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# Lebanon Water and Wastewater Sector Support

QUARTERLY REPORT: JULY 2012 — SEPTEMBER 2012

October, 2012

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**LEBANON WATER AND WASTEWATER SECTOR SUPPORT**

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**The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.**

## ACRONYMS

ACWUA	Arab Countries Water Utilities Association	FAS System	Financial & Accounting
ADSL	Asymmetrical digital subscriber line	GA GIS	Geographical Area Geographical Information System
AFD	French Development Agency	GIZ	Gezellschaft fur Internationale Zusammenarbeit
AWP	Annual Work Plan	GNSS	Global Navigational Satellite System
APP	Annual Work Plan	GOL	Government of Lebanon
ATP	Annual Training Plan	GTZ	German Technical
BMLWE	Beirut-Mount Lebanon Water Establishment	Assistance HDSL	High-bit-rate digital line
BOQ	Bill of Quantities	subscriber	
BWE	Beka'a Water Establishment	HPIP	High Priority Intervention Program
CAS	Central Administration of Statistics	HR	Human Resources
CCN	Cooperating Country National	H&S	Health and Safety
CCTV	Closed Cable Television	IAR	Initial Assessment Report
CDG	Chairman and Director	IEE	Initial Environmental
General CDM	Camp, Dresser and McKee Engineering	Evaluation IFI	International Financial
CDR	Council for Development and Reconstruction	Institution IRG	International Resource
CRM	Customer Relations Management	Group	
CIP	Capital Improvement Plan	IRM	Information Resources Management
CO	USAID Contract Office	IT	Information Technology
COA	Chart of Accounts	IWRM	Integrated Water Resource Management
CQCP	Construction Quality Control Plan	KPI	Key Performance Indicator
CSR	Customer Service Representative	LWWSS	Lebanon Water and Wastewater Sector Support Management Information System
COP	Chief of Party	MIS	
COTR	Contract Officer Technical Representative	MMS	Maintenance Management System
DG	Director General	MOEW	Ministry of Energy and Water
DAI Inc.	Development Alternatives	MOF	Ministry of Finance
DCOP	Deputy Chief of Party	MOTGE	Mise en place des Outils Techniques de Gestion de l'Eau
DEP	Design Engineering Partners	NLWE	North Lebanon Water Establishment
EIB	European Investment Bank	NRW	Non Revenue Water
EU	European Union	NWSS	National Water Sector
EA	Environmental Assessment	Strategy	
EDL	Electricite du Liban (National Electricity Provider)	O&M	Operations and Maintenance
EMMP	Environmental Monitoring and Mitigation Plan	PMP	Performance Monitoring Plan
ERP	Enterprise Resource Planning		
EOI	Expression of Interest		

PSP	Private Sector Participation
PPM	Parts per million
PPP	Public Private Partnership
SCADA	System Control and Data Acquisition
SLWE	South Lebanon Water Establishment
SMP	Subcontractor Management Plan
SOW	Scope of Work
STTA	Short-Term Technical Assistance
TBC	To be confirmed
TOR	Terms of Reference
USAID	United States Agency for International Development
USG	United States Government
WE	Water Establishment
WET	World Engineering and Technology
WPS	Water Pumping Stations
WWTP	Wastewater Treatment Plant

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### **LWWSS Counterparts and Primary Contacts**

<b>Beirut-Mount Lebanon Water Establishment (BMLWE)</b> <b>Beka’a Valley Water Establishment (BWE)</b> <b>North Lebanon Water Establishment (NLWE)</b> <b>South Lebanon Water Establishment (SLWE)</b> <b>Ministry of Energy and Water</b> <b>MOEW Advisor to Minister (Water)</b> <b>MOEW Advisor to Minister (Wastewater)</b>	<b>Joseph Nseir</b> <b>Maroun Msallem</b> <b>Jamal Krayem</b> <b>Ahmed Nizzam</b> <b>Ghassan Beydoun</b> <b>Abdo Tayar</b> <b>Randa Nemer</b>
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## A. INTRODUCTION

The Lebanon Water and Wastewater Sector Support (LWWSS) Program is a \$34 million, 67-month (October 2009 - April 2015) program funded by USAID and implemented by Development Alternatives, Inc. (DAI). LWWSS provides technical assistance and related services to impact USAID/Lebanon's Assistance Objective (AO) 4 - "Improved water services for all in Lebanon" - and the corresponding Intermediate Results (IRs) - more efficient management of water resources, improved water infrastructure, and enhanced water governance.

