا مرقة لاجودة	0	1	2	3	4	5
	تقديم وتبليق تبليور ح حلة للهيئة	0	1	2	3	4	5
	تقديم لاقتراحات ودليلات لاجودة	0	1	2	3	4	5
	ج عدد ملقنات الامم المتحدة وجرعاءات تقديم الاعاءات وفيح الهلج عدم عنكركات لبش اي فلي في رتصيم ودارة ا رشاءات لشروعات لاجودة	0	1	2	3	4	5
	تقديم جج راءات تسليم الامق	0	1	2	3	4	5
	تقديم تبليور لمتابعة وللا ماذج تنفيذ ا مال وللقاير لمرحلة	0	1	2	3	4	5
	ت تبليق تبليور ح حلة للهيئة	0	1	2	3	4	5
	ت تبليق قواعدا لمة وللصحة لامنية	0	1	2	3	4	5
	ت تبليق امة للشغل والصيانة	0	1	2	3	4	5
	تقديم ا دارة لاطمية لدمراجعة للقدم ويدير التنفيذ الداخلي وتوجيه لشرروع وتبليعه	0	1	2	3	4	5
	تقديم ملتعرضات ا دارة لدوري للقدم انجازات تنفيذ لشرروع	0	1	2	3	4	5
	ت اير لامخزون للسلع لاشراف ا بتداللقواعدا لمتريات FARAs	0	1	2	3	4	5
	أخرى	0	1	2	3	4	5
	ينطبق رن الامم المتحدة خدم ات لينااء القدرات من الوكالة ا مولي القنينة الدولة						

المهمة الأساسية التي ينبغي أن يوليها الاهتمام الأول هي توفير الحماية للمواطنين من الفساد، وليس فقط من الفساد المالي، بل من الفساد الإداري والمهني، ومن الفساد الذي يمسّ كرامة المواطن، ومن الفساد الذي يمسّ كرامة الدولة.

وخدمات الصرّ الصّح ف القري لامتارة؟ EQ 1

يرجى وضع جراءاتك من الجودة / مرتبة الجودة للمنتج د م ف معتبرات مح اة معالجة الهي و ا جراءات التي يلية المنتج د م ف لا تعتبر؟

EQ 2

ما ذا للعوامل النفسية، جن وجدته، التي يمكن أن تعيق قدرة الإنسان على الحركة في الحفاظ على انشغاله؟ اذ قد تراجعت له في ذنوبه

العوطن؟ EQ 5

ما الذي كان يجب تغييره أو صيغته لك لتعمل للشرك ب إرفي فيمكن أن تستدرفي هالمستخدمات، لم تماري ه مخرج من مخرج ومخرجات؟ EQ 5
لمى أي مدى يمكن أن تقيس ذلك على الو والصالح الصالح من قبل الشركات للتدفع تعزير للمصلحة والقدرة للمصلحة للمصلحة؟ ما ذ
للعوامل الفعولة ومن وجدت للم البتة تعزير لفساءة ولمتدانة الاشاع في هذه؟

شَكَرَّاكَ عَلَى وَقْتِكَ وَتَعَاوَنَكَ لِقَائِهِ

الأسئلة

[illegible]

شركراك على وقتك ولتعاون للقىم.

مراجعة	سؤال
1	هل شركتكم تفي بالمتطلبات التي تطلبها الجهات الداعمة؟
2	هل أي من شركتكم تفتقر لتوفير المعلومات المطلوبة؟
3	هل أي من مدس اذم لا مشروع تفتقر للدعم الام لوبل لشركتكم لتفي؟
4	هل أي من مدس اذم لا مشروع تفتقر لعدة لبيد مشروع JCESD القدرة لبيد مل موفد شركة لبيد ولصر الصح ؟
5	هل أي من موفدو لشغل فوق ا جراءات لشغل القيدية لاختبة و SOPs ؟
6	هل أي من ا جلقبعم، ما ذ ل لظمة لك اورت جعاءات لشغل القيدية؟
7	هل أي من ا دارة لبيد لشغل لامتد مر فوق ا جعاءات لشغل القيدية؟
8	هل أي من ا دارة لبيد لشغل لامتد مر فوق ا جعاءات لشغل القيدية؟
9	هل أي من ا دارة لبيد لشغل لامتد مر فوق ا جعاءات لشغل القيدية؟
10	هل أي من ا دارة لبيد لشغل لامتد مر فوق ا جعاءات لشغل القيدية؟
11	هل أي من ا دارة لبيد لشغل لامتد مر فوق ا جعاءات لشغل القيدية؟
12	هل أي من ا دارة لبيد لشغل لامتد مر فوق ا جعاءات لشغل القيدية؟
13	هل أي من ا دارة لبيد لشغل لامتد مر فوق ا جعاءات لشغل القيدية؟
14	هل أي من ا دارة لبيد لشغل لامتد مر فوق ا جعاءات لشغل القيدية؟
15	هل أي من ا دارة لبيد لشغل لامتد مر فوق ا جعاءات لشغل القيدية؟
16	هل أي من ا دارة لبيد لشغل لامتد مر فوق ا جعاءات لشغل القيدية؟
17	هل أي من ا دارة لبيد لشغل لامتد مر فوق ا جعاءات لشغل القيدية؟
18	هل أي من ا دارة لبيد لشغل لامتد مر فوق ا جعاءات لشغل القيدية؟

شكرالك على وقتك وتعاونك القيم.

_____ / _____ / _____

وقت الخدمة	من الساعة	حتى الساعة	
لم يتم الاتصال بالذيشارك			
الوظيفة			
لم يتم الاتصال بالقاء			
تتم تسجيل اللقاء مع فئة			

نتذكركم على لافلقة على ججاء ذذا للاء وذويتف ج الرقيام للوكلة ا مولي قنزي الدلي قنالي مروع خدمت حلي ا داء وتغير لسا اة للقيم وللحم **SIMPLE** جراعتيهم حق بدقدهاء مروع حشاء مح الت مة لة لايو والصر للصر (Construction of Wastewater Collection Systems and Water Treatment Plants) ولحق فرص عمل من لتيهم لخدمت اسكيلي ف صعيد صر (JCESD) بوجب شوية الدعم دارة لافلق لاصرية. جنا أعضا فيق للقيم وتتد هو لافرة كجزء من أعمال للقيم. جن شارلنكف ذوالافشة ذات اذية خصة ميث ألكم من لاصحاب لاصلة لافري ف نفيا لسا اة لافرو عي لافار لحي مة علي و محل للقيم. ورو تس ادم شارلنكف ذوالافشة ف دعمت لاج توصي ا تفرق للقيم في لي خص: درل ف علي لسا اة لافرو عي محل للقيم.

فتراجع الي التمتع بزيادة ارباح الامم الخ لالتكامل ا مدي التمكن من ا لادوية بل تعاون مع ا لخدمة الصحية.

سؤال	ملاحظات
1	دش اركتف تقيذ ائش اقت اير شيكات الصر الصحى؟
2	لجى أي مدى ش اركتش ركتلف تصيم ائش اة لا شروع؟
3	لجى أي مدى س اذم لا شروع تصير لادعم لام لوبل لشركة لئاء لتقيذ؟ لى ؟
4	ذلي عمل موظو للتشغيل فوقاً جراءات لتشغيل القيلرية لاختوبة و SOPs ؟
5	ج ذاك لئ ا سجد بئع، م ن ذ لا فظمة لئ اوربج جراءات لتشغيل القيلرية؟
6	نمى بدأت لشركة ف لىب خدام ج جراءات لتشغيل القيلرية؟
7	لى نمض من ا دارة ل لى التشغيل لامت مرفوقاً جراءات لتشغيل القيلرية؟
8	لى يغبظ ا لمتشغيل لئيك قبليس ت لىو لى و لئق اير لئ هري؟

مراجعة	سؤال
9	لماذا تولى كل إدارة العمل المشترك في الشركة وفقاً لجاءات الشركة في العمل المشترك؟ هل هناك أي شيء آخر من شأنه أن يؤثر على قرار العمل المشترك؟
10	صنّف الشركة في العمل المشترك وفقاً للمعايير التي تم استخدامها.
11	لماذا تدار الشركة في العمل المشترك؟ وأي النظام الذي تم استخدامه ولماذا؟ ولماذا لم يتم استخدامه أو التخلي عنه؟
12	لماذا عمل موظفو الشركة في العمل المشترك وفقاً للمعايير؟ جاءات الشركة في العمل المشترك و SMPs؟
13	جاءات الشركة في العمل المشترك وفقاً للمعايير؟ جاءات الشركة في العمل المشترك و SMPs؟
14	لماذا يخطط موظفو الشركة في العمل المشترك وفقاً للمعايير؟ جاءات الشركة في العمل المشترك و SMPs؟
15	لماذا تم إجراء أي تغييرات أو تعديلات على العمل المشترك وفقاً للمعايير؟ جاءات الشركة في العمل المشترك و SMPs؟
16	من وجهة نظرك، هل أي مدى عززت المؤسسات العمل المشترك وفقاً للمعايير؟ جاءات الشركة في العمل المشترك و SMPs؟
17	ما الذي لا يزال العمل المشترك وفقاً للمعايير؟ جاءات الشركة في العمل المشترك و SMPs؟

شكرالك على وقتك وتعاونك القوي.

بروتوكول قبل تشخيصية

الموظفون الذين ارادوا ان ينفذوا مشروع ووحدة تفيد المشروع (PIU)

تاریخ اجتماع

_____ / _____ / _____

وقت ۱ ہجتم اع

منساعة

مختی سے اعۃ

الهيول الذى شارك

اسم:

النوع: فكر □ فتي

الوظيفة

الفصل الأول :

3. الوظيفة لرشا الشروع عن:

4. ملزم الشراكة:

5. بلسم لقي ١١٤ للتبعله

6. الخلية الشمسية؟

7. عدد سنوات الخريف مرقعك الحل ؟

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

تسحيل للقاع م عفة

لمقدمة:

[illegible]

جن ش ارتكف ذوال الفشة ذات اذية خصة حيث انكم من اصحاب الامر لا تعرفون تفويض اة لا شروعين لا شرا لي مبعلي ومحل للتفويض. ورو بس اذم ش ارتكف ذوال الفشة ف دعم تلج وتوصري اتفرق للتفويض في م لي خص:

در لس فلة اش اة لا شروعين محل للتفويض.

بقية بليلته اشارة الى انه قد مرر شهورا كثيرة في اثناء من التوقي.

فراح إلى التل عزيزاً للندامة أشد ألمه الخافي إذا سبق من خال الوفاة الذي في قلبه من ألمه الخافي.

[illegible]

بدرولہ بلتیش ایہ

ما ذو درائف تقي ذائش اة ل ش روعن؟

إدارة عقود / لثريات

لجی ای مدی نطاحت اعمال الشروعی بنی اء قدر ات قسم الشریات؟

1 وضعی جد الی 5 محید جدا

5	4	3	2	1
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ص انواع الام هارات لك تتم لتسريب لك مجال لثني تيات لتني حة بعشرة مالبقاء لك در اتقبال شروع؟

1

پ

ت

ث

لكم عدد الموظفين من جدارة الخبيرة / لاقتنيات التي نتحدث فيها موضوع اقتصادي في مرحلة معينة من الشروع في. نلش اركت بعشر ج عدد أي من التل ، حدد كل ما ينطبق.

ج عدد وطاق ل ففصة	
علي مقويم ل ع اءاء	
تقويم ل ع دوفن / حل	
عليه فاح ل ع د	
آخر	

ذلت مرقل الامعار المتسبب لى موظف اللغود / اللثريات؟ ج ذالك لت ا جمل قين عم، لى ادى لك لى حى حرين اداء لى موظفين؟

قمت بتقييم العبارات التالية من 1 إلى 5 حيث و 1 وضعي 5 وممتاز

تتمت حريز انشاء الشركة في ماتي في قبل ارام في وود علي ات الشراء:

5	4	3	2	1
---	---	---	---	---

مدى التحرف على اتيابرام الخود ولبت غرقت قل من 4ش مور ن هـ ا قن رن قبع دد ل ع اءات البمر م:

5	4	3	2	1
---	---	---	---	---

مدى لك حسن ف اعداد لعليات لك يتم اعادة ارحها مرة أخرى:

5	4	3	2	1
---	---	---	---	---

مدى لك حزن ف / و / أوجع اذقني م / رسي بسبب اعتبار التقوية و / أو أداء و / أو التفقة.

5	4	3	2	1
---	---	---	---	---

مدى التحرف تصبى في كفة الخشود الممزوجة بغيره لس اس صدر واحد:

5	4	3	2	1
---	---	---	---	---

مدی لت جس زلف الی غی و دال خضعتی ج اوزات الوقت:

5	4	3	2	1
---	---	---	---	---

تتفق النسبة لأي ϵ في $\mathbb{R}^+$ وجود δ لـ x خضع ϵ متجاوزات للتقريب:

5
6

ص لي اضلي فيلق الاعال مشروعات، جن وجد، لئنيجة نمشرفلش الاعال مشروع.

1
2
3
4
5
6

ذلت مرقل لامعار لالمختب لئلي موهف ق الاعال مشروعات؟ ج ذالك لت ا جلقن عم، لي أدى قك لئلي سحري اداء لاموهليين؟

إدار قفيل مشروعات

لئلي أي مدي نأاحش الاعال مشروع سحري بن اء ق درات جدار قفيل ذال مشروعات؟
ومن 1 وض لي لئلي 5 ومجد جذا

5	4	3	2	1
---	---	---	---	---

اظر لواع لام هارات لت تم لفسر لمف مكال جدار قفيل ذال مشروعات لئلي جة نمشرف مالبنا لئلي درات بل مشروع؟

ا

ب

ت

ث

لسم عدد لاموهليين من اءارة ق الاعال مشروعات لئلي ن مدي لمف موضوع اتقديي م حدة لئلي جة نمشرفلش الاعال مشروعين.
مانوع لامعدات وللاموارد لك ت مقي م ه ا دار قفيل ذال مشروعات لئلي سحري م رة ا داء لئلي جة نمشرفلش الاعال مشروع؟

1
2
3
4
5
6

ص لي اضلي فيلق جدار قفيل ذال مشروعات، جن وجد، لئلي جة نمشرفلش الاعال مشروع.

1
2
3
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5
6

ذلت مرقل لامعار لالمختب لئلي موهف جدار قفيل ذال مشروعات؟ ج ذالك لت ا جلقن عم، لي أدى قك لئلي سحري اداء لاموهليين؟

ق طاع لشغل ولصيرة

لئلي أي مدي نأاحش الاعال مشروع سحري بن اء ق درات ق الاعال لشغل ولصيرة؟
ومن 1 وض لي لئلي 5 ومجد جذا

5	4	3	2	1
---	---	---	---	---

اكثر أنواع الامهارات التي تم اكتسبها من خلال التدريب على العمل والصيانة الفعالة للمشروع؟

أ

ب

ت

ث

كم عدد الموظفين من القطاع الخاص والصيانة الذين تم تدريبهم؟
موضوعات التدريب محددة لنتيجة المشروع؟
موضوعات التدريب والموارد التي تم تحقيقها من خلال التدريب؟

1
2
3
4
5
6

ص لى اعطى فيلق القطاع والصيانة، جن وجد، لنتيجة المشروع.

1
2
3
4
5
6

ذلت مقرر الامعار المقتسبة على موظف القطاع والصيانة؟ جذا كنت ا سجل قنعم، لى أدى قك لى يتحري اداء الموظفين؟

شكراً على وقتك وتعاونك لقيم.

لمقدمة:

تقوم بلتدامة اشراف الذقعد مرور ثسنوات غي اتمام من التوى ذ.

اسرعى:

ذلت لقيت أي دعم من اهل القدرات ضمن اثن اة ل شروع عن EQ2 ، EQ3

ماذا نأشأ لك تدب لك حلت في EQ2 ، EQ3

لجى أى مدى لم تحت من تبلىق للتدري بف علمك اليوم EQ3؟

ما ذوالم اللوبلت عيز ج كئلات ولبت دامت بليق ماتم لخصيه من م هارات؟ EQ3 ، EQ4

لأي مؤشر وشركة ألهو والصرر الصرح صيغة ا مال لايك ايكة ولك مديعة ولا مدية؟ EQ3 ، EQ4

ما ذا للنماذج التي تخدم دائرة أعمال الصيانة؟ EQ4

ماذا لم يغير الامتخانة؟ خيار حواف الصيانة؟ EQ3 ، EQ4

لأي تير الصيغة للتصحيح في نظام شركات لتجيب EQ3 ، EQ4

ما ذا الرضاة الصريفة للتصميمي؟ EQ3 ، EQ4 ،
ما ذا الانماذج لك تستخدمه التوثيق الصريفة للتصميمي؟ EQ3 ، EQ4 ،
ما ذونوع الامويلير الريبيري للنظام لك جميع؟ EQ2
ذلليك أي شكل يسبب لك كلف الامويلير؟ EQ2 ، EQ3 ،
ما ذا الامعدات لك تستخدمها عادة في نظي الامجاري؟ EQ3 ، EQ4 ،

شكراً على تعاونك وقتك لقيم.

لمقدمة:

جن شراختنكف ذو لايشرة ذات اذيه خصة حيث اركم من اححاب الاصل حة لا يفرق نفوي ذلش اة لا مشرو عین لا شرا لي مبع علي ه ومحل للتجهيم. هو بس اذم شراختنكف ذو لايشرف دغ من تلج وتصري انفرق التجهيم في ماي خص:

درلش علي اة لا مشرو عین محل للتجهيم.

تقديم لبلد دامة ا رش اة الف ذ بق د مرور ثس سنوات غى ا قاء من التوى ذ.

فتراح الي اتتعيز بلبتدامة ا رش اة لامخ ا تفي اذا متيق من خ ل الوكالة ا مويكي فلتيني اة لدوي قبلتعاون مع الحكومة المصرية.

شركاءنا شركائكم من قبل عزز من تلجج وتوصلهايات هذا التخييم. كما ان كدلكم أن مساهمتهم بذلك خدمات تلجج هذا السر وتوكول راق للتخييم فوق اودون الشك عن ذية الارلين.

اسرعى:

هل تلقت أي دعم فني وتدريب من أجل اة شروع JCESD محل القويم EQ2 ، EQ3

ماذا نأشأقبناءالقدرات لك صرتم في EQ2؟ ، EQ3

لجى أى مدى تلمحت من تبلق للتدربف علك الوم EQ3؟

ماذا نقصصكم في عزج لكلات وملت دامت بليق التديرب EQ3 ، EQ4

ذلت توى درې قبم ځير اتي اړتص ايم مح ات مغلجه لاي و وضوې ا مح اة مغلجه لاي و EQ1 ، EQ2

لبي تتتم اعمال الصيغ من م ح ات مع لجة لاي و EQ3 ، EQ4

ما ذ الامم غير الامم المتخذة بقرار موظف للشركه والامم الامم التي تتنفي بجدالك من ان الامم المتخذة اداء الامم المتخذة EQ1؟ ، EQ3 ، EQ4

ما ذ الامم المتخذة او الامم المتخذة بقرار من م ح اة م ح اة لاي EQ3 ، EQ4

ذل المتفق اليوم m3 / d في عرض من المتفق المتفق EQ2؟

لي بتمم ادارة ارق اذ الامم المتخذة من قبل الامم المتخذة EQ3 ، EQ4

لغلي امم المتخذة الامم المتخذة من قبل الامم المتخذة والاي المتخذة والاي المتخذة الامم المتخذة الامم المتخذة ا ج ا ا الامم المتخذة EQ4 ، EQ3

بالتشركه ومامم الامم المتخذة EQ3 ، EQ4

لي بتمم الامم المتخذة الامم المتخذة EQ3 ، EQ4

ما ذ ا ج ا a EQ3 ، EQ4

ذل بتمم شركه لاي و الامم المتخذة بتمم ا ج ا ا ا ا ا ا ا ا ا a EQ3 ، EQ4

لي بتمم شركه ا ا ا ا ا ا ا ا ا a EQ3 ، EQ4

ما ذ الامم المتخذة ا ا ا ا ا ا ا a EQ3 ، EQ4

ما ذ الامم المتخذة ا ا ا ا ا ا a EQ3 ، EQ4

ما ذ ا ا ا ا ا ا ا ا ا a EQ3 ، EQ4

ذل بتمم شركه لاي و الامم المتخذة بتمم ا ج ا ا ا ا a EQ3 ، EQ4

ذل لذي موظف الامم المتخذة ا ا ا ا ا ا ا ا ا ا ا a EQ3 ، EQ4

شركاً على امتع ا a

بروتوكول مناقشة جماعية

موظف التشغيل والصيانة لمشروع الري لخدمة

خضعتهم حاليًا

تاريخ الاجتماع		/ /	
وقت الاجتماع	من الساعة	حتى الساعة	
المرئىء الذى شارك			
اسم:			
النوع: ☐ ذكر ☐ أنثى			
الوظيفة			
المهنة الحالية:			
3. الوظيفة الحالية للمشروع:			
4. للمشاركة:			
5. للمتابعة:			
6. للمتابعة؟			
7. عدد سنوات الخبرة مع العمل؟			
الملاحظات:			
تسجيل المناقشة			

المقدمة:

نذكركم على أهمية هذه المناقشة وهدفها هو تقييم أداء فريق العمل في تنفيذ المشروع (Construction of Wastewater Collection Systems and Water Treatment Plants) وتحديد فرص العمل من أجل تحسين الخدمات المقدمة للمواطنين. هذه المناقشة هي جزء من أعمال التقييم. نحن نأمل أن تكون هذه المناقشة مفيدة لجميع المشاركين. نحن نأمل أن تكون هذه المناقشة مفيدة لجميع المشاركين. نحن نأمل أن تكون هذه المناقشة مفيدة لجميع المشاركين.

تهدف هذه المناقشة إلى تقييم أداء فريق العمل في تنفيذ المشروع (Construction of Wastewater Collection Systems and Water Treatment Plants) وتحديد فرص العمل من أجل تحسين الخدمات المقدمة للمواطنين. هذه المناقشة هي جزء من أعمال التقييم. نحن نأمل أن تكون هذه المناقشة مفيدة لجميع المشاركين. نحن نأمل أن تكون هذه المناقشة مفيدة لجميع المشاركين. نحن نأمل أن تكون هذه المناقشة مفيدة لجميع المشاركين.

الأسئلة:

1. هل هناك أي ملاحظات أو اقتراحات من فريق العمل؟ EQ4 ، EQ2؟
2. هل هناك أي ملاحظات أو اقتراحات من فريق العمل؟ EQ4 ، EQ3؟
3. هل هناك أي ملاحظات أو اقتراحات من فريق العمل؟ EQ4 ، EQ3 ، EQ2؟
4. هل هناك أي ملاحظات أو اقتراحات من فريق العمل؟ EQ4 ، EQ3؟
5. هل هناك أي ملاحظات أو اقتراحات من فريق العمل؟ EQ4 ، EQ3؟
6. هل هناك أي ملاحظات أو اقتراحات من فريق العمل؟ EQ4 ، EQ3؟
7. هل هناك أي ملاحظات أو اقتراحات من فريق العمل؟ EQ4 ، EQ3؟
8. هل هناك أي ملاحظات أو اقتراحات من فريق العمل؟ EQ4 ، EQ3؟
9. هل هناك أي ملاحظات أو اقتراحات من فريق العمل؟ EQ4 ، EQ3؟
10. هل هناك أي ملاحظات أو اقتراحات من فريق العمل؟ EQ4 ، EQ3؟

شكراً على تعاونك ووقتك لقيم.

7A CHECK LIST

قائمة التحقق من شبكات الصرف الصحي، لريوط ورواج

يجب استكمال هذا النموذج قبل بدء العمل على شبكات الصرف الصحي. هذا النموذج هو جزء من مجموعة أدوات العمل على شبكات الصرف الصحي. يجب استكمال هذا النموذج قبل بدء العمل على شبكات الصرف الصحي. هذا النموذج هو جزء من مجموعة أدوات العمل على شبكات الصرف الصحي.

لموقع /القوية:

لتاريخ:

اسم الموقع لمرافق ه من الشركة:

لمحيط	نعم	م ح عات
خاصة للصيانة		
توجد خاصة للصيانة وللصيانة /القطعة		
توضح لائحة جدول زمني وضحي للوقت وأداء كل مهمة		
يتم تحديد أجزاء الشبكة لمراد صيانتها		
يتم تحديد أول الشبكة لمراد صيانتها		
للمعدات المستخدمة للصيانة للشبكة محددة لائحة		
أليات الصيانة (طرق الصيانة لتأكد من مطابقة الخطوط للمواصفات)		
شركة لاهي ووالصر للصيانة هي لها معدات فحص للتأكد		
تطبق شركة لاهي ووالصر للصيانة هي لها معدات فحص للتأكد		
خطط لظواهر لمواجهة الضرر الطفيل وللجبر قبل مجارن		
تقوم شركة لاهي ووالصر للصيانة بإعداد خطة قبل معدات الحرجة للتفتيش		
وتتبع حدوث الجبر للصيانة		
لدى شركة لاهي ووالصر للصيانة قبل تشغيل الفحصية للمنبأ اقبحات		
الاوراء والتفتيشية		
لدى شركة لاهي ووالصر للصيانة قبل تشغيل الفحصية للمنبأ اقبحات		
بالاوراءين جاح		
الحالة العامة لغرف التفتيش والمطبه ورف للمحيط		
ار للمحيط من نظيفة من اتربة و/ أو الحرجة		
للمحيط عمل جيد يتم اعتبارها		
يتم اغ عن التفتيش ارف للمحيط ارف للمحيط ارف للمحيط		
ألية ارف للمحيط ارف للمحيط ارف للمحيط		
تتبع شركة لاهي ووالصر للصيانة لظواهر الحرجة العامة لغرف التفتيش		
وار للمحيط		
شكراً على تعاونك ووقتك القيم.		

لأبي وأمي وذاتي

يجب عليك اتخاذ الخطوات التالية لحل هذه المشكلة:

لموقع القريّة:

لتاريخ:

اسم الموقع لمرکز ه من لشركه:

م حعات

نعم

لحم علیہ

ضعف ومة لمعالجة

مكونات مراحل العلاج للمريض المتخلف مع التوحد ١٠

تصميم محالة لوليت وفلق مع التصميم الأول ..

يتحدث بلقيع مع عليير للتصدي بمشاكل صحيحة

..... مع تغيير في ظروف التحكم في عملية

معدات معالجة المخلفات حلة مخلفات

[illegible]

ف ن هية عام 2015 لم يتوى أداء الشا ال مضمومة حدارة الم فلق الم صرية ل الشروعين .

في سبيل المثال،

تشغيل المعدات والتعامل مع المواد الخطيرة و أدوات

متبليق لعليات لجريلية

مات بليقت ديال

كليات ومؤسسات تعليمية

التفريق اليوم ف حدود تقوس التفريق التصريم m3 / d

عدد الدورات لخدمة

ذليو جهر جت خزين لڄوي

ذلي وجود خزان ارضی؟

ذلي وجود وحدت الخاص من الاحيد والافيزي؟

ذلت وجود وحدة لظورة وضفلة لظور

ذلت وجود و حقیقت شرح رملی ؟

يتم تطبيق أخذ العينات / التحليل بشكل صحيح

لتحلل فيزيائية والكيميائية والبيولوجية والامع على ذلك وللامعالجة م الملحق فلم على الرصية

يتم حفظ التقارير والبيانات وال.....

..... لا م عملی بلقیات مرارج جرات ضم ان لایق / مرهبة لایق

يتهم بلقيث تدريب الموهولين بشكّل في هج ؟

تحتفظ شركة لاهي والصرح ببنسخ من كل اعتبار جودة لاهي و.....

تفتظ شركة الهول والصور للصحر بالصور الشواطئ في رحلة لاعمارة لمح اة

قائمة التحقق من حالات فعال الصرف الصحي
لأري وارسو ذاج

يجب استخدام قائمة التحقق هذه لتقييم حالة المجاري كجزء من نظام تجميع مياه الصرف الصحي، بما في ذلك المحابس وغرف المحابس. التي سيستخدمها مسئول التقييم أثناء زيارات الموقع.

الموقع / القرية:

التاريخ:

اسم

الموظف المرافق من الشركة:

المعايير	نعم	لا	ملاحظات
التشغيل يتم الاحتفاظ بالسجلات اليومية والتقارير الشهرية..... كتيبات ونماذج العمليات تستخدم بفاعلية..... يجرى تدريب موظفي التشغيل والصيانة..... النماذج القياسية تستخدم لتوثيق نشاط التشغيل..... تستخدم التقارير الموحدة لتلخيص النشاط الشهري / السنوي..... يستطيع موظفو التشغيل الحفاظ على مستوى التشغيل بصورة لمساوية أو أفضل من مستوى التشغيل التي انتهى عندها مشروع المشروعين. تحتفظ شركة المياه والصرف الصحي بنسخ من السجلات اليومية والنماذج والتقارير			
خطة الصيانة يقوم الموظفون بتطبيق خطط الصيانة التصحيحية والوقائية تستخدم خطة الصيانة النماذج المعتمدة الصادرة أو المعتمدة من قبل الشركة القابضة لمياه الشرب والصرف الصحي..... تعرض الخطة جدول زمني يحدد مهام صيانة التاريخ والوقت الواجب تنفيذها... المعدات المستخدمة في مهام الصيانة محددة في الخطة...			

المعايير	نعم	لا	ملاحظات
خطط الطوارئ (فشل الطلبات، انقطاع التيار الكهربائي أو التدفق العالي جداً) يتم الاحتفاظ بقائمة بالمعدات الضرورية والمعدات التي قد تتسبب في مشاكل لدى شركة المياه والصرف الصحي قائمة بالمشاكل الافتراضية الشائعة المتعلقة بالطوارئ والتي يمكن أن تنشأ فجأة.. لدى شركة المياه والصرف الصحي قائمة بتدابير لحل المشاكل الشائعة المتعلقة بالطوارئ بنجاح.			
الحالة العامة لمحطة الرفع لوحات التحكم في المحركات (MCCs) نظيفة مقاييس ضغط الطلمبة تعمل مقاييس الأمبير الخاصة بالطلبات تعمل قيمة التيار المسحوب عند تشغيل الطلبات يتوافق مع تصميم الطلمبة الطلبات نظيفة.. المحابس تعمل جيداً وغير متيبسة يتم الإبلاغ عن التسرب في الطلبات إن وجد يتم الإبلاغ عن التسرب في المحابس إن وجد أرضيات محطة الرفع من نوعية مناسبة للعمل ونظيفة			

شكراً على تعاونك وقتك لقيم.

8 ملتيبيان سرالم عيشية -المبقي النط من وص ت لى لوالصر الصر

تاريخ المقابلة:	____/____/____
وقت المقابلة:	الساعة من: إلى:
المدون	

المقدمة:

نشكركم على الموافقة على إجراء هذا اللقاء وهو يأتي في إطار قيام الوكالة الأمريكية للتنمية الدولية بتكليف مشروع خدمات تحسين الأداء وتعزيز أنشطة التقييم والتعلم **SIMPLE** لإجراء تقييم لاحق بعد انتهاء مشروع إنشاء محطات معالجة المياه والصرف الصحي (Construction of Wastewater Collection Systems and Water Treatment Plants) وخلق فرص عمل من خلال تقديم الخدمات الأساسية في صعيد مصر (JCESD) بموجب اتفاقية الدعم لإدارة المرافق المصرية. إننا أعضاء بفريق التقييم وتتم بهذه الزيارة كجزء من أعمال التقييم.

إن مشاركتكم في هذه المناقشة ذات أهمية خاصة حيث أنكم من أصحاب المصلحة الرئيسيين في تنفيذ أنشطة المشروعين المشار إليهم بهاليه ومحل التقييم. وسوف تساهم مشاركتكم في هذه المناقشة في دعم نتائج وتوصيات فرق التقييم فيما يخص: دراسة فعالية أنشطة المشروعين محل التقييم.

تقييم استدامة الأنشطة المنفذة بعد مرور ثلاث سنوات على الانتهاء من التنفيذ.

اقترح آليات لتعزيز استدامة الأنشطة المخطط تنفيذها مستقبلاً من خلال الوكالة الأمريكية للتنمية الدولية بالتعاون مع الحكومة المصرية.

مشاركتكم ستعزز من نتائج وتوصيات هذا التقييم. كما نؤكد لكم أنه سيتم استخدام نتائج هذا البروتوكول لأغراض التقييم فقط ودون الكشف عن هوية المشاركين.

أ: معلومات شخصية

م	السؤال	الإجابة
	اسم عضو الأسرة المستفيدة المشارك	
	النوع	ذكر..... 1 أنثى..... 2
	السن	 سنه
	الوظيفة	
	المحافظة	
	المركز	
	القرية	
	رقم الموبايل	

م	السؤال	الإجابة
	العنوان	
	نوع السكن	إيجار 1 ملك 2
	عدد الافراد المقيمين بالمنزل	
	عدد الاسر بالمنزل	
	مستوي تعليم رب الاسرة	جامعي 1 تعليم متوسط (فني) 2 ابتدائي 3 محو اميه 4 لا أعرف الكتابة والقراءة (أمي) 5

ب: توصيل المياه (قبل المشروع) (الأقصر وقتنا فقط) الإجابة من الأسئلة 15 الي 23		
قبل الحصول على توصيلات المياه، ما هو المصدر الطبيعي لمياه الشرب الذي كنتم تستخدمونه؟	حنفية في الشارع 1 طلمبة رفع 2 أخرى (تذكر) 3	
فكر في الوقت اللازم للقيام برحلة واحدة ذهابًا وإيابًا، من منزلك إلى مصدر المياه والعودة مرة أخرى. كم دقيقة استغرق هذا، بما في ذلك وقت الانتظار عندما يكون مصدر المياه مزدحم؟	أقل من 5 دقائق 1 6-10 دقائق 2 11-30 دقيقة 3 31-60 دقيقة 4 أكثر من 60 دقيقة 5	
هل كان المصدر يعطي كمية كافية من مياه الشرب لمنزلك في هذا الوقت؟	نعم 1 لا 2	

1..... نعم 2..... ليس دائماً 3..... لا 4..... لا أعرف	هل تعتبر أن ذلك المصدر للمياه كان يوفر مياه ذات نوعية جيدة؟
1..... الطعم / الرائحة 2..... اللون 3..... الطين / الرمال 4..... أخرى (تذكر).....	ما هي المشاكل التي لديك مع نوعية المياه؟ اختر كل ما ينطبق
1..... نعم 2..... لا	هل كانت جميع الأسر في قريتك غير متصلة بشبكة المياه؟
..... سنة 	متى سمعت لأول مرة عن مشروع توصيلات المياه؟
.....	سمعت من مين؟
.....	كيف تم شرح فكرة المشروع لك؟
ج : مصدر مياه الشرب الحالي للأسر	
1..... نعم 2..... لا	هل يوجد توصيل لمياه الشرب داخل المنزل من خلال شبكة المياه؟
..... سنة	إذا كانت الإجابة بنعم - متى تم التوصيل؟
1..... نعم 2..... لا	هل مصدر المياه يعطي كمية كافية من مياه الشرب لمنزلك؟
1..... الحصول على مياه نظيفة 2..... النظافة 3..... أقل تكلفة الحصول على المياه المنزلية 4..... أمراض أقل 5..... أخرى (تذكر).....	كيف أدى توصيل المياه من خلال شبكة المياه الحالية إلى تحسين حياتك؟ اختر كل ما ينطبق
1..... نعم 2..... لا	هل يوجد أي مشاكل مع مصدر المياه على الشبكة؟
1..... انقطاع (عدد المرات)؟..... 2..... الضغط المنخفض (كم مرة؟).....	إذا كانت الإجابة نعم اختر كل ما ينطبق

3..... رائحة او طعم سيئ.....		
4..... أخرى (تذكر).....		
1..... نعم.....	هل يأتي شخص ما بانتظام لقياس استهلاك المياه في عداد المياه الخاص بك؟	
2..... لا.....		
1 ممتاز	الى أي مدى انت راضي عن مياه الشرب؟	
2 جيد		
3.. مقبول		
4 ضعيف (غير راضي)		
	لماذا؟	
د: نظام الصرف الصحي الحالي		
1..... نعم.....	هل يتصل منزلك بنظام الصرف الصحي؟	
2..... لا.....		
39 انتقل الي سؤال سنه	اذا كانت الإجابة بنعم: منذ متى ومنزلك متصل على شبكة الصرف الصحي؟	
	إذا كان الجواب لا: كيف تتعامل مع المياه الصرف الصحي؟	
1..... نعم.....	هل تواجه ايه مشاكل مع شبكة الصرف الصحي؟	
2..... لا.....		
	إذا كانت الإجابة نعم: ماهي هذه المشاكل؟	
1..... نعم.....	هل هناك شخص مسؤول عن صيانة المجاري؟	
2..... لا.....		
1 ممتاز	الى أي مدى انت راضي عن الصرف الصحي؟	
2 جيد		
3.. مقبول		
4 ضعيف (غير راضي)		
	لماذا؟	
الرضا عن الخدمة		

على مقياس تقييم من 1 إلى 5 (ضع دائرة) تبين مدى رضاك عن مستوى الخدمات التي تقدمها شركة الصرف الصحي (حيث 5 = راضٍ تماما و 1 = غير راضٍ إطلاقاً و 0 = لا أعرف)؟						
5	4	3	2	1	لا أعرف	
5	4	3	2	1	0	إجراءات الحصول على الخدمات
5	4	3	2	1	0	تسهيلات الدفع
5	4	3	2	1	0	الوصلات المنزلية
5	4	3	2	1	0	تحصيل الفواتير
5	4	3	2	1	0	أعمال الصيانة والإصلاح
5	4	3	2	1	0	الرد على الاستفسارات والطلبات
5	4	3	2	1	0	التعامل مع الشكاوى
1..... نعم. 2..... لا.						هل شاركت في أية أنشطة متعلقة بالشركة؟
1..... ندوات توعية 2..... المؤتمرات 3..... جلسات التشاور 4..... اجتماعات 5..... اللجان المحلية (مجتمع محلي) 6..... أخرى (تذكر).....						إذا كانت الإجابة بنعم؟ ما هي تلك الأنشطة؟
1..... نعم. 2..... لا.						هل تغطي خدمات الشركة كل القرية؟
1..... الحصول على بيئة نظيفة 2..... صحة أفضل – امراض اقل 3..... أقل تكلفة. 4..... أخرى (تذكر).....						كيف أدى توصيل الصرف الصحي من خلال الشبكة الحالية إلى تحسين حياتك؟

____/____/____	تاريخ الاجتماع
____ من ساعة ____ حتى ساعة ____	وقت الاجتماع
	اسم المسئول الذي شارك
	الوظيفة
	اسم القائم باللقاء
	تسجيل اللقاء بمعرفة

المقدمة:

نشكركم على الموافقة على إجراء هذا اللقاء وهو يأتي في إطار قيام الوكالة الأمريكية للتنمية الدولية بتكليف مشروع خدمات تحسين الأداء وتعزيز أنشطة التقييم والتعلم **SIMPLE** لإجراء تقييم لاحق بعد انتهاء مشروعي إنشاء محطات معالجة المياه والصرف الصحي (Construction of Wastewater Collection Systems and Water Treatment Plants) وخلق فرص عمل من خلال تقديم الخدمات الأساسية في صعيد مصر (JCESD) بموجب اتفاقية الدعم لإدارة المرافق المصرية. إننا أعضاء بفريق التقييم ويتم بهذه الزيارة كجزء من أعمال التقييم.

إن مشاركتكم في هذه المناقشة ذات أهمية خاصة حيث أنكم من أصحاب المصلحة الرئيسيين في تنفيذ أنشطة المشروعين المشار إليهم بعاليه ومحل التقييم. وسوف تساهم مشاركتكم في هذه المناقشة في دعم نتائج وتوصيات فرق التقييم فيما يخص: دراسة فعالية أنشطة المشروعين محل التقييم.

تقييم استدامة الأنشطة المنفذة بعد مرور ثلاث سنوات على الانتهاء من التنفيذ. اقتراح آليات لتعزيز استدامة الأنشطة المخطط تنفيذها مستقبلاً من خلال الوكالة الأمريكية للتنمية الدولية بالتعاون مع الحكومة المصرية.

مشاركتكم ستعزز من نتائج وتوصيات هذا التقييم. كما نؤكد لكم أنه سيتم استخدام نتائج هذا البروتوكول لأغراض التقييم فقط ودون الكشف عن هوية المشاركين.