LWWSS works in cooperation with the Ministry of Energy and Water (MOEW) to assist Lebanon's four Water Establishments (WEs) in strengthening their capacity to deliver high-quality and sustainable services. Ultimately, the LWWSS program aims to help the WEs advance towards financial and operational sustainability and overcome the many challenges they face, including staff shortages and an aging workforce, poor customer relations, low tariffs that fail to recover operating costs, lack of metering, excessive non-revenue water, and underinvestment in the water and wastewater infrastructure.

The areas of focus that LWWSS targets in working with the WEs include:

- Building management capacity within the WEs;
- Increasing financial management capacity and financial system integration;
- Procuring equipment to complement technical assistance and capacity building;
- Business planning to increase capital planning and benchmarking capacity;
- Funding urgent infrastructure works to enhance delivery or access and coverage;
- Developing a corporate culture, customer service orientation and public outreach programs.

Based on the initial LWWSS program objectives of building on previous USAID and other donor program progress and as a result of lessons learned during the first two years of the program, LWWSS has focused on implementing its Year-Three Work Plan within specific areas of Water Establishment (WE) operations. The LWWSS program has, therefore, tailored the individual WE work plans to apply the information gathered on each WE and to leverage the successes accomplished to date.

This Quarterly Report covers the period from July 2012 – September 2012 and provides quarterly highlights, component updates that provide technical perspective, and then details progress of project activities broken down by each Water Establishment and then further by each component, as per the Year-Three Work Plan. Each component consists of several activities, and progress of each is depicted in the accompanying Gantt charts and detailed in the narrative. Additionally, this quarterly report includes the PMP tables that report progress on the indicators for year three of the project.

## B. QUARTERLY ACTIVITY HIGHLIGHTS

### *North Lebanon Finance Training*



*North Lebanon Water Establishment's finance team undergoing training in relation to the fixed assets activity in Tripoli.*



On July 5, LWWSS Financial Specialist Mike Chalah, LWWSS IT and Systems Specialist Ahmad Siddik, and LWWSS subcontractor ABA presented the fixed assets valuation RFP in a workshop with the NLWE Head of the Finance Mr. Maher Tahsildar and his team (six people total). The workshop also covered the Chart of Accounts and the methodology for the definition of cost centers in order to improve NLWE's ability to issue all analytical reports.

The fixed assets valuation activity will enable NLWE to conduct a comprehensive investigation into the ownership, status and financial value of its physical assets. The WE to establish an actual database of its properties, as well as an accurate valuation of their worth. This information will feed into the WE's yearly budgeting and contribute to helping the WE advance towards increased financial and administrative autonomy through the adoption of standard accounting and valuation methods.

Further training in public financial and accounting management will take place in NLWE during year four of the LWWSS program.

## Jeita Pump Station Equipment Delivered



High performance pumps successfully delivered and ready for installation



US-made motors delivered to Dbayeh Water Treatment Plant for interim storage



High pressure valves that accompany the pumps and motors as part of the Jeita water pumping system

The Jeita pump station rehabilitation is a key activity for LWWSS with the Beirut-Mount Lebanon Water Establishment (BMLWE), as rehabilitation of Jeita will enable it to operate more effectively, achieving its targeted water supply and reducing its operating costs. Jeita is one of the country's most critical pump stations that serves coastal Metn (Greater Beirut) and some additional areas of the capital.

The rehabilitation is being led and funded jointly by LWWSS and BMLWE, the former through design and supply of equipment and the latter through installation and commissioning. All of the equipment – pumps, motors, valves, fitting, and motor control centers - arrived in Lebanon in August and will be installed at the pump station starting in September. The rehabilitation will take about two months.

The anticipated benefits of the rehabilitation include:

- Extended hours of water supply to more than 100,000 water users due to an increase of up to 30 percent in efficiency (through new pumps and motors), a decrease in break-downs and down time (due to new equipment and new electrical and hydraulic installations), and a longer lifecycle for the equipment (due to the sand filter solution designed by LWWSS and financed by BMLWE).
- More efficient design and installation for this key pump station, decreasing operating and maintenance costs for BMLWE. The existing pumps are so old and worn out that the BMLWE spends one-third of its total yearly operations and maintenance budget on the Jeita Pump Station alone.
- Jeita staff will be trained, using the LWWSS-developed O&M manuals and checklists, and they will receive additional specialized training by the suppliers of the equipment. The training will decrease accidents on site, avoid human errors, extend the life of BMLWE's equipment, and build the capacity of staff to ensure sustainability.