الأسئلة

#	السؤال	الإجابة
الأنشطة المؤسسية وبناء القدرات ضمن برنامج JCESD		
1	أي من المساعدات الفنية التالية قدمتها لشركات مياه الشرب والصرف الصحي لخدمة من خ ل مشروع JCESD : التشغيل والصيانة إدارة المشروعات اعداد إجراءات التشغيل القياسية (SOPs) اعداد إجراءات الصيانة القياسية (SMPs) التوثيق السليم للمستندات المتابعة أخرى	
2	هل قمتم بتصميم أنشطة التدريب لمشروع JCESD بالتعاون مع الشركة القابضة لمياه الشرب والصرف الصحي/ والشركات التابعة لها؟ قم بالوصف لسير العملية؟	
3	كيف اخترتم محتوى أنشطة بناء القدرات (الفنية والإدارية) لشركات المياه والصرف الصحي؟ هل كان بناء على تقييم الاحتياجات على سبيل المثال؟	
4	كيف تابعتم جودة التدريبات وتأثيرها على المشاركين في التدريب (رضا المشاركين، التعلم، التنفيذ الفعال، التأثير على مستويات الأداء)؟	
5	في رأيك، كيف أثرت أنشطة بناء القدرات على أداء موظفي شركة المياه والصرف الصحي؟	
6	بعد انتهاء المشروع، كيف تابعتم تطبيق الموظفين للمعارف والمهارات المكتسبة في مكان العمل؟	
7	ما هي التحديات التي قد تكون واجهت موظفي الشركة في تطبيق ما تم تعلمه من خلال أنشطة بناء القدرات واستدامته داخل الشركة؟ ما الذي يمكن عمله للتغلب على هذه التحديات؟	
8	على حد علمك، ما هي التدابير التي اتخذتها الشركة للحفاظ على استدامة اثر هذه التدريبات (تدريب المدربين TOT، المدربون الرئيسيون ، الادلة ، المناهج ، دورات تشييطية)؟ كيف يتم تمويل التدريبات منذ نهاية نشاط المشروع؟ هل تم تصميم خطة استدامة مالية وإدارية مع الشركة؟	
9	ما هي التحديات التي تواجه التنفيذ الناجح لأنشطة بناء القدرات في المستقبل؟ ما الذي فعلته Chemonics لمواجهة هذه التحديات؟	

#	السؤال	الإجابة
10	ما هو دور وحدات إدارة المشروع PIUs الحالي في وقت المشروع؟ وبعد انتهائه؟ إلى أي مدى تكون مستدامة من الناحية المؤسسية؟	
خلق فرص العمل من خلال تقديم الخدمات الأساسية (JCESD)		
11	يرجى وصف جهود خلق فرص العمل التي نفذت من خلال JCESD ؟	
12	ما هو المستهدف من تلك الأنشطة المخططة؟ هل تحققت تلك المستهدفات؟	
13	هل تم وضع معايير لجودة البيانات وطرق تقييم جودة ودقه البيانات؟	
14	هل تم متابعة الأداء بشكل منهجي والإبلاغ عن مؤشرات الأداء التي أجريت خلال فترة التنفيذ من قبل أي من أصحاب المصلحة؛ على سبيل المثال، الوكالة الأمريكية للتنمية الدولية، وشركات المياه والصرف الصحي التابعة، كيمونكس، وغيرها؟	
15	كيف كانت جهود المتابعة والتقييم التي قامت بها شركات المياه والصرف الصحي، أو أصحاب المصلحة الرئيسيين الآخرين، خلال فترة التنفيذ لتقييم آثار استثمارات المشروع (على: 1) الملكية المحلية، 2) القدرة الفنية لموظفي شركات مياه الشرب والصرف الصحي و 3) الاستدامة المتوسطة و / أو الطويلة الأجل للنتائج؟	
17	من أجل تحسين تصميم البرامج في المستقبل، ما الذي يجب الحفاظ عليه واستمراره؟ ما الذي يحتاج إلى تغيير؟	
18	إلى أي مدى تم تنفيذ أنشطة المشروع في الشركات بكفاءة؟ هل كان هناك أي تأخير في التنفيذ أو تجاوز في التكاليف؟ هل كانت هناك أي تحديات في التنفيذ؟	

شكرا لك على وقتك وتعاونك القيم.

ANNEX IV: TABLES AND GRAPHS

A. TABLES

TABLE 1: DETAILS ON THE ACTIVITIES UNDER THE EVALUATION SCOPE

ACTIVITY	WATER AND WASTEWATER SMALL-SCALE CONSTRUCTION PROGRAM	JOB CREATION THROUGH ESSENTIAL SERVICES DELIVERY
Assistance Agreement #	263-02704	
Implementing Partner	Water and Wastewater Companies in Upper Egypt	
Life of Activity	January 27, 2010 – March 31, 2015	
FARAs Amount	US \$ 30 Million	US \$ 20 Million
Active Geographic Regions	Focus of the Evaluation: Upper Egypt	
	Assiut, Sohag	Assiut, Sohag, Luxor, Qena
Development Objectives (Dos)	2.3 Strong economic growth based on sound policy expands opportunity and reduces poverty for all Egyptians	
USAID Technical Office	Office of Economic Growth (OEG), USAID/Egypt	

TABLE 2: STAKEHOLDER CATEGORIES

SITE	STAKEHOLDERS CATEGORY
Cairo	HCWW chairman and other relevant staff - USAID staff – Chemonics Egypt relevant staff
Assiut & Sohag	Leadership and staff of subsidiary water and wastewater companies and Staff of eight wastewater facilities and four potable water treatment plants
Luxor & Qena	Leadership and staff of subsidiary water and wastewater companies

TABLE 3: WATER AND WASTEWATER CONNECTIONS VISITED

#	DATE (DD/MM/YYYY)	GOVERNORATE	VILLAGE/SATELLITE	CONNECTIONS
1	10/07/2019	Assiut	Bany Zaid el Akrad – El Fath	Water Connections
2	11/07/2019	Assiut	Ezbat el sheikh Ahmed sleem Maghraby- Dayrout	Water Connections
3	11/07/2019	Assiut	Ezbat el Manhy -Massarah- Dayrout	Water Connections
4	11/07/2019	Assiut	Ezbat Shenoda	Water Connections ¹¹
5	15/07/2019	Sohag	El Sheikh Makram	Wastewater Connections
6	15/07/2019	Sohag	Nagea El Ashraf / Fadel Akhmem	Wastewater Connections

¹¹ Planned visit to Ezbat Shenoda has not been completed due to unexpected blockage of the road leading to this site.

#	DATE (DD/MM/YYYY)	GOVERNORATE	VILLAGE/SATELLITE	CONNECTIONS
7	16/07/2019	Sohag	Gezeerat al Hareef – Sakolta	Water Connections
8	21/07/2019	Luxor	Abu El Goud Village	Water Connections
9	24/07/2019	Qena	Dandara Village	Water Connections
10	24/07/2019	Qena	El Kahragla village	Water Connections

TABLE 4: POVERTY RATE IN TARGETED GOVERNORATES IN 2018

GOVERNORATE	POVERTY RATE 2009*	POVERTY RATE 2018
Assiut	68.21%	66.70%
Sohag	51.34%	59.60%
Qena	40.12%	41.20%
Luxor	28.33%	55.30%
EGYPT (AVERAGE)	28.94%	32.50%

Source: Central Agency for Public Mobilization and Statistics (CAPMAS).

TABLE 5: CURRENT TECHNICAL SITUATION ANALYSIS OF THE WTPS IN ASSIUT AND SOHAG¹²

	SOHAG	SOHAG	ASSIUT	ASSIUT
PERFORMANCE CRITERIA	WTP ALARAYAA	WTP SHANDAWHEEL	WTP BAHEEG	WTP MEER
FLOW UTILIZATION Average flow/Design flow	66%	50%	37%	32%
SOP and SMP Usage	Routinely used	Routinely used	Routinely used	Routinely used
Sampling plan	Needs better sampling plan	Sampling plan is satisfactory	Sampling plan is satisfactory	Needs better sampling plan
WATER QUALITY Number of samples comply with the regulation	100%	100%	100%	100%
Lab analysis QA/AC	Satisfactory	Satisfactory	Need Improvement	Need Improvement
Structures condition	Good and maintained	Good and maintained	Good and maintained	Good and maintained
Electrical panels Condition	Working and clean	Working and clean	Working and clean	Working and clean
Flow meters	Working	Working	Working	Maintenance required

¹² The technical assessment is based on the site visits and the data gathered from the official records available at the water facilities in Assiut and Sohag governorates.

	SOHAG	SOHAG	ASSIUT	ASSIUT
PERFORMANCE CRITERIA	WTP ALARAYAA	WTP SHANDAWHEEL	WTP BAHEEG	WTP MEER
Flow meter reading	Not frequently during the day	Not frequently during the day	Not frequently during the day	Not frequently during the day
Chlorination utility	Working and clean, it needs neutralization tower. (Safety issue.)	Working and clean, it needs neutralization tower. (Safety issue.)	Working and clean, it needs neutralization tower. (Safety issue.)	Working and clean, it needs neutralization tower. (Safety issue.)
Staff quality	O&M staff is well trained and aware of their job requirements.	O&M staff is well trained and aware of their job requirements.	O&M staff is well trained and aware of their job requirements.	O&M staff is well trained and aware of their job requirements.
Operation data processing & reporting	Need more training	Need more training	Need more training	Need more training
Safety measures and standards	Applied very well	Applied very well	Applied very well	Applied very well
Specific training required	Troubleshooting, problem prediction, O&M data analysis and meaning, correlation of process control data. Report writing.	Troubleshooting, problem prediction, O&M data analysis and meaning, correlation of process control data. Report writing.	Troubleshooting, problem prediction, O&M data analysis and meaning, correlation of process control data. Report writing.	Troubleshooting, problem prediction, O&M data analysis and meaning, correlation of process control data. Report writing.

TABLE 6: TECHNICAL SITUATION ANALYSIS OF SUPPORTING WELLS OF AL-ARAYAA WTP IN SOHAG¹³

AL-ARAYAA WTP		LIMIT LEVEL	6.5-8.5	1	500	1000	0.3	0.4
PERIOD	WELL NO.	RESIDUAL CHLORINE	pH	TURBIDITY	T. HARDNESS	TDS	IRON	MANGANESE
	#	mg/l		NTU	mg/l	mg/l	mg/l	mg/l
Average before Filtration unit	1	0	7.5	2.9	394	786	0.1	0.4
Average before Filtration unit	2	0	7.54	0.4	388	666	0.1	0.7
Average before Filtration unit	3	0	7.5	4.7	412	720	0.2	0.8
Average before Filtration unit	5	0	7.54	3.6	420	706	0.2	0.1
Average before Filtration unit	6	0	7.5	8.8	492	7.33	0.4	0.8
Average After Filtration Unit		1.3	7.2	0.57	394	750	0.11	0.095

¹³ Analysis is based on the data gathered from the official records available at Al Arayaa Water Treatment Plant in Sohag governorate.

TABLE 7: ASSESSMENT OF WATER TREATMENT PLANTS AND WASTEWATER COLLECTION FACILITIES' OPERATIONAL CAPACITY IN ASSIUT AND SOHAG GOVERNORATES¹⁴

Gov.	Site	Tot. no. of pumps	Operating pumps	Pump Capacity	Pump Capacity	Daily Flow (design)	Daily Flow (Actual)	Utilization	Oper. Hrs	Calculated
				L/s	m3/hr	m3/d	m3/d	%		m3/d
Assiut	Meer WTP	5	2	25	90	6480	1640	25	9	4320
Assiut	Baheeg WTP	3	1	60	216	5184	1800	35	8.3	5184
Assiut	Beni Edris WWC	2	1	54	194.4	4666	600	13	3.1	4666
Assiut	Al Ziera WWC	4	1	120	432	10368	1200	12	2.8	10368
Assiut	Alakadma	4	2	125	450	10800	6500	60	7.2	21600
Assiut	Beni Semee	3	1	120	432	10368	950	9	2.2	10368
Sohag	Shandaweel WTP	5	3	50	180	10800	5372	50	9.9	12960
Sohag	Alarayaa WTP	5	2	50	180	5400	3550	66	9.9	8640
Sohag	Banho	2	1	88	317	15206	633	4	2.0	7603
Sohag	Beni Ammar	2	1	45	162	7779	450	6	2.8	3888
Sohag	Banga	2	1	138	496.8	23846	1100	5	2.2	11923
Sohag	Hamooda	2	1	19	68.4	3283	137	4	2.0	1642

TABLE 8: PLANNED AND ACHIEVED TARGETS OF THE JCESD ACTIVITY¹⁵

Ser. No.	Gov.	FARA No.	Total of Contract Value	Progress Installed Water Pipes (m)	Progress Installed Wastewater Pipes (m)	Progress No. of House Connections (New)	Progress No. of House Connections (Modified)	Progress Number of Labor Utilized	Progress Number of Beneficiaries (Capita)
1	Sohag	7	11,280,881	96,400		1,418	0	45,120	138,640
2	Sohag (WW)	8	3,918,268	0	7,693	597	0	11,222	6,390
3	Sohag (WW)	9	6,710,915	0	13,930	1,188	0	25,754	30,150
4	Assiut	7	9,448,154	82,490		2,478	960	37,250	137,530
5	Assiut	8	5,864,150	48,120	0	2,484	0	23,430	41,540
6	Assiut	9	5,637,240	50,420	0	1,918	320	22,630	22,380
7	Qena	1	8,224,480	61,300		2,556	655	29,500	81,850
8	Qena	2	6,204,319	44,865		2,284	368	20,208	26,520
9	Qena	3	6,107,136	45,405		2,609	676	16,501	89,919
10	Luxor	1	5,648,095	34,834		489	1,586	16,357	38,830

¹⁴ Analysis is based on the data gathered from the official records available at the water and wastewater facilities in Assiut and Sohag governorates.

¹⁵ USAID FARAs Program/Engineering Support Services, Final Report, Chemonics Egypt, July 2015.

Ser. No.	Gov.	FARA No.	Total of Contract Value	Progress Installed Water Pipes (m)	Progress Installed Wastewater Pipes (m)	Progress No. of House Connections (New)	Progress No. of House Connections (Modified)	Progress Number of Labor Utilized	Progress Number of Beneficiaries (Capita)
11	Luxor	2	5,230,610	25,600		150	2,267	14,715	67,872
12	Luxor	3	5,166,365	24,681		89	2,540	14,751	91,313
Total			79,440,613	514,115	21,623	18,260	9,372	277,438	772,934

TABLE 9: CURRENT TECHNICAL SITUATION ANALYSIS OF TARGETED WASTEWATER COLLECTION SYSTEMS IN ASSIUT GOVERNORATE¹⁶

ASSIUT WW Collection System				
PERFORMANCE CRITERIA	BENI SEMEE	EL ZEIRA	AL AKADMA	BENI EDRIS
FLOW UTILIZATION Average flow/Design flow	16%	11%	59%	20%
SOP USING	Routinely used	Routinely used	Routinely used	Routinely used
SMP USING	Routinely used	Routinely used	Routinely used	Routinely used
Structures condition	Good maintained	Good maintained	Good maintained	Good maintained
Electrical panels Condition	Working and clean	Working and clean	Working and clean	Working and clean
Flow meters	Working	Working	Working	Working
Flow meter reading	Not frequently during the day	Not frequently during the day	Not frequently during the day	Not frequently during the day
Staff quality	O&M staff are well trained and aware of their job requirements.	O&M staff are well trained and aware of their job requirements.	O&M staff are well trained and aware of their job requirements.	O&M staff are well trained and aware of their job requirements.
Safety measures and standards	Applied very well	Applied very well	Applied very well	Applied very well
Specific training required	Troubleshooting, problem prediction, data. Report writing.	Troubleshooting, problem prediction, data. Report writing.	Troubleshooting, problem prediction, data. Report writing.	Troubleshooting, problem prediction, data. Report writing.

¹⁶ The technical analysis is based on the site visits and the data gathered from the official records available at the wastewater facilities in Assiut governorate.

TABLE 10: CURRENT TECHNICAL SITUATION ANALYSIS OF TARGETED WASTEWATER COLLECTION SYSTEMS IN SOHAG GOVERNORATE¹⁷

SOHAG WW Collection System				
PERFORMANCE CRITERIA	BANGA	BANHO	BENI AMMAR	HAMOODA
FLOW UTILIZATION Average flow/Design flow	5%	4%	6%	4%
SOP USING	Routinely used	Routinely used	Routinely used	Routinely used
SMP USING	Routinely used	Routinely used	Routinely used	Routinely used
Structure condition	Good maintained	Good maintained	Good maintained	Good maintained
Electrical panels condition	Working and Clean	Working and Clean	Working and Clean	Working and Clean
Flow meters	Working	Working	Working	Maintenance required
Staff quality	O&M staff are well trained and aware of their job requirements	O&M staff are well trained and aware of their job requirements	O&M staff are well trained and aware of their job requirements	O&M staff are well trained and aware of their job requirements
Operation data processing and reporting	Need more training	Need more training	Need more training	Need more training
Safety measures and standards	Applied very well	Applied very well	Applied very well	Applied very well
Specific training required	Troubleshooting, Problem prediction, data. Report writing.	Troubleshooting, Problem prediction, data. Report writing.	Troubleshooting, Problem prediction, data. Report writing.	Troubleshooting, Problem prediction, data. Report writing.

TABLE 11: CAPACITIES IMPROVED BY TARGETED SECTOR AT SUBSIDIARY COMPANIES¹⁸

TO WHAT EXTENT DID THE IMPLEMENTED ACTIVITIES ENABLE IMPROVED CAPACITY-BUILDING OF THE SECTORS AND DEPARTMENTS OF SCS?					
#	RATING SCALE: FROM 1 (POOR) TO 5 (VERY GOOD)	SOHAG	ASSIUT	QENA	LUXOR
1	Planning Sector	4	5	5	4
2	Customer Service Department	4	4	4	4
3	Hotline-Emergency Department	4	4	4	4
4	Issuing Bills Center	5	5	4	4
5	Procurement/Contracts Department	5	5	4	5
6	Project Sector	5	5	5	5
7	Training Department	5	4	4	4
8	Laboratory Department	4	4	4	4
9	Operations and Maintenance	4	4	5	4

¹⁷ The technical analysis is based on the site visits and the data gathered from the official records available at the wastewater facilities in Sohag governorate.

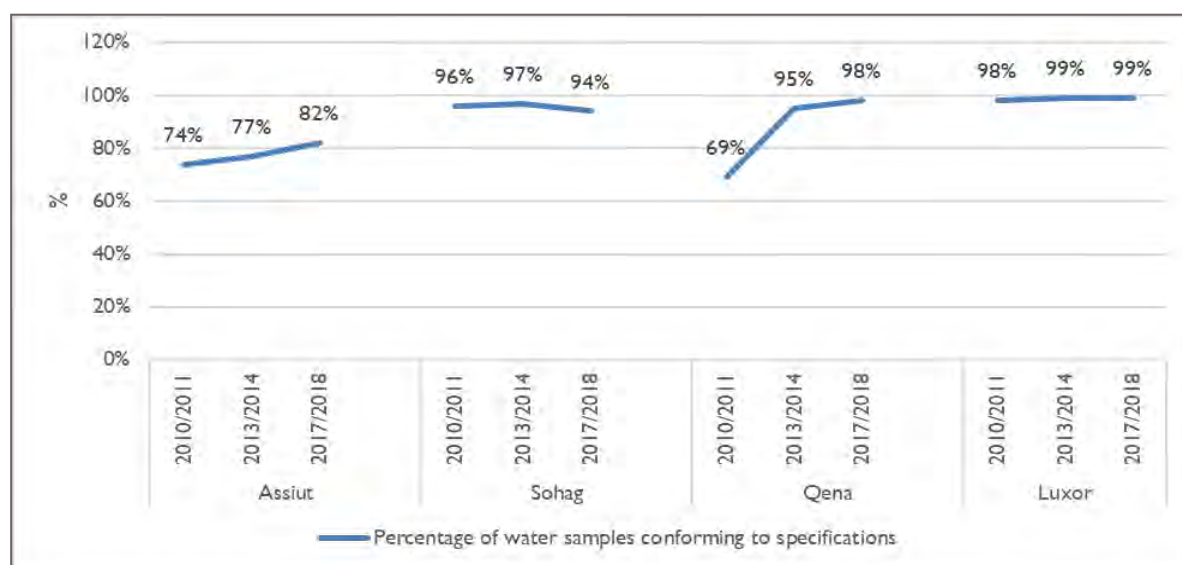
¹⁸ Ratings are based on conducted Key Informant Interviews with the chairmen of Subsidiary Water and Wastewater Companies in Assiut, Sohag, Qnea and Luxor.

TABLE 12: RATING OF THE EFFECTIVENESS OF IMPLEMENTED CAPACITY-BUILDING COMPONENTS ¹⁹

CAPACITY BUILDING COMPONENT	RATING BY SC			
RATING SCALE: FROM 1 (POOR) TO 5 (VERY GOOD)	SOHAG	ASSIUT	QENA	LUXOR
A. Introduce, activate and support the implementation of quality control plans.	4	4	4	5
B. Introduce and apply environmental protection measures.	3	5	5	5
C. Development of proposals and feasibility studies.	5	5	4	4
D. Development of tender documents, tendering and awarding procedures to contract consulting firms to provide design and construction management services for new projects.	5	5	5	4
E. Introduce procedures for site handover.	5	5	5	5
F. Introduce follow up measures and forms for implementation works and progress reporting.	5	4	5	5
G. Application of environmental protection measures.	4	5	4	4
H. Application of safety and occupational health rules.	5	5	5	5
I. Application of O&M manuals.	5	5	5	4
J. Introduce the practice of regularly meetings among SCs follow-up teams' consultants and contractors for progress review, facilitation of internal coordination, project steering, and follow-up.	5	4	5	5
K. Introduce periodic management reviews for progress in project implementation.	5	5	5	5
L. Develop inventory for commodities procured in compliance with the FARAs procurement section.	3	4	4	4

B. GRAPHS ²⁰

GRAPH 1: PERCENTAGE OF WATER SAMPLES MEETING THE EGYPTIAN QUALITY STANDARDS IN SUBSIDIARY COMPANIES (2010/2011 – 2017/2018)



¹⁹ Ratings are based on Group Discussions with the former staff of activities Project Implementation Units at the Subsidiary Water and Wastewater Companies in Assiut, Sohag, Qena and Luxor.

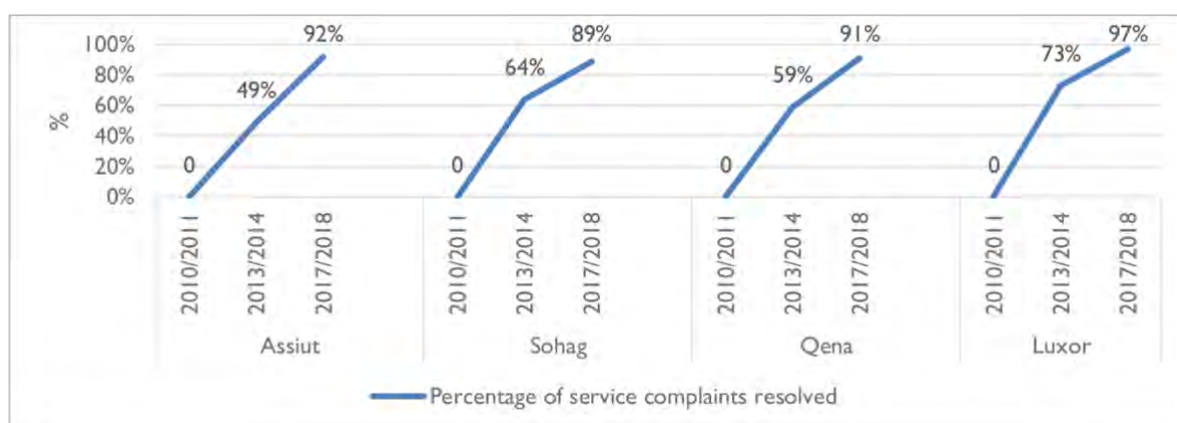
²⁰ Graphs from 1 – 7, are all based on the data obtained from the Monitoring, Analysis, and Reporting System (MARS) Key Performance Indicators Database available at the Economic Analysis Department at the Holding Company for Water and Wastewater.

GRAPH 2: PERCENTAGE OF WATER LEAKAGE BY SUBSIDIARY COMPANIES (2010/2011 – 2017/2018)

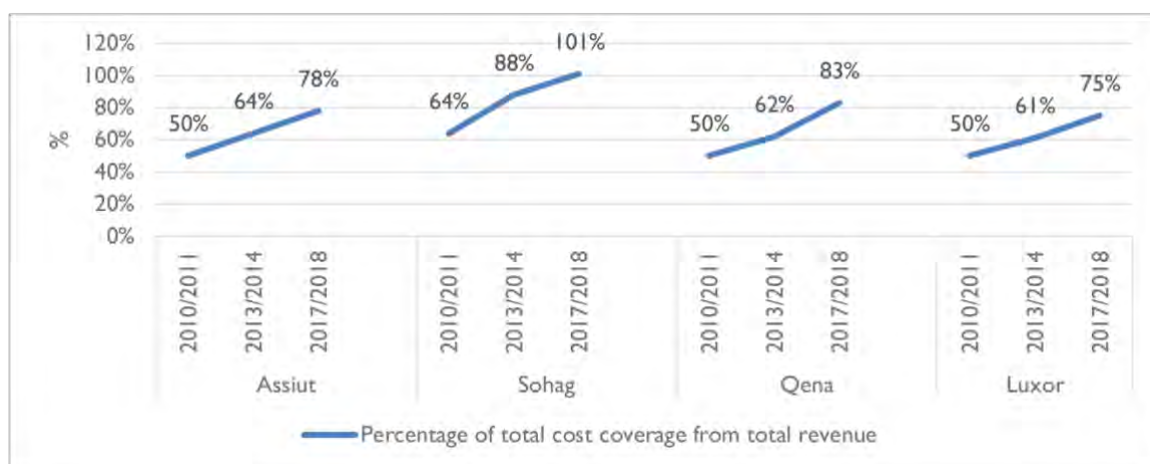


Note: Water Leakage is defined to be the difference between the water produced and sold by Subsidiary Companies.

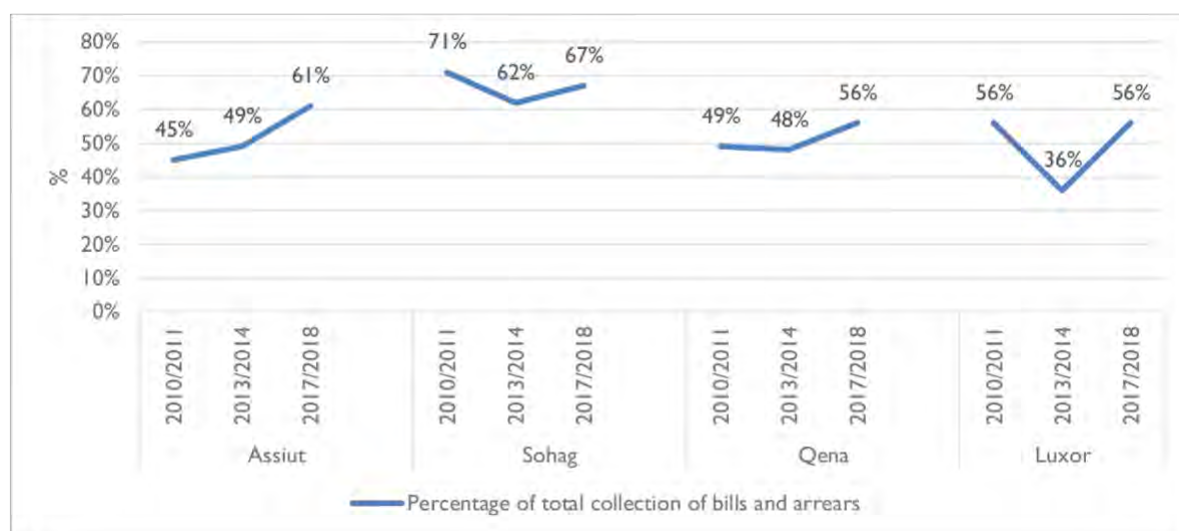
GRAPH 3: PERCENTAGE OF RESOLVED COMPLAINTS BY SUBSIDIARY COMPANIES (2010/2011 – 2017/2018)



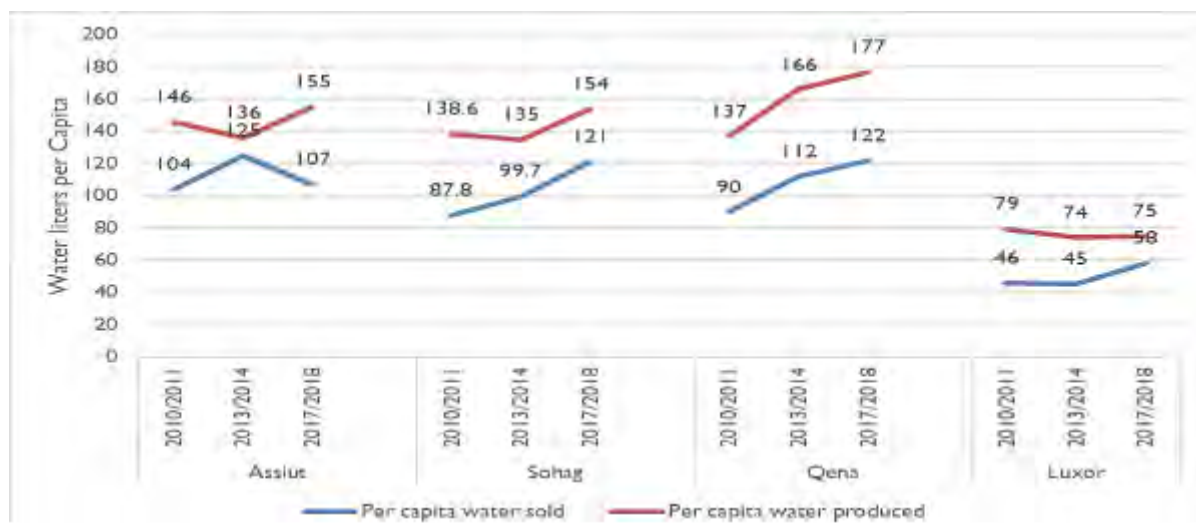
GRAPH 4: TOTAL COST COVERED AS A PERCENTAGE OF TOTAL REVENUES OF SUBSIDIARY COMPANIES (2010/2011 – 2017/2018)



GRAPH 5: PERCENTAGE OF BILLS AND INSTALLMENTS COLLECTED BY SUBSIDIARY COMPANIES (2010/2011 – 2017/2018)



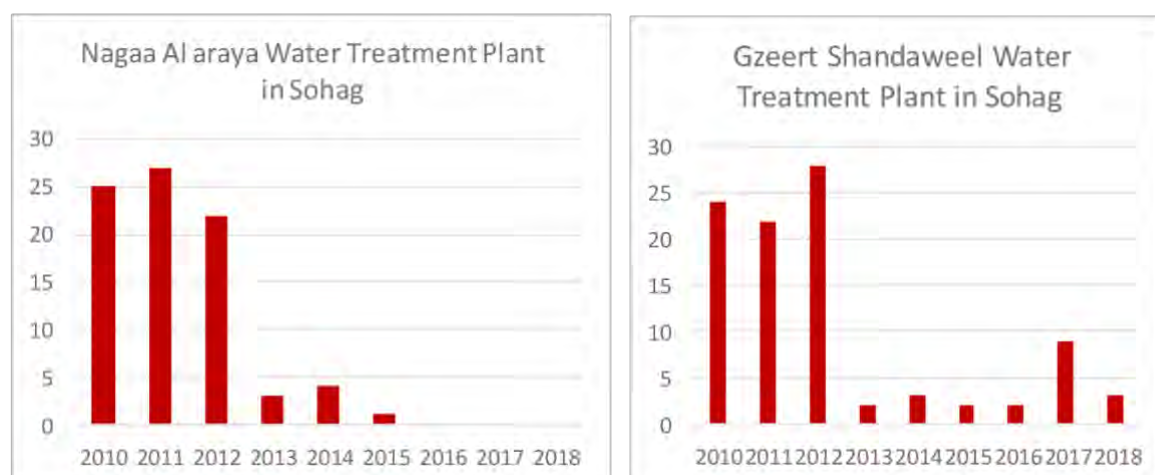
GRAPH 6: PRODUCED AND SOLD WATER PER CAPITA BY SUBSIDIARY COMPANIES (2010/2011 – 2017/2018)



GRAPH 7: TOTAL NUMBER OF EMPLOYEES IN SUBSIDIARY COMPANIES (2010/2011 – 2017/2018)



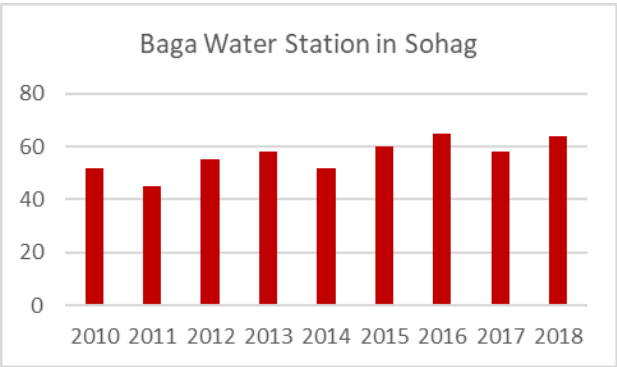
GRAPH 8:²¹ NUMBER OF COMPLAINTS RECEIVED AT NAGAA AL ARAYA AND SHANDWEEL WATER TREATMENT PLANTS IN SOHAG (2010 – 2018)



Note: Nagaa Al Aryaa and Shandweel Water Treatment Plants were targeted by USAID Small-Scale Construction Program.

²¹ The graph is based on the data obtained from the Hotline records and Customer Satisfaction Data available at Sohag Water and Wastewater Company.

GRAPH 9.22: NUMBER OF COMPLAINTS RECEIVED AT BAGA WATER TREATMENT PLANT (2010 – 2018)



Note: Baga Station is represented only as an illustrative example to highlight the extent of customer satisfaction with water quality produced from a Water Treatment Plant that was not targeted by USAID interventions compared to those WTPs that were not subject to intervention in Sohag governorate. Undertaken analysis does not allow to provide definitive answer to whether the interventions are the only reason for the reduction in received complaints.

22 Ibid.

ANNEX V: TECHNICAL ASSESSMENT OF SMALL-SCALE CONSTRUCTION PROGRAM FACILITIES IN ASSIUT AND SOHAG

I) Wastewater Collection Facilities and Water Treatment Plants - Assiut Governorate

BENI EDRIS WASTEWATER COLLECTION SYSTEM

LOCATION

Governorate:	Assiut
Site:	Beni Edris Wastewater Collection System
Assessment Date:	10/7/2019
Assessment Undertaken by:	Magdy Mokhtar, Water and Wastewater Utilities Expert
Staff Consulted:	Essam Ahmed - General Manager of Al Qusia District
	John Gamal Habib - Wastewater Collection System Manager
	Melad Wiliam - Wastewater Network O&M Manager
	Raafat Sobhy Mohamed - Manfalut Lab Manager
	Asmaa Mostafa Kamal - Assets Management

PROGRAM

2:50 pm to 4:30 pm	1. Group Discussion (GD) with staff on implemented interventions, applied practices, and effectiveness and sustainability of capacity-building activities. 2. O& M documents review, specifically, SOPs and SMPs. 3. Verification of physical Investments and equipment installed applying developed checklist (tool #6a and 6c)
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Introduction

USAID/Egypt has contracted with this evaluation team through SIMPLE to conduct the ex-post evaluation of The Water and Wastewater Small-Scale Construction Program and Job Creation through Essential Services Delivery in Upper Egypt under the Egypt Utilities Management (EUM) assistance agreement.

The main purpose of this evaluation is to:

Examine the effectiveness of the interventions under EUM.

Assess the continued sustainability of the interventions three years after the activities ended.

Identify approaches to ensure sustainability that can be institutionalized across utility activities at USAID/Egypt in the future.

This section of the evaluation concerns the improvement of the water facilities in the Beni Edris Village-Alqusia in Assiut Governorate. The purpose of the project is to ensure proper water quality and quantity in a selected priority project area (Beni Edris Village and neighbouring housing areas). This is to help reduce health risks for those parts of the population in Alqusia District who are directly or indirectly affected by the project activities.

Observations/ Findings

The final ex-post evaluation mission was conducted by the evaluation team and supported by the team members of the Assiut WWC facility.

Plant data and specifications	The Beni Edris collection system serves a population of 7,000, which is expected to increase to 11,000 by 2050. Its design capacity is 53 l/sec (2333 m3/d) up to 2030. The total sewer length is 11800 m total number of manholes is 365. The number of house connections is 900. There are two pumps (one in operation and one on standby). The capacity of each pump is 54 l/s, at head of 16 meters. The average daily flow is 950 m3/day.
How the staff of the WW plant benefited from the FARAS	Beni Edris WWC staff highly appreciate the work done by the FARA projects. The general manager of Qusia District attended the implementation of the project and, working with the consultant and the contractor, he gained useful experience in the operation and maintenance as well as the following: Project management documentation and procedures pump station components The staff trained locally by the Assiut WWC trainers were able to run the collection system better due to: They feel safer after applying corrected safety measures for work in confined spaces and dealing with wastewater directly. They have operation manuals and pump specifications, and the provided training assisted them in correctly operating the pump station and maintaining the sewer. They use the MASTER software to routinely apply the required preventive maintenance to keep the equipment in good condition and document corrective maintenance on work orders.

Training and capacity building	They found training in particular has helped them to apply the SOPs and SMPs correctly and understand treatment process controls. Plant Manager John Gamal Habib and the maintenance manager did not attend the implementation of the project. They attended training provided by the Assiut WWC plant and the HCWW. The experience gained from working on the project can be summarized as: Training was provided by Assiut WWC in: • General operations and maintenance procedures for the pump stations. • Sewer system maintenance. • Power factor adjustment. • using MASTER for maintenance work. • Safety and health procedures. • Qualification for Total Sustainable Management TSM. program • Standby generator operation.
Operation	The operation of the collection system is done routinely according to SOPs; the staff understands the operations steps and how to apply the instructions of the SOP manual. The operation staff uses standard forms and logs to record the daily operations measures and events: • Pump operation hours • Standby generator • Maintenance of sewers and tools used • Inspection methods and tools for sewers and manholes • Monthly operation reports The operation style and performance were very satisfactory, and the main operation data can be summarized as: Average operating hours for one pump for 4 hrs/day is 950 m3/day. Collection system loading: Capacity of one pump is 950 m3/hr, and the expected daily flow is 2300 m3/day. The pump station using only one pump means that the loading capacity is 41 percent. This indicates that the actual capacity is still less than the maximum design capacity. Manholes are clean and in good condition from inside; the wastewater level inside the manholes is very low due to low flow.

Preventive and corrective maintenance	Preventive maintenance plans exist for the Beni Edris wastewater collection department, and they are using MASTER software. The maintenance staff is performing the required jobs on a daily basis, according the printouts. Preventive maintenance forms are regularly filled out after the job is finished and sent back to operations staff to update the data. 11 corrective maintenance work orders for minor failures were issued from 1/1/2017 to 31/7/2019. This is a good indicator of the quality of the equipment and installations. "No major failures"
Site visit	During the site visit, the following observations were made: The Beni Edris pump station seemed well maintained. It was clean, with no rubbish lying around. The pump building was well maintained. Staff said that electrical control panels were kept clean, and the floor was clean. An electrical crane was on hand for pump installation. Safety equipment and tools exist and were being used by the staff. All equipment provided by the project was present and working according to specifications. The SOPs and SMPs were printed in big, readable print and posted near the equipment as a guide for the staff.
Standby generator	Standby generator (100 KVA) was working well and tested. Diesel tank piping was clean with no leakages. The standby generator power was sufficient to operate all the equipment at the pump station in case of a power outage.
Sewer and manholes	Sewer and manholes inspected are in good condition and the wastewater level is low indicating that the collection system able to collect more flow according to the design.

Conclusions:

The meetings with Assiut WWC upper management during the KIIs showed that they are keen to ensure the sustainability of the interventions built through the FARAs and the EMU agreement, and they know the magnitude of the services provided by those projects.

The O&M staff keep the pump stations in good condition by using the SOPs and SMPs effectively.

The operations staff has no operations emergency plans.

The flow data is not sufficient. The operations staff must record the flow meter reading every one or two hours daily.

Recommendations:

The O&M staff require more training in the following:

- Training on leak detection.
- Standby generators maintenance.
- Electrical control panels and Motor Control Center (MCC) types and the function of each component of the MCCs.
- Pump repair (Taking apart and assembling methods and tools On the Job Training (OJT).
- Electrical protection units.
- Prediction of faults and problems and troubleshooting.
- Training of Trainers for the above-mentioned tasks (TOT).

The flow meter readings should be taken every one to two hours and recorded in an operations log.

The sewer maintenance staff need small jetting machines to operate on narrow roads.

The pump station staff requested equipment for maintaining electrical panels.

The operations staff should have operations emergency plans.

BENI SEMEE COLLECTION SYSTEM

LOCATION

Governorate:	Assiut
Site:	Beni Semee Wastewater Collection System
Assessment Date:	11/7/2019
Assessment Undertaken by:	Magdy Mokhtar, Water and Wastewater Utilities Expert
Staff Consulted:	Mohamed Sayed Mahoud - General Manager of Abu Teeg District
	Heba Zakaria Mohamed - Wastewater Collection System Manager
	Mohamed Sayed Abdellah - WW Network Operations and Maintenance Manager
	Raafat Mohamed - Safety Manager
	Asmaa Mostafa Kamal - Assets Management

PROGRAM

9:15 am to 12:30 pm	1. Group Discussion (GD) with staff on implemented interventions, applied practices, and effectiveness and sustainability of capacity-building activities. 2. O& M documents review, specifically, SOPs and SMPs. 3. Verification of physical Investments and equipment installed applying developed checklist (tool #6a and 6c)
---------------------	--

Introduction

USAID/Egypt has contracted with this evaluation team through SIMPLE to conduct an ex-post evaluation of the Water and Wastewater Small-Scale Construction Program and Job Creation through Essential Services Delivery (JCESD) in Upper Egypt under the Egypt Utilities Management (EUM) Assistance Agreement.

The main purpose of this evaluation was to:

Examine the effectiveness of the interventions under EUM.

Assess the continued sustainability of the interventions three years after the activities ended.

Identify approaches to ensure sustainability that can be institutionalized across utility activities at USAID/Egypt in the future.

This section of the evaluation concerns the improvement of the water facilities in the Beni Semee village - Abu Teeg in Assiut Governorate. The purpose of the project is to ensure proper water quality and quantity in a selected priority part of the project area (Beni Semee Village and neighboring housing areas). This is to help reduce health risks for those parts of the population in the Abu Teeg District who are directly or indirectly affected by the project activities.

OBSERVATIONS/ FINDINGS

The final ex-post evaluation mission was conducted by the evaluation team and strongly supported by the team members of the Assiut WWC facility.