## C. PROJECT PROGRESS BY WATER ESTABLISHMENT AND COMPONENT

Project activities are broken down by each water establishment and then further by each LWSS component, in conformance with the Year Three Work Plan. Each component consists of several activities, and progress of each is depicted in the Gantt charts and detailed in the narrative.

### 1. Beka'a Water Establishment (BWE)

#### *Component 2: Capacity Building for Managerial, Technical and Operational Efficiency*

##### Work Plan Activities

Item	Activity Description	Program Resource	Deliverable by End of Year Three	Target Date for Deliverable Completion
<b>2.2</b>	<b>Building the WEs' Water Quality Management Capacity</b>			
2.2.1	Conduct water quality baseline survey based on seasonal sampling of all sources, with on-the-job staff training	AUB	Activity Completed. Assessment issued to BWE	May, 2012
2.2.2	Conduct a laboratory operation assessment and submit recommendations	AUB	Completed July 2012	July 2012
2.2.3	Analysis of baseline water tests	AUB	Ongoing	Oct., 2012
2.2.4	Establish a region-specific and Libnor-compatible testing protocols and methodology	AUB	Activity Nearing Completion. Assessment to be issued to BWE	Dec. 2012

2.2.3	Plan and conduct a comprehensive user training on all aspects of lab operation	AUB	Activity planned.	April, 2013
<b>2.3</b>	<b>Build Pump Stations Operators Capacity in Operation and Maintenance</b>			
2.3.1	Pump station operators basic O&M and H&S training (70+ staff)	CDM (BG, GT), LWWSS (MK) Kredo	Activity completed in Year Two. Activity will be repeated in BWE to cover new staff.	Sept., 2012

BG-Bassem Ghayda; MK-May Koleilat; GT-Gulnard Ters

Activity 2.2 - Building the WEs' Water Quality Management Capacity

*Background*

Of the four water establishments the BWE is the least capable of conducting water quality testing. The BWE lacks trained laboratory specialists, laboratory equipment, adequate laboratory working and storage space, a baseline for the entire water establishment service area, and a water- sampling management plan that meets all the national requirements in term of number and types of tests to be conducted. In order to address this significant shortcoming, LWWSS is working with the BWE in work plan years three and four to resolve as many of the deficiencies as our resources permit and is sufficient to move the BWE into appropriate and effective water testing management.

*Scope*

This component activity will span year three (October 1, 2011—September 30,2012) and part of year four (October 1, 2012—April 30, 2013). LWWSS is proceeding with the implementation of a comprehensive group of activities that aim at building BWE's capacity in managing water quality through an adapted management plan that is based on the reality of BWE's water pollution profile, water treatment and testing infrastructure, and human capacity. The plan is scalable and encompasses setting testing standards and methodologies, water monitoring protocols, as well as reporting and management.

Once the plan is adopted, a comprehensive training will take place for existing and forthcoming staff (both temporary and permanent), followed by a phased procurement of laboratory equipment (activity 5.4) that takes into account the capacity of the BWE staff to implement the plan, fund consumables, and operate the equipment (refer to “Background and Key Points” above).

### *Progress*

LWWSS has appointed the American University of Beirut's (AUB) Public Health Department to provide the services under this group of activities. AUB has completed the dry and wet season water quality sampling for BWE, and the assessment of water quality management practices and existing infrastructure.

At the end of year three, LWWSS will be in a position to conduct a comprehensive staff training (implementation will take into account availability and skills of BWE staff at the time of training) and commence equipment procurement (subject to availability of skilled personnel).

Also, as highlighted under component five, LWWSS completed in 2011 the procurement of urgent equipment needed for the BWE's water analysis laboratory in Zahle to enable the basic tests to be undertaken until such time as the comprehensive Water Quality Management activities are complete. LWWSS also provided, through its subcontractor Numelab, the user training course for this equipment and is in the process of providing consumables for it.