Plant data and specifications	Beni Semee collection system serves a population of 5,000 capita., which is expected to increase to 7,000 ca. by 2050. The design capacity is 120 l/sec up to 2030. The total sewer length is 12,600 m, and the total number of manholes is 277. The number of house connections is 900. There are three pumps (two in operation and one on standby), and the capacity of each pump is 65 l/s, at head of 16 meters. The average daily flow is 950 m3/day.
How the staff of the WW collection benefited from the FARAS	Beni Semee WWC system staff appreciate the work done by the FARAS. The general manager of Abu Teeg District attended the implementation of the project and by working with the consultant and the contractor, he gained useful experience in the operations and maintenance and the following: Project management documentation and procedures. During the commissioning phase, he understood the pump station components very well. The staff was trained locally by Assiut WWC trainers, and they are able to run the collection system better due to: They feel safer because they apply the corrected safety measures for confined spaces and dealing with wastewater directly. They have all operation manuals and pump specifications, and the provided training assisted them in correctly operating the pump station and maintaining the sewer. They use MASTER software to routinely apply the required preventive maintenance to keep the equipment in good condition and to document the corrective maintenance on the work orders.

Training and capacity building	They find the training is the main tool assisting them to apply SOPs and SMPs correctly and understand the treatment process control. Plant Manager Heba Zakaria and the Maintenance Manager did not attend the implementation of the project. They attended training provided by Assiut WWC and the HCWW. The experience gained from working on the project can be summarized as: Training provided by Assiut WWC in the field of: • General operations and maintenance procedures for the pump stations. • Sewer system maintenance. • Power factor adjustment. • Using MASTER for maintenance work. • Safety and health. • Qualification for Total Sustainable management program TSM. • Standby generator operation.
Operation	The operation of the collection system is done routinely according to SOPs; the staff understands the operations steps and applying the instructions of the SOP manual. The operation staff uses standard forms and logs to record the daily operations measures and events as: • Pump operation hours • Standby generator • Maintenance of sewers and tools used • Sewers and manholes inspection methods and tools • Monthly operations report The operation style and performance are very satisfactory and the main operation data can be summarized as the following: Average operation hours for one pump for four hours/day is 950 m3/day. Collection system loading: One pump capacity is 950 m3/hr and the expected daily flow is 950 m3/day. The pump station using only one pump for four hours/day, this indicates that the actual capacity still less than the maximum design capacity. Manholes are clean and in good condition from inside; the wastewater levels inside the manholes is very low due to low flow.

Preventive and corrective maintenance	Preventive maintenance plans exist for the Beni Semee WWC department and they are using MASTER software. The maintenance staff is performing the required jobs on a daily basis, according the printouts. Preventive maintenance forms are regularly filled out after the job is finished and sent back to operations staff to update the data. 10 corrective maintenance work orders for minor failures were issued from 1/5/2019 to 30/6/2019. This is a good indicator of the quality of the equipment and installations.
Site visit	During the site visit, the following observations were made: • The Beni Semee pump station seems well maintained. It is clean, with no rubbish lying around. • The pump building is well maintained. Staff said electrical control panels are kept clean, and the floor is clean. An electrical crane was on hand for pump installation. • Safety equipment and tools exist and are used by the staff. • All equipment provided by the project exists and is working according to specifications. • The SOPs and SMPs are printed in big readable print and posted near all equipment and treatment processes to be used as a guide for the staff.
Standby generator	Standby generator 182KVA is working well and tested. Diesel tank piping is clean with no leakages. The tank is correctly placed inside a concrete enclosure. The standby generator power is sufficient to operate all the equipment at the pump station in case of a power outage.
Sewer and manholes	Sewer and manholes inspected are in good condition, and the wastewater levels are low, indicating that the collection system is able to collect more flow according to the design.

Conclusions:

The meetings with Assiut WWC upper management during the KIIs show they are keen to ensure the sustainability of the interventions built through the FARAs and the EMU agreement, and they understand the magnitude of the services provided by those projects.

The O&M staff keep the pump stations in good condition by using the SOPs and SMPs effectively.

The operations staff has no operations emergency plans.

The flow data is not sufficient. The operations staff must record the flow meter reading every one or two hours daily.

Recommendations:

The O&M staff require more training in the following:

- Training in leak detection.
- Standby generators maintenance.
- Electrical control panels and Motor Control Centers (MCC) types and the function of each component of the MCCs.
- Pump repair (disassembling and assembling methods and tools as On the Job Training (OJT)).
- Electrical protection units.
- Prediction of faults and problems and troubleshooting.
- Training of Trainers (TOT) for the above-mentioned tasks.

ALZEIRA COLLECTION SYSTEM

LOCATION

Governorate:	Assiut
Site:	Al Zeira Wastewater Collection System
Assessment Date:	9/7/2019
Assessment Undertaken by:	Magdy Mokhtar, Water and Wastewater Utilities Expert
Staff Consulted:	Atef Nassan - Chief of Technical Support Dept.
	Heba Zakaria Mohamed - Wastewater Collection System Manager
	Mohamed Sayed Abdellah - WW. Network Operation and Maintenance Manager
	Raafat Sobhy Mohamed - Manfalut Lab Manager
	Ferial Omar Ahmed - Technical Support Office

PROGRAM

2:50 pm to 4:30 pm	1. Group Discussion (GD) with staff on implemented interventions, applied practices, and effectiveness and sustainability of capacity-building activities. 2. O& M documents review, specifically, SOPs and SMPs. 3. Verification of physical Investments and equipment installed applying developed checklist (tool #6a and 6c)
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Introduction

USAID/Egypt has contracted this evaluation team through SIMPLE to conduct the ex-post evaluation of The Water and Wastewater Small-Scale Construction Program and Job Creation through Essential Services Delivery in Upper Egypt under the Egypt Utilities Management (EUM) Assistance Agreement.

The main purpose of this evaluation is to:

Examine the effectiveness of the interventions under EUM.

Assess the continued sustainability of the interventions three years after the activities ended.

Identify approaches to ensure sustainability that can be institutionalized across utility activities at USAID/Egypt in the future.

This section of the evaluation concerns the improvement of the water facilities in Alzeira Village-Abu Teeg in Assiut Governorate. The purpose of the project is to ensure proper water quality and quantity in a selected priority part of the project area (Alzeira Village and neighbouring housing areas). This is to help reduce health risks for those parts of the population in the Abu Teeg District who are directly or indirectly affected by project activities.

OBSERVATIONS/ FINDINGS

The final ex-post evaluation mission was conducted by the evaluation team and strongly supported by the team members of the Assiut WWC facility.

Plant data and specifications	Alzeira collection system serves a population of 5,200 ca., which is expected to increase to 7,900 ca. by 2050. The design capacity is 120 l/sec up to 2030. The total sewer length is 7,500 m, and the total number of manholes is 196. The number of house connections is 615. There are four pumps (three in operation and one on standby), and the capacity of each pump is 85 l/s, at a head of 16 meters. The average daily flow is 1,200 m³/day.
How the staff of the WW collection benefited from the FARAS	Al Zeira WWC staff highly appreciate the work done by the FARAS. They gained very useful experience in the operations and maintenance and in terms of the following: • They feel safer because they apply the corrected safety measures for confined spaces and dealing with wastewater directly. • They have all operations manuals and pump specifications, and the provided training assisted them to correctly operate the pump station and maintain the sewer. • They are not using MASTER software yet, but they routinely apply the required preventive maintenance to keep the equipment in good condition and also to document corrective maintenance on the work orders.
Training and capacity building Provided	They find the training is the main tool assisted them to apply the SOPs and SMPs correctly and understand the treatment process control. Plant Manager Heba Zakaria Mohamed and the maintenance manager did not attend the implementation of the project. They attended training provided by Assiut WWC and the HCWW. The experience gained from working in the project can be summarized as: Training provided by Assiut WWC in the field of: • General operations and maintenance procedures for the pump stations. • Sewer system maintenance. • Power factor adjustment. • Types and maintenance of bearings. • Safety and health. • Qualifications for TSM. • Standby generator operation.

Operation	The operation of the collection system is done routinely according to standard operation procedures, and the staff understands the operations steps and applying the instructions of the SOP manual. The operation staff using standard forms and logs to record the daily operations measures and events such as: • Pump operation hours. • Standby generator. • Maintenance of sewers and tools used. • Sewers and manholes inspection methods and tools. • Monthly operations report The operation style and performance are very satisfactory, and the main operation data can be summarized as: Average operating hours for one pump for four hrs/day is 1200 m3. Collection system loading: One pump capacity is 306 m3/hr, and then three pumps can lift 918 m3/hr. The pump station using only one pump means that the loading capacity is 30 percent. This indicates that the actual capacity still less than the maximum design capacity. Manholes are clean and in good condition from inside; the wastewater levels inside the manholes are very low due to low flow.
Preventive and corrective maintenance	Preventive maintenance plans exist for the Alziara WWC department, and they are preparing to use MASTER software soon. The maintenance staff IS performing the required jobs on a daily basis, according the printouts by the maintenance manager. Preventive maintenance forms are regularly filled out after the job is finished and sent back to operations staff to update the data. There were 2 corrective maintenance work orders during the last month, because no equipment failures happened. This is a good indicator of the quality of the equipment and installations.
Site visit	During the site visit, the following observations were made: • The Al Ziara pump station seems well maintained. It is clean, with no rubbish lying around. • The pump building is well maintained. Staff said electrical control panels are kept clean, and the floor is also clean. An electrical crane is in working for pump installation. • Safety equipment and tools exist and used by the staff. • All equipment provided by the project is working according to specifications. • The SOPs and SMPs are printed in big, readable print and posted near all equipment and treatment processes to be used as a guide for the staff.

Standby generator	Standby generator 180KVA is working well and tested. Diesel tank piping is clean with no leakages, but the tank is situated directly on the ground; no concrete enclosure is provided. The standby generator power is sufficient to operate all the equipment at the pump station in case of a power outage.
Sewer and manholes	The sewer and manholes inspected are in good condition, and the wastewater levels are low, indicating that the collection system is able to collect more flow according to the design.

Conclusions:

The meetings with Assiut WWC upper management during the KIIs show that they are keen to ensure the sustainability of the interventions built through the FARAs and the EMU agreement, and they know the magnitude of the services provided by those projects.

The O&M staff keep the pump stations in good conditions by using the SOPs and SMPs effectively.

The operation staff has no operations emergency plans.

The flow data is not sufficient. The operations staff must record the flow meter readings every one to two hours daily.

Recommendations:

The O&M staff require more training in the following:

- Standby generator maintenance.
- Electrical control panel (MCC) types and the function of each component of the MCCs.
- Pump repairing (disassembling and assembling methods and tools. (OJT))
- Electrical protection units.
- Prediction of faults and problems and troubleshooting.
- Training of Trainers (TOT)

The flow meter readings should be taken every one or two hours and recorded in an operations log.

The diesel tank is situated directly on the ground; a concrete enclosure should be provided.

The operations staff should have operations emergency plans.

ALAKADMA COLLECTION SYSTEM

LOCATION

Governorate:	Assiut
Site:	Al Akadma Wastewater Collection System
Assessment Date:	11/7/2019
Assessment Undertaken by:	Magdy Mokhtar, Water and Wastewater Utilities Expert
Staff Consulted:	Mohamed Sayed Mahoud - General Manager of Abu Teeg District
	Heba Zakaria Mohamed - Wastewater Collection System Manager
	Mohamed Sayed Abdellah - WW. Network Operation and Maintenance Manager
	Raafat Mohamed - Safety Manager
	Asmaa Mostafa Kamal - Assets Management

PROGRAM

1:00 pm to 2:30 pm	1. Group Discussion (GD) with staff on implemented interventions, applied practices, and effectiveness and sustainability of capacity-building activities. 2. O& M documents review, specifically, SOPs and SMPs. 3. Verification of physical Investments and equipment installed applying developed checklist (tool #6a and 6c)
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Introduction

USAID/Egypt has contracted with this evaluation team through SIMPLE to conduct the ex-post evaluation of The Water and Wastewater Small-Scale Construction Program and Job Creation through Essential Services Delivery in Upper Egypt under the Egypt Utilities Management (EUM) Assistance Agreement.

The main purpose of this evaluation is to:

Examine the effectiveness of the interventions under EUM.

Assess the continued sustainability of the interventions three years after the activities ended.

Identify approaches to ensure sustainability that can be institutionalized across utility activities at USAID/Egypt in the future.

This section of the evaluation concerns the improvement of the water facilities in the Al Akadma Village-Abu Teeg in Assiut Governorate. The purpose of the project is to ensure proper water quality and quantity in a selected priority part of the project area (Al Akadma Village and neighbouring housing areas). This is to help reduce health risks for those parts of the population in Abu Teeg District who are directly or indirectly affected by the project activities.

OBSERVATIONS/ FINDINGS

The final ex-Post evaluation mission was conducted by the evaluation team and strongly supported by the team members of Assiut WWC.

Plant data and specifications	Al Akadma collection system serves a population of 13,900 ca., which is expected to increase to 21,000 ca. by 2050 (Enviro Consult). The design capacity is 125 l/sec up to 2030. The total sewer length is 11228 m and the total number of manholes is 178. The number of house connections is 1,034. There are four vertical pumps (three in operation and one on standby). The capacity of each pump is 125 l/s, at head of 16 meters. The average daily flow is 6,500 m³/day.
How the staff of the WW collection benefited from the FARAS	Al Akadma wastewater collection system staff are highly appreciating the work done by the FARAS. The General Manager of Abu Teeg District attended the implementation of the project and by working with the consultant and the contractor, he gained very useful experience in the operations and maintenance and as the following: Project management documentation and procedures. During the commissioning phase, he understood the pump station components very well. The staff was trained locally by the Assiut WWC trainers and they are able to run the collection system better due to: They feel safer because they apply the corrected safety measures of confined spaces and dealing with wastewater directly. They have all operation manuals and pump specifications and the provided training assisted them to correctly operate the pump station and maintain the sewer. They use the MASTER software to routinely apply the required preventive maintenance to keep the equipment in good condition and to document corrective maintenance on the work orders.

Training and capacity building Provided	They find the training is the main tool that assisted them to apply the SOPs and SMPs correctly and understand the treatment process control. Plant Manager Eng. Heba Zakaria and the Maintenance Manager did not attend the implementation of the project. They attended training provided by Assiut WWC and the HCWW. The experience gained from working in the project can be summarized as: Training provided by Assiut WWC in the field of: • General operations and maintenance procedures for the pump stations. • Sewer system maintenance. • Power factor adjustment. • Using MASTER for maintenance work. • Safety and health. • Qualification for TSM. • Standby generator operation.
Operation	The operation of the collection system is done routinely according to standard operation procedures; the staff understands the operations steps and applying the instructions of the SOP manual. The operation staff is using standard forms and logs to record the daily operations measures and events as: • Pump operation hours • Standby generator • Maintenance of sewers and tools used. • Sewers and manhole inspection methods and tools. • Monthly operation report The operation style and performance are very satisfactory, and the main operation data can be summarized as the following: • Average operation hours for one pump for four hrs/day is 950 m3/day. • Collection system loading: One pump capacity is 450 m3/hr and the expected daily flow is 6,500 m3/day • The pump station is using only one pump for four hours/day, this indicates that the actual capacity is still less than the maximum design capacity. • Manholes are clean and in good condition from inside, the wastewater levels inside the manholes are very low due to low flow.
Preventive and corrective maintenance	Preventive maintenance plans exist for the Al Akadma WWC department and they are using MASTER software. The maintenance staff performing the required jobs on daily basis according the printouts. Preventive maintenance forms are regularly filled after the job is finished and sent back to operation staff to update the data. 10 Corrective maintenance work orders for minor failures issued from 1/5/2019 to 30/6/2019. This is a good indicator of the quality of the equipment and installations.

Site visit	During the site visit, THE following observations were made: The Al Akadma pump station seems well maintained. It is clean, with no rubbish lying around. The pump building is well maintained. Staff said electrical control panels are kept clean, and the floor also clean. An electrical crane exists and is working for pump installation. Safety equipment and tools are used by the staff. All equipment provided by the project is working according to specifications. The SOPs and SMPs are printed in big readable print and posted near to all equipment and treatment processes to be used as a guide for the staff.
Standby generator	Standby generator 182KVA is working well and was tested. Diesel tank piping is clean with no leakages. The standby generator power is sufficient to operate all the equipment at the pump station in case of a power outage.
Sewer and manholes	The sewer and manholes inspected are in good condition and the wastewater levels are low, indicating that the collection system is able to collect more flow according to the design.

Conclusions:

The meetings with Assiut WWC upper management during the KIIs show that they are keen to ensure the sustainability of the interventions built through the FARAs and the EMU agreement, and they know the magnitude of the services provided by those projects.

The O&M staff keep the pump stations in good conditions by using the SOPs and SMPs effectively.

The operation staff has no operations emergency plans.

The flow data is insufficient. The operation staff must record the flow meter reading every one to two hours daily.

Recommendations:

The O&M staff require more training in the following:

- Training on Leak detection.
- Standby generators maintenance.
- Electrical Control panels (MCC) types and the function of each component of the MCCs.
- Vertical Pumps operation, maintenance and alignment.
- Pumps repairing (disassembling and assembling methods and tools (OJT)
- Electrical protection units.
- Prediction of faults and problems and troubleshooting.

- Train of Trainers (TOT).

The flow meter readings should be taken every one to two hours and recorded in an operations log.

The sewer maintenance staff need small jetting machines to operate on narrow roads.

The pump station staff requested equipment for maintaining electrical panels as “infrared thermometers and cable insulation testers.”

The operations staff should have operations emergency plans.

BAHEEG WTP

LOCATION

Governorate:	Assiut
Site:	Baheeg Water Treatment Plant
Assessment Date:	10/7/2019
Assessment Undertaken by:	Magdy Mokhtar, Water and Wastewater Utilities Expert
Staff Consulted:	Atef Nassan - Chief of Technical Support Dept.
	Ahmed Osman Mostafa - Baheeg Water Plant Manager
	Essam Sedki Honnein - Operation Manager
	Mahmoud Sedki Farghali - Lab Manager
	Nesrien Khairy Farid - MASTER Specialist

PROGRAM

10:00 am to 2:30 pm	1. Group Discussion (GD) with staff on implemented interventions, applied practices, and effectiveness and sustainability of capacity-building activities. 2. O& M documents review, specifically, SOPs and SMPs. 3. Verification of physical Investments and equipment installed applying developed checklist (tool #6b)
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Introduction

USAID/Egypt has contracted with this evaluation team through SIMPLE to conduct the ex-post evaluation of The Water and Wastewater Small-Scale Construction Program and Job Creation through Essential Services Delivery in Upper Egypt under the Egypt Utilities Management (EUM) Assistance Agreement.

The main purpose of this evaluation is to:

Examine the effectiveness of the interventions under EUM.

Assess the continued sustainability of the interventions three years after the activities ended.

Identify approaches to ensure sustainability that can be institutionalized across utility activities at USAID/Egypt in the future.

This section of the evaluation concerns the improvement of the water facilities in the Baheeg Village in Assiut Governorate. The purpose of the project is to ensure proper water quality and quantity in a selected priority part of the project (Baheeg Village and neighbouring housing areas). This is to help reduce health risks for those parts of the population in Baheeg District who are directly or indirectly affected by the project activities.

OBSERVATIONS/ FINDINGS

The final ex-post evaluation mission was conducted by the evaluation team and strongly supported by the team members of the Assiut WWC facility.

Plant data and specifications	Baheeg Water Treatment Plant (WTP) is a slow sand filtration plant, the water source being the Nile River. The design capacity is 5,184 m³/day. There are three treated water pumps (two in operation and one standby) capacity of each pump is 35 l/s , at head of 60meters. The estimated water consumption is 60 l/s.
How the staff of the WTP benefited from the FARAS	Baheeg Water Treatment Plant staff highly appreciate the work done by the FARAS projects. They gained useful experience in the operations and maintenance and the following: They are able to train the new staff and transfer their experience. They feel safer because they apply the corrected safety measures. They have all operation manuals and process specifications, and the provided training helped them operate the treatment process correctly. They use the MASTER software to routinely apply the required preventive maintenance to keep the equipment in good condition and to document the corrective maintenance.

Training and capacity building	They find the training is the main tool assisting them to apply the SOPs and SMPs correctly and understand the treatment process control. Area Manager Essam Abd Elmoneim and the operations manager attended the implementation of the project. The experience gained can be summarized as: becoming more familiar with the WTP design criteria, which helped them to achieve good operations and maintenance performance. Contacting the consultant added more experience in project management tools, such as: • Design of projects timeline. • Writing weekly reports to document all work. • Quality Assurance/Quality Control QA/QC of the implementation. • Problem solving. • Reviewing all stages of implementation as the USAID engineer requested. • Issuing payment orders. • Tendering documents. • Steps of commissioning. Training provided by Assiut WWC in the field of: • General operations and maintenance procedures. • Power factor adjustment. • Chlorine disinfection system. • Types and maintenance of bearings. • Safety and health. • Qualification for TSM. • Laboratory procedures. • Safety training. • Training by the contractor (OJT) for six months during the commissioning on the SOPs for each of the treatment processes. Plant Manager Ahmed Osman attended training sessions provided by Chemonics in the following: • SOPs for each treatment stage. • Preventive maintenance. • Operation of deep wells. • Electrical transformers.
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Operation	The operation of the plant is done routinely according to standard operating procedures; the staff understands the operations steps and applying the instructions of the SOP manual. An operations and maintenance manual prepared by consultant Enviro Consult and contractor Latif Ramzi Fahmy was found in the plant and approved by the HCWW and USAID. The operation staff uses standard forms and logs to record the daily operations measures and events, such as: • Pump operating hours • Standby generator • Chlorination consumption rates. • Monthly operations • Monthly operations parameters The operations style and performance is very satisfactory, and the main operation data can be summarized as: Production efficiency: 97 percent, meaning water loss during the process is only 3 percent. Plant loading: 67 percent, meaning the actual production is still below the maximum design capacity. Sample compliance with regulations: 100 percent, meaning the water quality meets Egyptian standards. Filtration efficiency: 100 percent, meaning all water samples from all sand filters pass bacteriological tests. The flow meters and all measuring gages are calibrated regularly by a special department at the Assiut WWC plant.
Laboratory	The plant has a small laboratory that collects daily samples and performs basic analysis that's important to process control, measuring: Required chlorine dose. Turbidity as a factor of the filtration process. pH, hardness, and TDS as a measure of the inlet water quality. Lab staff are well qualified and show cooperation with the operations staff, which ensures good and stable performance.

Preventive and corrective maintenance	Preventive maintenance plans exist for the Baheeg WTP and the applied MASTER software presented. Other plans were confirmed by the Operations Department. The maintenance staff performs the required jobs on daily basis, according to MASTER printouts. Preventive maintenance forms are regularly filled out after the job is finished and sent back to MASTER operators to update the data. No corrective maintenance work orders were placed during the last operation period because there were no equipment failures. This is a good indicator of the quality of the equipment and installations.
Site visit	During the site visits, the following observations were made: The Baheeg WTP seems well maintained. It is clean, with no rubbish lying around. The plant manager and his team use the MASTER software for preventive and corrective maintenance and photo documentation of maintenance and works. The pump building is well maintained. Staff said the pumps are kept clean as well as the floor. There is an electrical crane for pump installation. Safety equipment and tools are used by the staff. All equipment provided by the project is working according to specifications. All treatment processes are used and functioning well. The SOPs are posted in big readable print near all equipment and treatment processes to be used as a guide for the staff. The operation staff minimized the light in the sand filters area by making the window glass dark, which is a good way to control algae growth.
Standby generator	A 250KVA standby generator is working well. Diesel tank piping is clean with no leakages, but the tank is situated directly on the ground with no concrete enclosure provided. The standby generator power is enough to operate all the equipment of the WTP in case of a power outage.

Conclusions:

The meetings with Assiut WWC upper management during the KIIs show that they are keen to ensure the sustainability of interventions built through the FARAs and the EMU agreement, and they know the magnitude of the services provided by those projects.

The Operations and Maintenance staff keep the plants in good conditions through using the SOPs and SMPs effectively.

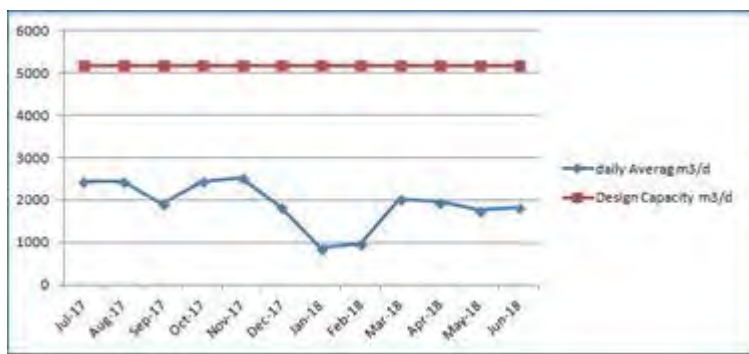
Laboratory staff are working according to standard methods, but they do not show or apply QA/QC procedures.

The operations staff has no operations emergency plans.

The flow measuring data is insufficient.

The available flow data show that there is a big gap between the design flow (5184m³/day) and the actual flow. The operations staff cannot increase the water production to above the current level. This is represented in the following table and graph:

Month	Daily Average m ³ /d
Jul-17	2453
Aug-17	2453
Sep-17	1925
Oct-17	2439
Nov-17	2520
Dec-17	1829
Jan-18	871
Feb-18	964
Mar-18	2032
Apr-18	1959
May-18	1766
Jun-18	1824



Flow data provided by the Technical Office and verified by the plant manager

Recommendations:

The O&M staff require more training in the following:

- Standby generators maintenance.
- Electrical control panels (MCC) and the function of each component of the MCCs.
- Pump repair (disassembling and assembling methods and tools. (OJT)).
- Electrical protection units.
- Prediction of faults and problems and troubleshooting.
- Slow sand filter process control and techniques.
- Laboratory QA/QC and equipment calibration.
- Training of Trainers (TOT).

The flow meter readings should be taken every two hours and recorded in an operations log.

The gap between the actual flow and the design capacity needs more investigation.

The diesel tank is situated directly on the ground; a concrete enclosure should be provided.

The laboratory staff should follow QA/QC procedures.

The operations staff should have operations emergency plans.

The operators must take the flow meter reading every two hours and record the reading in daily operation logs.

Despite not being part of the design according to the HCWW, the chlorination facility should have a neutralization tower for chlorine leaks and a suitable way to contain leaking cylinders.

The chlorine gas cylinder should be placed over a scale to continually monitor the amount being used.

MEER WTP

LOCATION

Governorate:	Assiut
Site:	Meer Water Treatment Plant
Assessment Date:	10/7/2019
Assessment Undertaken by:	Magdy Mokhtar, Water and Wastewater Utilities Expert
Staff Consulted:	Atef Nassan - Chief of Technical Support Dept.
	Ganet Adel Basal - Meer Water Plant Manager
	Victor Abb Elmalak - Operation and Maintenance Manager
	Mohamed Abd Elnaeem - Manfalut Lab Manager
	Asmaa Mustafa Kamal - Assets Management

PROGRAM

5:00 pm to 7:30 pm	1. Group Discussion (GD) with staff on implemented interventions, applied practices, and effectiveness and sustainability of capacity-building activities. 2. O& M documents review, specifically, SOPs and SMPs. 3. Verification of physical Investments and equipment installed applying developed checklist (tool #6b)
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Introduction

USAID/Egypt has contracted with this evaluation team through SIMPLE to conduct an ex-post evaluation of The Water and Wastewater Small-Scale Construction Program and Job Creation through Essential Services Delivery (JCESD) in Upper Egypt under the Egypt Utilities Management (EUM) Assistance Agreement.

The main purpose of this evaluation is to:

Examine the effectiveness of the interventions under EUM.

Assess the continued sustainability of the interventions three years after the activities ended.

Identify approaches to ensure sustainability that can be institutionalized across utility activities at USAID/Egypt in the future.

This section of the evaluation concerns the improvement of the water facilities in Meer Village in Assiut Governorate. The purpose of the project is to ensure proper water quality and quantity in a part of the selected priority project area (Meer Village and neighbouring housing areas). This is to contribute to the reduction of health risks for those parts of the population in Qusya District who are directly or indirectly affected by the project activities.

OBSERVATIONS/ FINDINGS

The final ex-post evaluation mission was conducted by the evaluation team and strongly supported by the team members of the Assiut WWC facility.

Plant data and specifications	Meer Water Treatment Plant (WTP) is an iron and manganese filtration type plant; the water source is groundwater. The design capacity is 6480 m ³ /day, 75 l/sec. There are five treated water pumps (three in operation and two on standby). The capacity of each pump is 25 l/s, at head of 40 meters.
How the staff of the WTP benefited from the FARAS	Meer WTP staff highly appreciate the work done by the FARAS. They gained very useful experience in the operation and maintenance, as follows: They are able to train the new staff and transfer their experience. They feel safer because they apply corrected safety measures. They have all operation manuals and process specifications, and the training assisted them to correctly operate the treatment process. They recently started using MASTER software to routinely apply the required preventive maintenance to keep the equipment in good condition and document the corrective maintenance.

Training and capacity building	The plant manager and the staff found the training as the main tool assisting them to apply the SOPs and SMPs correctly and understand the treatment process control. Plant Manager Ganet Adel and the Maintenance Manager attended the implementation of the project. The experience gained can be summarized as: They became more familiar with the WTP design criteria, which helped them to achieve good operations and maintenance performance. Getting in contact with the consultant added more experience in project management tools, such as: • Testing the function of each treatment stage • Well SOPs and precautions. • Writing weekly reports to document all work done. • Problem solving • Standby generator operation. Training provided by Assiut WWC was in the field of: • General operation and maintenance procedures. • Power factor adjustment. • Chlorine disinfection systems. • Types and maintenance of bearings. • Safety and health. • Qualification for TSM. • Safety training. • Training by the contractor (OJT) for six months during the commissioning on the standard operation procedures for each of the treatment processes.
Operation	The operation of the plant is done routinely according to SOPs; the staff understands the operations steps and applying the instructions of the SOP manual. An operations and maintenance manual prepared by Enviro Consult and the contractor Latif Ramzi Fahmy and approved by the HCWW and the USAID was found in the plant. The operations staff uses standard forms and logs to record the daily operations measures and events, such as: • Pump operation hours • Standby generator logs • Chlorination and consumption rates • Monthly operations The operation style and performance are very satisfactory, and the main operation data can be summarized as follows: Production Efficiency: Not calculated. Plant Loading: From 30 percent to 37 percent, meaning the actual production is still below the maximum design capacity. Samples comply with the regulations: 100 percent, meaning the water quality meets Egyptian standards. Efficiency of filtration: 100 percent, meaning that all water samples from all sand filters are passing bacteriological, iron and manganese tests. Flow meter needs calibration and adjustment.

Laboratory	The WTP has no laboratory, and samples are collected and analyzed by the Manfalout District laboratory.
Preventive and corrective maintenance	Preventive maintenance plans exist for the Meer WTP and the recently applied MASTER software. The maintenance staff performs the required jobs on a daily basis, according to the MASTER printouts. Preventive maintenance forms are regularly filled out after the job is finished and sent back to MASTER operators to update the data. No corrective maintenance work orders were placed during the last operation period because no equipment failures happened. This is a good indicator of the quality of the equipment and installations.
Site visit	During the site visit, the following observations were made: The Meer WTP seems well maintained. It is clean, with no rubbish lying around, <u>except in the old part of the plant that was not renovated as a part of the FARA intervention.</u> The pump building is well maintained. Staff said that pumps were kept clean, and the floor was also clean. An electrical crane was working for pump installation. Safety equipment and tools were being used by the staff. All equipment provided by the project was working according to specifications. All treatment processes were in use and functioning well. The SOPs are posted in big readable print near all equipment and treatment processes to be used as a guide for the staff.
Standby generator	A 300 KVA standby generator was tested and is working well. The standby generator power is sufficient to operate all the equipment at the WTP in case of a power outage.

Conclusions:

The meetings with Assiut WWC upper management during the KIIs show that they are keen to ensure the sustainability of interventions built through the FARAs and the EMU agreement, and they know the magnitude of the services provided by those projects.

The Operations and Maintenance staff keep the plants in good condition by using SOPs and SMPs effectively.

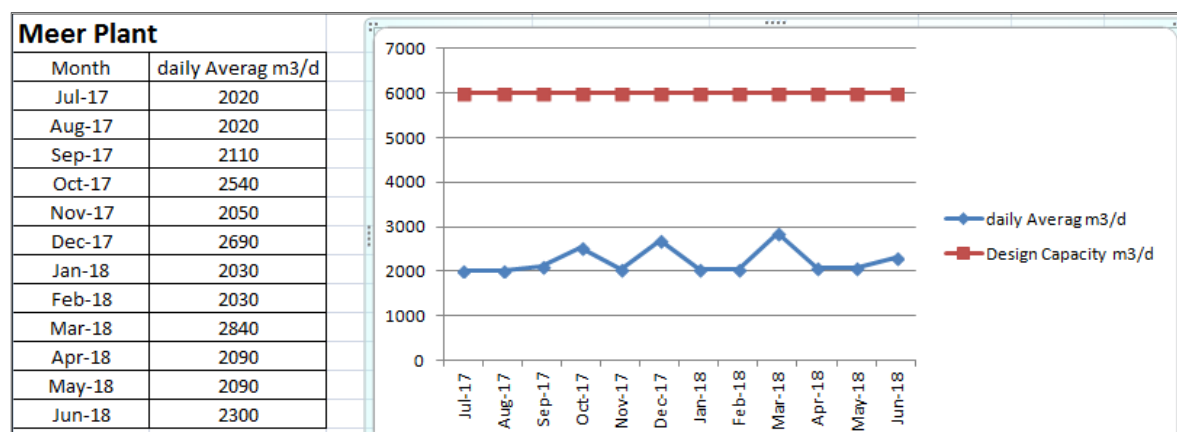
The plant has no laboratory, which affects the sampling plan. The number of samples is very small.

The operations staff has no operations emergency plan.

The flow measuring data is not sufficient.

The available flow data shows that there is a big gap between the design flow (6480m³/day) and the actual flow.

FLOW DATA PROVIDED BY THE TECHNICAL OFFICE AND VERIFIED WITH THE PLANT MANAGER



Recommendations:

The O&M staff require more training in the following:

- Standby generator maintenance.
- Electrical control panels (MCC) and the function of each component.
- Pump repair (disassembling and assembling methods and tools (OJT)).
- Electrical protection units.
- Prediction of faults and problems and troubleshooting.
- Iron and manganese process control and techniques.
- Training of Trainers (TOT).

The flow meter readings should be taken every two hours and recorded in an operations log.

A laboratory is required.

The flow meter needs calibration and adjustment.

The operations staff should have operations emergency plans.

The operators must take the flow meter reading every two hours and record the reading in daily operations logs.

Despite not being part of the design as per the HCWW, the chlorination facility should have a neutralization tower for chlorine leaks and a suitable way to contain leaking cylinders.

The chlorine gas cylinder should be placed over a scale to calculate the amount being used.

ANALYSIS RESULTS OF WATER SAMPLES FROM MEER WTP

بيان نتائج تحليل عينات اردم حاة يربا القوصية															
المعيار المأخوذ من جلفا ذلك القرار وفي المأخذ المأخذ رقم 458 المأخذ 2007		6.5- 8.5	1		250	250	1000		500	350	150	0.5	0.3	0.4	
التاريخ	Location	pH	Turb.	T.R.Cl	Sulphat	Chloride	T.D.S	T.alk-CaCO3	T.H-CaCO3	Ca.H	Mg.H	NH3	T.Iron	T.Mn	
بيان نتائج تحليل عينات اردم حاة يربا القوصية															
المعيار المأخوذ من جلفا ذلك القرار وفي المأخذ المأخذ رقم 458 المأخذ 2007		6.5- 8.5	1		250	250	1000		500	350	150	0.5	0.3	0.4	
التاريخ	Location	pH	Turb.	T.R.Cl	Sulphat	Chloride	T.D.S	T.alk- CaCO3	T.H- CaCO3	Ca.H	Mg.H	NH3	T.Iron	T.Mn	
		No.	N.T.U	Mg/l	Mg/l	Mg/l	Mg/l	Mg/l	Mg/l	Mg/l	Mg/l	Mg/l	Mg/l	Mg/l	
22-Sep-15	لغرد المأخذ مير	-	2.5	2.2	-	95	570	320	430	230	200	0.2	0	0.45	

بيان نتائج تحليل عينات اردم حاة في القوصية														
المدعى		6.5-8.5	1		250	250	1000		500	350	150	0.5	0.3	0.4
وغير المذكور في رقم 458 لسنة 2007														
التاريخ	Location	pH	Turb.	T.R.Cl	Sulphat	Chloride	T.D.S	T.alk-CaCO3	T.H-CaCO3	Ca.H	Mg.H	NH3	T.Iron	T.Mn
03-Dec-15	الردف في الحكة هير	—	—	2.2	—	65	458	300	480	190	270	0.5	0.15	0.25
11-Nov-17	في الحكة في الحكة لجاجة	—	—	2.3	—	70	322	100	290	190	100	0.1	0	0.08
05-Jul-18	الردف في الحكة هير	8.1	0.5	1.6	118	—	582	—	320	152	168	0	0	0
17-Jan-19	في الحكة في الحكة مرشحات 1	8.4	0	0.35	84	70	583	286	390	290	100	—	—	0
17-Jan-19	في الحكة في الحكة مرشحات 2	8.4	0	0.61	71.3	65	571	302	430	340	90	—	—	0
22-Feb-19	في الحكة في الحكة مرشحات 1	8.4	0	0.35	114	35	521	226	330	150	180	0.6	0	0

بيان نتائج تحليل عينات ارضاء مياه الشرب في مصر														
المعيار القياسي لمياه الشرب وغير الشرب رقم 458 لسنة 2007		6.5-8.5	1		250	250	1000		500	350	150	0.5	0.3	0.4
التاريخ	Location	pH	Turb.	T.R.Cl	Sulphat	Chloride	T.D.S	T.alk-CaCO3	T.H-CaCO3	Ca.H	Mg.H	NH3	T.Iron	T.Mn
22-Feb-19	محطة المعالجة رقم 2 مرشحات	8.4	0	0.61	120	38	571	225	340	155	185	0.5	0.05	0
24-May-19	محطة المعالجة مدير	8	0	0.6	60	40	150	226	120	80	40	0.2	0	0
24-May-19	مرشحات	8.4	—	0.55	51	41	155	220	110	70	40	0.25	0	0
يستخدم،،،،						مدير ادارة البيئات و العمل ومات وصادار التقاير								
نقطة قياس اداء العمل ومراقبة الجودة							ك/ مينا عمنه لخمى							
ك/سليم سري دسليم														

2) Wastewater Collection Facilities and Water Treatment Plants – Sohag Governorate

HAMMOUD COLLECTION SYSTEM – SOHAG

LOCATION

Governorate:	Sohag
Site:	Tahta – Hammoda Collection System
Assessment Date:	17/7/2019
Assessment Undertaken by:	Magdy Mokhtar, Water and Wastewater Utilities Expert
Staff Consulted:	Bahaa Mohamed Omran - General Manager of Tahta District
	Mohamed Aly Mohamed - Wastewater Collection System Manager
	Mohamed Ahmed Abdallah - WW Network Operation and Maintenance Manager
	Adel Elsayed Mohamed - Safety Manager
	Mohamed Ahmed Mohamed Lutfi - Mechanical Engineer

PROGRAM

2:30 pm to 4:30 pm	1. Group Discussion (GD) with staff on implemented interventions, applied practices, and effectiveness and sustainability of capacity-building activities. 2. O& M documents review, specifically, SOPs and SMPs. 3. Verification of physical Investments and equipment installed applying developed checklist (tool #6a and 6c).
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Introduction

USAID/Egypt has contracted with this evaluation team through SIMPLE to conduct an ex-post evaluation of The Water and Wastewater Small-Scale Construction Program and Job Creation through Essential Services Delivery (JCESD) in Upper Egypt under the Egypt Utilities Management (EUM) Assistance Agreement.

The main purpose of this evaluation is to:

Examine the effectiveness of the interventions under EUM.

Assess the continued sustainability of the interventions three years after the activities ended.

Identify approaches to ensure sustainability that can be institutionalized across utility activities at USAID/Egypt in the future.

This section of the evaluation concerns the improvement of the water facilities in Hammoda Village-Tahta in Sohag Governorate. The purpose of the project is to ensure proper water quality and quantity in a select priority part of the project area (Hammoda Village and neighbouring housing areas). This is to help reduce health risks for those parts of the population in Tahta District who are directly or indirectly affected by the project activities.

OBSERVATIONS/ FINDINGS

The final Ex-Post Evaluation mission was conducted by the Evaluation team and strongly supported by the different team members of Sohag WWC.

Plant data and specifications	Hammoda's collection system serves a population of 1,100 ca year in 2014, which is expected to increase to 1,940 ca. by year 2050 (Enviro Consult). The design capacity is 19l/sec - 69 m3/hr. up to 2030. The total sewer length is 3760m, and the total number of manholes is 80. The number of house connections is 208. There are two pumps (one in operation and one on standby). The capacity of each pump is 19 l/s , at head of 16 meters. The average daily flow is 137 m3/day.
How the staff of the WW collection benefited from the FARAS	The wastewater collection system manager of Hammoda Village did not attend the implementation of the project but attended training provided by the contractor and by Assiut WWC trainers. He gained very useful experience in O&M as follows: • Pump station components • Corrected safety measures for confined spaces and dealing with wastewater directly. • Operations manuals and pumps specifications • Operations of the pump station and maintenance of the sewer. They were not using MASTER software yet but routinely apply the required preventive maintenance measure to keep the equipment in good condition and to document the corrective maintenance on the work orders.
Training and capacity building	Plant Manager Mohamed Aly Mohamed and the Sewer Maintenance Manager did not attend the implementation of the project. They attended training provided by Sohag WWC and the HCWW. The experience gained from working on the project can be summarized as: Training provided by Sohag WWC in the field of: • General operations and maintenance procedures for the pump stations. • Sewer system maintenance. • Power factor adjustment. • Safety and health. • Standby generator operation.

Operation	The operation of the collection system is done routinely according to standard operation procedures; the staff understands the operations steps and applying the instructions of the SOP manual. The operations staff uses standard forms and logs to record the daily operations measures and events, such as: • Pump operation hours • Standby generator logs • Maintenance of sewers and tools used. • Sewers and manhole inspection methods and tools. • Monthly operations report. The operation style and performance are very satisfactory and the main operation data can be summarized as the following: Average operation hours for one pump for two hrs/day is 137 m3/day. Collection system loading: One pump capacity is 69 m3/hr and the average daily flow is 137 m3/day The pump station uses only one pump for two hours/day, which indicates that the actual capacity is still below the maximum design capacity. Manholes are clean and in good condition from inside, the wastewater levels inside the manholes are very low due to low flow.
Preventive and corrective maintenance	Preventive maintenance plans exist for the Hammoda WWC department. The maintenance staff performs the required jobs on a daily basis, according to printouts by the district manager. Preventive maintenance forms are regularly filled out after the job is finished and sent back to operations staff to update the data.

Site visit	During the site visit, the following observations were made: The Hammuda pump station seems well maintained. It is clean, with no rubbish lying around. The pump building is well maintained. Staff said that Electrical Control Panels are kept clean, and the floor is also clean. An electrical crane is working for pump installation. Safety equipment and tools are used by the staff. All equipment provided by the project is working according to specifications. The SOPs and SMPs are posted in big readable print near to all equipment and treatment processes to be used as a guide for the staff.
Standby generator	A 60 KVA standby generator was tested and is working well. Diesel tank piping is clean with no leakages. The standby generator power is sufficient to operate all the equipment at the pump station in case of a power outage. Diesel tank piping is clean with no leakages, but the tank is situated directly on the ground; no concrete enclosure is provided.

Conclusions:

The meetings with Sohag WWC upper management during the KIIs show that they are keen to ensure the sustainability of the interventions built through the FARAs and the EMU agreement, and they know the magnitude of the services provided by those projects.

The Operations and Maintenance staff keep the pump stations in good conditions through using the SOPs and SMPs effectively.

The operations staff has good operations emergency plans.

The flow data is not sufficient. The operations staff must record the flow meter reading every one to two hours daily.

Recommendations:

The O&M staff require more training in the following:

- Training on leak detection.
- Standby generator maintenance.
- Electrical control panels (MCC) and the function of each component of the MCCs.
- Pumps repairing (disassembling and assembling methods and tools (OJT)).
- Electrical protection units.

- Prediction of faults and problems and troubleshooting.
- Training of Trainers (TOT)

The flow meter readings should be taken every one to two hours and recorded in an operations log.

The sewer maintenance staff need small jetting machines to fit narrow roads.

The pump station staff asked for equipment to maintain electrical panels as infrared thermometers and cable insulation testers.

The operations staff should develop operations emergency plans.

The diesel fuel tank must be situated in a concrete enclosure as a safety precaution.

BANI AMMAR COLLECTION SYSTEM – SOHAG

LOCATION

Governorate:	Sohag
Site:	Tahta - Beni Ammar Collection System
Assessment Date:	16/7/2019
Assessment Undertaken by:	Magdy Mokhtar, Water and Wastewater Utilities Expert. (One of the evaluation team)
Staff Consulted:	Bahaa Mohamed Omran - General Manager of Tahta District
	Ahmed Fathi Ahmed - Wastewater Collection System Manager
	Mohamed Ahmed Abdallah - WW Network Operation and Maintenance Manager
	Adel Elsayed Mohamed - Safety Manager
	Mohamed Ahmed Mohamed Lutfi - Mechanical Engineer

PROGRAM

2:30 pm to 4:30 pm	1. Group Discussion (GD) with staff on implemented interventions, applied practices, and effectiveness and sustainability of capacity-building activities. 2. O& M documents review, specifically, SOPs and SMPs. 3. Verification of physical Investments and equipment installed applying developed checklist (tool #6a and 6c)
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Introduction

USAID/Egypt has contracted with this evaluation team through SIMPLE to conduct an ex-post evaluation of The Water and Wastewater Small-Scale Construction Program and Job Creation through Essential Services Delivery (JCESD) in Upper Egypt under the Egypt Utilities Management (EUM) Assistance Agreement.

The main purpose of this evaluation is to:

Examine the effectiveness of the interventions under EUM.

Assess the continued sustainability of the interventions three years after the activities ended.

Identify approaches to ensure sustainability that can be institutionalized across utility activities at USAID/Egypt in the future.

OBSERVATIONS/ FINDINGS

The final Ex-Post Evaluation mission was conducted by the Evaluation team and strongly supported by the different team members of Sohag WWC.

Plant Data and Specifications	Beni Ammar collection system is serving a population of 5700 ca year 2014 and expected to increase to 13840 ca. by year 2050 (<i>Enviro Consult</i>). The design capacity 45L/sec - 162 m3/hr. up to year 2030. The total sewer length is 7200m total number of Manholes is 310. Number of house connections is 750. There are 2 pumps (1 in operation and 1 standby) capacity of each pump is 45 l/s, at head of 16 meters. The average Daily flow is 324 m3/day.
How the staff of the WW collection Benefited from the FARAS	The Wastewater collection system Manager of Beni Ammar Village did not attend the implementation of the project but attended training provided by the contractor, and by Assiut WWC trainers, he gained very useful experience in the operation and maintenance and as the following pump station components. corrected Safety measures of confined spaces and dealing with wastewater directly. operation manuals and pumps specifications operation of the pump station and maintain the sewer. They not using the MASTER software yet but routinely apply the required preventive maintenance to keep the equipment in good condition and also to document the corrective maintenance on the work orders.
Training and Capacity building provided	The Plant manager Ahmed Fathi Ahmed and the Sewer Maintenance Manager did not attend the implementation of the project. They attended training provided by Sohag WWC and the HCWW. The experience gained from working in the project can be summarized as: Training provided by Sohag WWC in the field of: • General Operation and maintenance procedures for the pump stations. • Sewer system maintenance. • Power Factor adjustment. • Safety and Health. • Standby Generator operation.

Operation	The operation of the collection system is done routinely according to standard operation procedures, the staff understands the operations steps and applying the instructions of the SOP manual. The operation staff using standard FORMS and LOGs to record the daily operations measures and events as: • Pumps operation hours Logs • Standby Generator Logs • Maintenance of sewers and tools used. • Sewers and manholes inspection methods and tools. • Monthly operation report The operation style and performance are very satisfactory and the main operation data can be summarized as the following: Average Operation Hours for one pump for 2 hrs/day is 324 m3/day. Collection system Loading: One pump capacity is 162 m3/hr and the average daily flow is 324 m3/day The pump station using only one pump for 2-3 hours/day, this indicates that the actual capacity still less than the maximum design capacity. Manholes are clean and in good condition from inside, the wastewater level inside the manholes is very low due to low flow.
Preventive and Corrective maintenance	Preventive maintenance plans exist for Beni Ammar Wastewater collection department. The maintenance staff performing the required jobs on daily basis according the printouts by the district manager. Preventive maintenance forms are regularly filled after the job is finished and sent back to operation staff to update the data.

Site Visit	During the site visit following observations were made: The Pump station Beni Ammar seems well maintained. It is clean, no rubbish lying around. The pump building well maintained. It was assured that Electrical Control Panels are kept clean and the floor also clean. It is noticed that electrical crane exists and working for pump installation. Safety equipment and tools exist and used by the staff. All equipment provided by the project existing and working according to specifications. The SOPs and SMPs are printed in big readable size and posted near to each equipment and treatment process to be used as a guide for the staff.
Standby Generator	Standby generator 100 KVA is working well and tested. Diesel tank piping clean and no leakages. The standby generator power is enough to operate all the equipment of the Pump station in case of power outage. Diesel tank piping clean and no leakages, but the tank is situated directly on the ground; no concrete enclosure provided.

Conclusions:

The meetings hold with Sohag WWC upper management level of the wastewater sector during the (KIs) show that they are keen to ensure the sustainability of the investments of interventions built through the FARAs and the EMU agreement and they know the magnitude of the services provided by those projects.

The Operation and Maintenance staff keep the pump stations in good conditions through using the SOPs and SMPs effectively.

The operation staff has good Operations Emergency plans.

The flow data is not enough. The operation staff must record the flow meter reading every 1 or 2 hours daily.

Recommendations:

The O&M staff require more training in the following:

- Training on Leak detection.
- Standby generators maintenance.
- Electrical Control panels (MCC) types and the function of each component of the MCCs.

- Pumps repairing (disassembling and assembling methods and tools (OJT)
- Electrical protection units.
- Prediction of faults and problems and troubleshooting.
- Train of Trainers (TOT)

The flow meter readings should be taken every 1 or 2 hours and recorded in an operations log.

The sewer maintenance staff need small jetting machines to fit for narrow roads.

The pump station staff asking for equipment for maintaining electrical panels as "infrared thermometers and cables insulation testers"

The operation staff should develop operations emergency plans.

Diesel fuel tank must be situated in concrete enclosure as a safety precaution.

BANHO COLLECTION SYSTEM – SOHAG

LOCATION

Governorate:	Sohag
Site:	Tahta - Banho Collection System
Assessment Date:	16/7/2019
Assessment Undertaken by:	Magdy Mokhtar, Water and Wastewater Utilities Expert. (One of the Evaluation team)
Staff Consulted:	Bahaa Mohamed Omran - General Manager of Tahta District
	Abd Elaal Ahmed - Wastewater Collection system Manager
	Mohamed Ahmed Abdallah - WW. Network Operation and Maintenance Manager
	Adel Elsayed Mohamed - Safety Manager
	Mohamed Ahmed Mohamed Lutfi - Mechanical Engineer

PROGRAM

10:00 am to 2:00 pm	1. Group Discussion (GD) with staff on implemented interventions, applied practices, and effectiveness and sustainability of capacity-building activities. 2. O& M documents review, specifically, SOPs and SMPs. 3. Verification of physical Investments and equipment installed applying developed checklist (tool #6a and 6c)
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Introduction

USAID/Egypt has contracted this evaluation team through SIMPLE to conduct the Ex-Post Evaluation of The Water and Wastewater Small-Scale Construction Program and Job Creation through Essential Services Delivery in Upper Egypt under the Egypt Utilities Management (EUM) Assistance Agreement.

The main purpose of this evaluation is to:

Examine the effectiveness of the interventions under EUM.

Assess the continued sustainability of the interventions three years after the activities ended.

Identify approaches to ensure sustainability that can be institutionalized across utility activities at USAID/Egypt in the future.

This section of the evaluation concerns the improvement of the water facilities in the Banho village - Tahta in Sohag Governorate. The purpose of the project is to ensure proper water quality and quantity in a selected priority part of the project area (Banho Village and neighbouring housing areas). This is to help reduce health risks for those parts of the population in the Tahta District who are directly or indirectly affected by the project activities.

OBSERVATIONS/ FINDINGS

The final ex-post evaluation mission was conducted by the evaluation team and strongly supported by the team members of Sohag WWC.

Plant data and specifications	The Banho collection system serves a population of 12,500 ca in 2014, which is e to increase to 31,500 ca. by 2050 (<i>Enviro Consult</i>). The design capacity is 88L/sec - 317 m3/hr. up to 2030. The total sewer length is 27,460m, and the total number of manholes is 700. The number of house connections is 1,785. There are two pumps (one in operation and one on standby). The capacity of each pump is 88 l/s , at head of 16 meters. The average daily flow is 633 m3/day.
How the staff of the WW collection benefited from the FARAS	Banho wastewater collection system staff highly appreciate the work done by the FARAS. The General Manager of Tahta District attended the implementation of the project and through working with the consultant and the contractor gained very useful experience on the operations and maintenance as follows: Project management documentation and procedures. During the commissioning phase, he understood the pump station components very well. The staff trained locally by the Sohag WWC trainers are able to run the collection system better due to: They trained to apply the corrected safety measures for confined spaces and dealing with wastewater directly. They have all the operation manuals and pump specifications, and the provided training assisted them to correctly operate the pump station and maintain the sewer. They are not using the MASTER software yet but routinely apply the required preventive maintenance measures to keep the equipment in good condition and document corrective maintenance on work orders.

Training and capacity building	Plant Manager Abd Elaal Ahmed and the maintenance manager did not attend the implementation of the project. They attended training provided by the Sohag WWC and the HCWW. The experience gained from working on the project can be summarized as follows: Training provided by Sohag WWC in the field of: • General operations and maintenance procedures for the pump stations. • Sewer system maintenance. • Power factor adjustment. • Safety and health. • Standby generator operations.
Operation	The operation of the collection system is done routinely according to standard operation procedures, and the staff understands the operations steps and applying the instructions of the SOP manual. The operations staff uses standard forms and logs to record the daily operations measures and events as: • Pump operation hours. • Standby generator logs. • Maintenance of sewers and tools used. • Sewers and manhole inspection methods and tools. • Monthly operation reports. The operation style and performance are very satisfactory, and the main operation data can be summarized as follows: Average operation hours for one pump for two to three hrs/day is 633 m3/day. Collection system loading: One pump capacity is 316 m3/hr, and the average daily flow is 633 m3/day. The pump station is using only one pump for two to three hours/day, which indicates that the actual capacity still below the maximum design capacity. Manholes are clean and in good condition from inside; the wastewater levels inside the manholes are very low due to low flow.

Preventive and corrective maintenance	Preventive maintenance plans exist for the Banho WWC department. The maintenance staff performs the required jobs on a daily basis according the printouts by the district manager. Preventive maintenance forms are regularly filled out after the job is finished and sent back to operations staff to update the data. <u>The main work order is issued because the submersible pumps frequently show high amps due to clogging.</u>
Site visit	During the site visit, the following observations were made: The Banho pump station seems well maintained. It is clean, with no rubbish lying around. The pump building is well maintained. Staff said that electrical control panels are kept clean, and the floor was also clean. An electrical crane works for pump installation. Safety equipment and tools are used by the staff. All equipment provided by the project is working according to specifications. The SOPs and SMPs are posted in big, readable print near all equipment and treatment processes to be used as a guide for the staff.
Standby generator	A 160 KVA standby generator was tested and is working well. The standby generator power is sufficient to operate all the pump station equipment in case of a power outage. Diesel tank piping clean and no leakages, but the tank is situated directly on the ground; no concrete enclosure is provided.
Sewer and manholes	Sewer and manholes are in good condition, and the wastewater levels are low, indicating that the collection system is able to collect more flow according to the design.

Conclusions:

The meetings with Sohag WWC upper management during the KIs show that they are keen to ensure the sustainability of interventions built through the FARAs and the EMU agreement, and they know the magnitude of the services provided by those projects.

The Operations and Maintenance staff keep the pump stations in good condition by using the SOPs and SMPs effectively.

The operations staff has good operations emergency plans.

The flow data is not sufficient. The operations staff must record the flow meter reading every one to two hours daily.

The main work order is issued because the submersible pumps frequently show high amps due to clogging. The maintenance team investigated the problem and they found that the pump is closed impeller when it should be an open impeller.

Recommendations:

The O&M staff require more training in the following:

- Training in leak detection.
- Standby generator maintenance.
- Electrical control panels (MCC), and the function of each component s.
- Pump repair (disassembling and assembling methods and tools (OJT)).
- Electrical protection units.
- Prediction of faults and problems and troubleshooting.
- Training of Trainers (TOT).

The flow meter readings should be taken every one to two hours and recorded in an operations log.

The sewer maintenance staff need small jetting machines to fit on narrow roads.

The pump station staff asked for equipment for maintaining electrical panels, such as infrared thermometers and cable insulation testers.

The operations staff should develop operations emergency plans.

The diesel fuel tank must be situated in a concrete enclosure as a safety precaution.

The submersible pumps frequently show high amps due to clogging. The maintenance team investigated the problem and found that the pump is a closed impeller when it should be an open impeller. This issue needs further investigation.

BANGA COLLECTION SYSTEM – SOHAG

LOCATION

Governorate:	Sohag
Site:	Tahta - Banga Collection System
Assessment Date:	15/7/2019
Assessment Undertaken by:	Magdy Mokhtar, Water and Wastewater Utilities Expert. (One of the evaluation team)
Staff Consulted:	Bahaa Mohamed Omran - General Manager of Tahta District
	Samir Mahmoud Aly - Wastewater Collection System Manager
	Mohamed Mohamed Fadri - WW Network Operations and Maintenance Manager
	Adel Elsayed Mohamed - Safety Manager
	Mohamed Ahmed Mohamed Lutfi - Mechanical Engineer

PROGRAM

1:00 pm to 4:00 pm	1. Group Discussion (GD) with staff on implemented interventions, applied practices, and effectiveness and sustainability of capacity-building activities. 2. O& M documents review, specifically, SOPs and SMPs. 3. Verification of physical Investments and equipment installed applying developed checklist (tool #6a and 6c)
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Introduction

USAID/Egypt has contracted with this evaluation team through SIMPLE to conduct an ex-post evaluation of the Water and Wastewater Small-Scale Construction Program and Job Creation through Essential Services Delivery (JCSED) in Upper Egypt under the Egypt Utilities Management (EUM) Assistance Agreement.

The main purpose of this evaluation is to:

Examine the effectiveness of the interventions under EUM.

Assess the continued sustainability of the interventions three years after the activities ended.

Identify approaches to ensure sustainability that can be institutionalized across utility activities at USAID/Egypt in the future.

This section of the evaluation concerns the improvement of the water facilities in Banga Village-Tahta in Sohag Governorate. The purpose of the project is to ensure proper water quality and quantity in a selected priority part of the project area (Banga Village and neighbouring housing areas). This is to help reduce health risks for those parts of the population in Tahta District who are directly or indirectly affected by the project activities.

OBSERVATIONS/ FINDINGS

The final ex-post evaluation mission was conducted by the evaluation team and strongly supported by the team members of the Sohag WWC facility.

Plant data and specifications	Banga collection system serves a population of 25,200 ca., which is expected to increase to 51,700 ca. by 2050 (<i>Enviro Consult</i>). The design capacity is 138L/sec - 500 m3/hr. until year 2030. The total sewer length is 20,150 m, and the total number of manholes is 805. The number of house connections is 2,610. There are two pumps (one in operation and one on standby).. The capacity of each pump is 138 l/s, at head of 16 meters. The average daily flow is 993 m3/day.
How the staff of the WW collection benefited from the FARAS	Banga WWC system staff highly appreciate the work done by the FARAS. The general manager of Tahta District attended the implementation of the project and through working with the consultant and the contractor, he gained very useful experience in the operations and maintenance as follows: Project management documentation and procedures. During the commissioning phase, he understood the pump station components very well. The staff trained locally by the Sohag WWC trainers are able to run the collection system better due to: They trained to apply corrected safety measures for confined spaces and dealing with wastewater directly. They have all operation manuals and pump specifications, and the provided training helped them to correctly operate the pump station and maintain the sewer. They are not using the MASTER software yet but routinely apply the required preventive maintenance to keep the equipment in good condition and document corrective maintenance on work orders.
Training and capacity building	Plant Manager Samir Mahmoud Aly and the maintenance manager did not attend the implementation of the project. They attended training provided by Sohag WWC and the HCWW. The experience gained from working on the project can be summarized as:

	Training provided by Sohag WWC in the field of: • General operations and maintenance procedures for the pump stations. • Sewer system maintenance. • Power factor adjustment. • Safety and health. • Standby generator operations.
Operation	The operation of the collection system is done routinely according to standard operation procedures, and the staff understands the operations steps and is applying the instructions of the SOP manual. The operation staff using standard forms and logs to record the daily operations measures and events as: • Pump operation hours. • Standby Generator logs. • Maintenance of sewers and tools used. • Sewers and manhole inspection methods and tools. • Monthly operation reports. The operation style and performance are very satisfactory, and the main operations data can be summarized as follows: Average operation hours for one pump for two to three hrs/day is 993 m3/day. Collection system loading: One pump capacity is 496 m3/hr, and the average daily flow is 993 m3/day. The pump station is using only one pump for two to three hours/day, which indicates that the actual capacity is still below the maximum design capacity. Manholes are clean and in good condition from inside, and the wastewater levels inside the manholes are very low due to low flow.
Preventive and corrective maintenance	Preventive maintenance plans exist for the Banga WWC department. The maintenance staff performs the required jobs on a daily basis, according to the printouts by the district manager. Preventive maintenance forms are regularly filled out after the job is finished and sent back to operations staff to update the data. 10 corrective maintenance work orders for minor failures were issued from 1/5/2019 to 30/6/2019. This is a good indicator of the quality of the equipment and installations.

Site visit	During the site visit, the following observations were made: The Banga pump station seems well maintained. It is clean, with no rubbish lying around. The pump building is well maintained. Staff said that electrical control panels are kept clean, and the floor is also clean. An electrical crane is working for pump installation. Safety equipment and tools are used by the staff. All equipment provided by the project is working according to specifications. The SOPs and SMPs are posted in big readable print near all equipment and treatment processes to be used as a guide for the staff.
Standby generator	A 200 KVA standby generator was tested and is working well. Diesel tank piping is clean and has no leakages. The standby generator is sufficient to operate all the equipment at the pump station in case of a power outage. Diesel tank piping is clean, and there are no leakages, but the tank is situated directly on the ground; no concrete enclosure is provided.
Sewer and manholes	Sewer and manholes are in good condition, and the wastewater levels are low, indicating that the collection system is able to collect more flow according to the design.

Conclusions:

The meetings with Sohag WWC upper management during the KIs show that they are keen to ensure the sustainability of interventions built through the FARAs and the EMU agreement, and they know the magnitude of the services provided by those projects.

The Operations and Maintenance staff keep the pump stations in good conditions by using the SOPs and SMPs effectively.

The operations staff has no operations emergency plans.

The flow data is insufficient. The operations staff must record the flow meter readings every one to two hours daily.

Recommendations:

The O&M staff require more training in the following:

- Training in leak detection.
- Standby generator maintenance.
- Electrical control panels (MCC) and the function of each component of the MCCs.
- Pump repair (disassembling and assembling methods and tools (OJT)).
- Electrical protection units.
- Prediction of faults and problems and troubleshooting.
- Training of Trainers (TOT).

The flow meter readings should be taken every one to two hours and recorded in an operations log.

The sewer maintenance staff need small jetting machines to fit narrow roads.

The pump station staff asked for equipment for maintaining electrical panels such as infrared thermometers and cable insulation testers.

The operations staff should develop operations emergency plans.

The diesel fuel tank must be situated in a concrete enclosure as a safety precaution.

SHANDAWEEL WTP – SOHAG

LOCATION

Governorate:	Sohag
Site:	Shandaweel Water Treatment Plant
Assessment Date:	15/7/2019
Assessment Undertaken by:	Magdy Mokhtar, Water and Wastewater Utilities Expert. (One of the evaluation team)
Staff Consulted:	Allaa Abd Elmaqsoud - General Manager of Water Branch
	Mostafa Hassan Abd Allah - Shandaweel Water Plant Manager
	Kirolas Girgis Kelada - Electrical Maintenance Manager
	Ahmed Galal Ali - Lab Manager
	Nasser Taha Ahmed - Mechanical Maintenance Manager

PROGRAM

9:30 am to 12:30 pm	1. Group Discussion (GD) with staff on implemented interventions, applied practices, and effectiveness and sustainability of capacity-building activities. 2. O& M documents review, specifically, SOPs and SMPs. 3. Verification of physical Investments and equipment installed applying developed checklist (tool # 6b)
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Introduction

USAID/Egypt has contracted with this evaluation team through SIMPLE to conduct the ex-post Evaluation of The Water and Wastewater Small-Scale Construction Program and Job Creation through Essential Services Delivery (JCESD) in Upper Egypt under the Egypt Utilities Management (EUM) Assistance Agreement.

The main purpose of this evaluation is to:

Examine the effectiveness of the interventions under EUM.

Assess the continued sustainability of the interventions three years after the activities ended.

Identify approaches to ensure sustainability that can be institutionalized across utility activities at USAID/Egypt in the future.

This section of the evaluation concerns the improvement of the water facilities in Shandaweel Village in Sohag Governorate. The purpose of the project is to ensure proper water quality and quantity in a selected priority part of the project area (Shandaweel Village and neighbouring housing areas). This is to contribute to the reduction of health risks for those parts of the population in the district of Shandaweel who are directly or indirectly concerned by the project measures.

OBSERVATIONS/ FINDINGS

The final ex-post evaluation mission was conducted by the evaluation team and strongly supported by the team members of Sohag WWC.

Plant Data and Specifications	Shandaweel Water Treatment Plant (WTP) is an iron and manganese filtration facility, and the water source is groundwater. The design capacity is 720 m³/hr 75 L/sec. (<i>data provided by Sohag WWC</i>). There are five treated water pumps (three in operation and two on standby). The capacity of each pump is 25 l/s, at head of 55 meters.
How the staff of the WTP Benefited from the FARAS	Shandaweel Water Treatment Plant staff highly appreciate the work done by the FARAS. They gained very useful experience in operations and maintenance during the commissioning phase with the contractor as follows: They have all operation manuals and process specifications and the provided training assisted them to correctly operate the treatment process. They trained to routinely apply the required preventive maintenance to keep the equipment in good condition and to document the corrective maintenance.
Training and Capacity building provided	Plant Manager Ashraf Elsayed Ahmed and the maintenance managers did not attend the implementation of the project. The experience gained through the internal training provided by Sohag WWC can be summarized as: General operation and maintenance procedures. Power factor adjustment. Chlorine disinfection system. Safety and health. Deep well operation.

Operation	The operation of the plant is done routinely according to standard operation procedures, and the staff understands the operations steps and applying the instructions of the SOP manual. An operation and maintenance manual prepared by the consultant Enviro Consult and the contractor Latif Ramzi Fahmy and approved by the HCWW and the USAID was found in the plant. The operations staff uses standard forms and logs to record the daily operations measures and events as: • Pump operation hours • Standby generator logs • Chlorination logs and consumption rates. • Monthly operation reports. The operation style and performance are very satisfactory, and the main operations data can be summarized as follows: Plant Utilization Rate: 50 percent. (The average production is 360 m3/hr compared with design capacity of 720m3/hr) (<i>data provided by Sohag WWC</i>). Samples comply with the regulations: 100 percent, meaning the water quality meets Egyptian standards. Efficiency of filtration: 100 percent, meaning that all water samples from all sand filters pass bacteriological, iron, and manganese tests.
Laboratory	The WTP has no laboratory, and samples are collected and analyzed by a central laboratory.
Preventive and Corrective maintenance	Preventive maintenance plans exist for the Shandaweel WTP, and the MASTER software has not been applied yet. The maintenance staff is performing the required jobs on a daily basis, according to the maintenance plan documents. Preventive maintenance forms are regularly filled out after the job is finished and sent back to the operators to update the data. There were no corrective maintenance work orders during the last operation period because no equipment failures happened. This is a good indicator of the quality of the equipment and installations.

Site Visit	During the site visit, the following observations were made: The Shandaweel WTP seems well maintained. It is clean, with no rubbish lying around. The pump building is well maintained. Staff said that pumps were kept clean, and the floor was also clean. An electrical crane is working for pump installation. Safety equipment and tools were used by the staff. All equipment provided by the project is working according to specifications. All treatment processes are in use and functioning well. The SOPs are printed in big readable size and posted near all equipment and treatment processes to be used as a guide for the staff. The well water contains higher concentrations of Total Dissolved Solids (TDS) and carbonate hardness, which could affect the efficiency of the filter medium. The ground tank water level meter provided by the project is not working anymore, and the maintenance department tried to fix it but failed. They replaced it with one from the local market, and it is working well with accurate readings.
Standby Generator	A standby generator of 200KVA was tested and is working well. The standby generator power is sufficient to operate all the equipment at the WTP in case of a power outage. Diesel tank piping is clean with no leakages, but the tank is situated directly on the ground; no concrete enclosure is provided.

Conclusions:

The meetings with Sohag WWC upper management during the KIIs show that they are keen to ensure the sustainability of interventions built through the FARAs and the EMU agreement, and they know the magnitude of the services provided by those projects.

The Operations and Maintenance staff keeps the plants in good condition by using the SOPs and SMPs effectively.

The plant has no laboratory, but the central laboratory follows a sampling plan and QA/QC procedures.

The operation staff has no operations emergency plans.

The flow measuring data is not sufficient and needs to represent the daily flow fluctuations.

The available flow data shows that there is a gap between the design flow (720m³/hr) and the actual flow 360m³/hr. This means that the plant is producing at 50 percent of its design capacity.

Recommendations:

The O&M staff require more training in the following:

- Standby generator maintenance.
- Electrical control panels (MCC) types and the function of each component of the MCCs.
- Pump repair (disassembling and assembling methods and tools (OJT)).
- Electrical protection units.
- Prediction of faults and problems and troubleshooting.
- Iron and manganese process control and techniques.
- Training of Trainers (TOT).

The flow meter readings should be taken every two hours and recorded in an operations log.

The gap between the actual flow and the design capacity compared with the hydraulic analysis maps needs more investigation.

A local laboratory is required.

The operations staff should have operations emergency plans.

The operators must take the flow meter readings every two hours and record the reading in daily operations logs.

Despite not being part of the design as per the HCWW, the chlorination facility should have a neutralization tower for chlorine leaks and a suitable way to contain the leaking cylinders.

The chlorine gas cylinder should be seated over a scale so the amount used is calculated directly.

The following are some recommendations of the operations staff to enhance the performance of the plant:

- Modify the filter washing system to reduce water loss.
- Connect the rest of the wells with electricity.
- Cover the concrete walls of the filters with suitable coating material to minimize algae growth attached to the walls.
- Add new wells.
- Establish a control system (plc) to control the water levels in the wells and in the ground reservoir.

NAGAA AL ARAYA WTP – SOHAG

LOCATION

Governorate:	Sohag
Site:	Nagaa El Arayaa Water Treatment Plant
Assessment Date:	14/7/2019
Assessment Undertaken by:	Magdy Mokhtar, Water and Wastewater Utilities Expert. (One of the evaluation team)
Staff Consulted:	Allaa Abd Elmaqsoud - General Manager of Water Branch
	Ashraf Elsayed Ahmed - Nagaa El Arayaa Water Plant Manager
	Kirolos Girgis Kelada - Electrical Maintenance Manager
	Ahmed Galal Ali - Lab Manager
	Nasser Taha Ahmed - Mechanical Maintenance Manager

PROGRAM

3:15 pm to 5:30 pm	1. Group Discussion (GD) with staff on implemented interventions, applied practices, and effectiveness and sustainability of capacity-building activities. 2. O& M documents review, specifically, SOPs and SMPs. 3. Verification of physical Investments and equipment installed applying developed checklist (tool #6b)
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Introduction

USAID/Egypt has contracted with this evaluation team through SIMPLE to conduct an ex-post evaluation of the Water and Wastewater Small-Scale Construction Program and Job Creation through Essential Services Delivery in Upper Egypt under the Egypt Utilities Management (EUM) Assistance Agreement.

The main purpose of this evaluation is to:

Examine the effectiveness of the interventions under EUM.

Assess the continued sustainability of the interventions three years after the activities ended.

Identify approaches to ensure sustainability that can be institutionalized across utility activities at USAID/Egypt in the future.

This section of the evaluation concerns the improvement of the water facilities in the Nagaa El Arayaa Village in Sohag Governorate. The purpose of the project is to ensure proper water quality and quantity in a part of the selected priority project area (Nagaa El Arayaa Village and neighbouring housing areas). This is to contribute to the reduction of health risks for those parts of the population in the district of Nagaa El Arayaa who are directly or indirectly affected by the project measures.

OBSERVATIONS/ FINDINGS

The final ex-post evaluation mission was conducted by the evaluation team and strongly supported by the team members of the Sohag WWC plant.

Plant Data and Specifications	Nagaa Al Arayaa Water Treatment Plant (WTP) is an iron and manganese filtration facility, and the water source is groundwater. The design capacity is 540 m³/hr, 75 L/sec. There are five treated water pumps (three in operation and two on standby). The capacity of each pump is 25 l/s, at head of 40 meters.
How the staff of the WTP Benefited from the FARAS	Nagaa Al Arayaa Water Treatment Plant staff highly appreciate the work done by the FARAS projects. They gained very useful experience in the operation and maintenance as follows: They are able to train the new staff and transfer their experience. They feel safer because they apply the corrected safety measures. They have all operation manuals and process specifications, and the provided training assisted them to correctly operate the treatment process. They recently began using MASTER software to routinely apply the required preventive maintenance to keep the equipment in good condition and to document the corrective maintenance.
Training and Capacity building Provided	Plant Manager Ashraf Elsayed Ahmed and the maintenance managers did not attend the implementation of the project. The experience gained through the internal training provided by Sohag WWC can be summarized as: • General operations and maintenance procedures. • Power factor adjustment. • Chlorine disinfection system. • Safety and health. • Deep well operations.

Operation	The operations of the plant are done routinely according to standard operation procedures, and the staff understands the operations steps and applying the instructions of the SOP manual. An operations and maintenance manual this manual prepared by the consultant Enviro Consult and the contractor Latif Ramzi Fahmy and approved by the HCWW and the USAID was found in the plant. The operations staff uses standard forms and logs to record the daily operations measures and events: • Pump operation hours • Standby generator logs • Chlorination logs and consumption rates. • Monthly operation reports. The operation style and performance are very satisfactory, and the main operation data can be summarized as follows: Plant Utilization Rate: 50 percent. (The average production is 270 m³/hr compared with design capacity of 540m³/hr) Samples comply with the regulations: 100 percent, meaning the water quality meets Egyptian standards. Efficiency of filtration: 100 percent, meaning that all water samples from all sand filters are passing bacteriological, iron, and manganese tests.
Laboratory	The WTP has no laboratory, samples are collected and analyzed by a central laboratory.
Preventive and Corrective maintenance	Preventive maintenance plans exist for the Nagaa Al Arayaa WTP and the MASTER software was not applied yet. The maintenance staff is performing the required jobs on a daily basis, according the maintenance plan documents. Preventive maintenance forms are regularly filled out after the job is finished and sent back to the operators to update the data. There were no corrective maintenance work orders during the last operation period because no equipment failures happened. This is a good indicator of the quality of the equipment and installations.

Site Visit	During the site visit, the following observations were made: The Water Treatment Plant at Nagaa Al Arayaa seems well maintained. It is clean, with o rubbish lying around. The pump building is well maintained. Staff said that pumps were kept clean, and the floor was also clean. An electrical crane is working for pump installation. Safety equipment and tools are used by the staff. All equipment provided by the project is working according to specifications. All treatment processes are used and functioning well. The SOPs are posted in big readable print near all equipment and treatment processes to be used as a guide for the staff. The well water contains higher concentrations of Total Dissolved Solids (TDS) and carbonate hardness, which affects the efficiency of the filter medium.
Standby Generator	A 200KVA standby generator is working well. The standby generator is enough to operate all the equipment at the WTP in case of a power outage. Diesel tank piping is clean with no leakages, but the tank is situated directly on the ground; no concrete enclosure is provided.

Conclusions:

The meetings with Sohag WWC upper management during the KIs show that they are keen to ensure the sustainability of the investments of interventions built through the FARAs and the EMU agreement, and they know the magnitude of the services provided by those projects.

The Operations and Maintenance staff keep the plants in good conditions by using the SOPs and SMPs effectively.

The plant has no laboratory, but the central laboratory follows a good sampling plan and QA/QC procedures.

The operations staff has no operations emergency plans.

The flow measuring data is not sufficient.

The available flow data shows that there is a gap between the design flow (540m³/hr) and the actual flow of 270m³/hr.

The well water contains higher concentrations of Total Dissolved Solids (TDS) and carbonate hardness, which affects the efficiency of the filter medium. This requires changing part of the filter medium after two years to recover filter efficiency.

Recommendations:

The O&M staff require more training in the following:

- Standby generator maintenance.
- Electrical control panels (MCC) and the function of each component of the MCCs.
- Pump repair (disassembling and assembling methods and tools (OJT).)
- Electrical protection units.
- Prediction of faults and problems and troubleshooting.
- Iron and manganese process control and techniques.
- Training of Trainers (TOT).

The flow meter readings should be taken every two hours and recorded in an operations log.

A local laboratory is required.

The operations staff should have operations emergency plans.

The operators must take the flow meter readings every two hours and record the reading in daily operations logs.

Despite not being part of the design according to the HCWW, the chlorination facility should have a neutralization tower for chlorine leaks and a suitable way to contain the leaking cylinders.

The chlorine gas cylinder should be seated over a scale to calculate directly the amount used.

ANNEX VI: PRELIMINARY DESCRIPTION OF TRAINING NEEDS IN SUBSIDIARY COMPANIES

Sohag	Assiut	Qena	Luxor
Hydraulic Analysis Dept. Advanced Training in Water / Sewer CAD program GIS Dept. Advanced Training in ArcGIS and Total Station device Master Plan Dept. Training on preparing Feasibility studies, Investment Plan - Business plan and Advanced Database	Hydraulic Analysis Dept. Advanced Training in Water / Sewer CAD program GIS Dept. Advanced Training in ArcGIS and Total Station device Master Plan Dept. Training on preparing Studies and Investment Plan - Master plan	Hydraulic Analysis Dept. Advanced Training in Water / Sewer CAD design program GIS Dept. Advanced Training in ArcGIS and Total Station device Master Plan Dept. Training on research, Investment Plan - Master plan	Hydraulic Analysis Dept. Advanced Training in Water / Sewer CAD design program GIS Dept. Advanced Training in ArcGIS and Total Station device Master Plan Dept. Training on research, Investment Plan - Master plan
Training on Using HYDROCOM program to link the regions with central system and Issuing Bills centrally Advanced training for all Customer services centers on Dealing with the public	Training on Using HYDROCOM program to link the regions with head center and Issuing Bills Center. Advanced training for all Customer services centers on Dealing with the public	Advanced training for all Customer services centers on Dealing with the public	Advanced training for all Customer services centers on Dealing with the public
Advanced training for all Hot line centers staff on Dealing with the public and reporting	Advanced training for all Hot line centers staff on Dealing with the public and reporting	Advanced training for all Hot line centers staff on Dealing with the public and reporting	Advanced training for all Hot line centers staff on Dealing with the public and reporting
Advanced training on HYDRCOM Program, Management Skills, Business plan and Document control	Advanced training on HYDRCOM Program, Management Skills, Business plan and Document control	Advanced training on Management Skills, Business plan and Document control	Advanced training on Management Skills, Business plan and Document control
Advanced training on FIDIC, conflict resolution, Advanced Training on ADVAC, TOT on procurement	Advanced training on FIDIC, conflict resolution and TOT in Contracts/Procurement	Advanced training on FIDIC, conflict resolution and TOT in Contracts/Procurement	Advanced training on FIDIC, conflict resolution and TOT in Contracts/Procurement
Training Programs: Project management, Planning, Scheduling, MS project and AutoCAD	Training Programs: Project management, Planning, Scheduling, MS project and AutoCAD	Training Programs: Project management, Planning, Scheduling, MS project, Primavera, PMP and AutoCAD	Training Programs: Project management, Planning, Scheduling, MS project, Primavera, PMP and AutoCAD

Sohag	Assiut	Qena	Luxor
Training Programs on: Report writing and data analysis skills Monitoring and Quality control for chemical analysis Monitoring and Quality control for Bacteriological analysis Microscopic and water Bio. Water Sampling methods Lab. health and safety Algae count and analysis water Bacteriology water and wastewater CODES and laws	Training Programs on: Report writing and data analysis skills Monitoring and Quality control for chemical analysis Monitoring and Quality control for Bacteriological analysis Microscopic and water Bio. Water Sampling methods Lab. health and safety Algae count and analysis water Bacteriology water and wastewater CODES and laws	Training Programs on: Report writing and data analysis skills Monitoring and Quality control for chemical analysis Monitoring and Quality control for Bacteriological analysis Microscopic and water Bio. Water Sampling methods Lab. health and safety Algae count and analysis water Bacteriology water and wastewater CODES and laws	Training Programs on: Report writing and data analysis skills Monitoring and Quality control for chemical analysis Monitoring and Quality control for Bacteriological analysis Microscopic and water Bio. Water Sampling methods Lab. health and safety Algae count and analysis water Bacteriology water and wastewater CODES and laws
Training Programs on: SCADA AutoCAD Electric Maintenance of electric Transformer. Maintenance of High and Medium Voltage Plants control and Programing Pumps Maintenance Generators Maintenance Stander operation for Plants (Water and Pump Stations) Electric Panel Maintenance Report writing and data analysis skills Water Treatment process control calculations	Training Programs on: SCADA AutoCAD Electric Maintenance of electric Transformer. Maintenance of High and Medium Voltage Plants control and Programing Pumps Maintenance Generators Maintenance Stander operation for Plants (Water and Pump Stations) Electric Panel Maintenance Report writing and data analysis skills Water Treatment process control calculations	Training Programs on: SCADA AutoCAD Electric Maintenance of electric Transformer. Maintenance of High and Medium Voltage Plants control and Programing Pumps Maintenance Generators Maintenance Stander operation for Plants (Water and Pump Stations) Electric Panel Maintenance Report writing and data analysis skills Water Treatment process control calculations	Training Programs on: SCADA AutoCAD Electric Maintenance of electric Transformer. Maintenance of High and Medium Voltage Plants control and Programing Pumps Maintenance Generators Maintenance Stander operation for Plants (Water and Pump Stations) Electric Panel Maintenance Report writing and data analysis skills Water Treatment process control calculations

ANNEX VII: BIBLIOGRAPHY

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Egypt Utilities Management Assistance Agreement No. 263-0270.04, Fixed Amount Reimbursement Agreement (FARA) between the Arab Republic of Egypt and United States Agency for International Development for Construction of A Potable Water Treatment Plant for Naguaa El Araya Village, Sohag Governorate, FARA No. 5, January 28, 2010.

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Egypt Utilities Management Assistance Agreement No. 263-0270.04, Fixed Amount Reimbursement Agreement (FARA) between the Arab Republic of Egypt and United States Agency for International Development for Construction of the Wastewater Collection System for Beni Semee Village, Assiut Governorate, FARA No. 3, January 27, 2010.

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U.S. Agency for International Development
1300 Pennsylvania Avenue, NW
Washington, DC 2052