### *Impact*

This activity brings about two types of impact. The first impact is to ensure the water quality reporting is accurate and timely. The second is to increase the capacity of WE staff to utilize the new equipment provided and to successfully execute the water testing management plan. The net effect of these two impacts will be to improve the water safety for the entire customer base of the WE (305,331 people). This quarter AUB continued its analysis of the baseline water survey and worked on the development of a water sampling guide for all WE laboratories.

The water quality testing management capacity building activity will culminate in a water quality testing plan, training for staff in executing the plan and meeting GOL water testing requirements, trained staff with adequate equipment and materials to carry out the testing and laboratory protocols to ensure the accuracy of the testing.



Activity 2.3. – Building Pump Station Operator Capacity

**Advanced Pump Station Operator Training**

*Scope*

The BWE director general and director of pump station operations requested more advanced training for specific pump station operators. The advanced training would allow the BWE to enhance the ability to manage operational problems beyond the training and skill level of existing pump station operators. LWSS reviewed this request and included it in the year-three work plan as an additional work plan item based on COTR concurrence.

*Progress*

During the fourth quarter of year three, LWSS Capacity Building Specialist May Koleilat and LWSS subcontractor Kredo completed detailed training subjects, worked with the BWE Head of Pump Station Operations to select participants, set the dates of training, and place for the advanced pump station training. The training will be held at the new Shamseen station in West Bekaa with two four-day sessions each, with eight trainees per session (16 trainees total). The first session will begin on November 1, and the second session will start on November 29.

*Anticipated Impact*

This training will improve the capacity of the trainee to handle more advanced equipment and to trouble shoot beyond the elementary level. The increased capacity will result in more efficient pump station operation and less cost for repairs of equipment because it is properly maintained. Also, with improved maintenance and operations, the pump stations will be in service longer; thus providing an improvement in service.

*Timeline*

**BWE Pump Station Advanced Operator Training**

	10/1/2011 to 3/30/2012	4/1/2012 to 9/30/2012	10/1/2012 to 3/30/2013	4/1/2013 to 9/30/2013
BWE Pump Station Advanced Operator Training				
1. Development of training materials for the advanced course			■	
2. Agreement on selection of participants after interviews; selection of place and time for training			■	
3. Provision of Training			■	
4. Follow up site visits to assess application of the training; on-site remedial training if needed			■	
5. Completion of training report			■	

*Note on Overall Progress:* This activity was developed late in year three because that is when the advanced training need became evident and was supported by top WE management. Additionally, training for the advanced course would only be offered after basic pump station operations training was completed in year three. That it extends into the year four work plan presents no project performance problem, nor does it change the project budget. The training timing also takes into account the availability of the pump station operators and other WE operational time commitments.

### **Component 3: Increase Financial and Commercial Viability of Water Establishments**

#### *Scope*

Two sets of interventions are undertaken in parallel by LWWSS to increase the financial and commercial viability of the BWE. These activities fall under the framework of an overall Enterprise Resource Planning (ERP) program that targets the management information system, integrates accounting, customer and financial systems and modernizes business processes.

Prior to the start of implementing the ERP system upgrade, LWWSS evaluated the BWE staff's knowledge of basic accounting principles and the finance department's forms and flow of information. This revealed that the staff was not able to properly close and open monthly and yearly accounts from one accounting period to the next. This deficiency applies to both the monthly and the annual closing and opening of accounts. Current law requires WEs to keep their accounts on an accrual basis, but no WE has done so. The proposed ERP system would enable this to be done on a timely and accurate basis once the full system was installed and used. Additionally, the staff lacked knowledge in procurement, auditing, and asset coding. The ERP integrates finance, accounting, asset management, billing and collection and payroll. It also allows for the interface with most GIS systems, allowing the WE to make a quantum leap in terms of replacing equipment from an up to date inventory, track water and wastewater line breaks and planning for timely replacement of the most troublesome lines. The ERP also allows senior management to get all relevant reports when they need them for making asset, personnel or policy decisions. The ERP software package was started in October, 2011.

#### **Work Plan Activities**

<b>Item</b>	<b>Activity Description</b>	<b>Program Resource</b>	<b>Deliverable by End of Year Three</b>	<b>Target Date for Deliverable Completion</b>
<b>3.1</b>	<b>Upgrade Finance and Accounting Standards and Methods</b>			
3.1.1	Training in Public Accounting, Finance, Procurement, Auditing	EMC (MC), LWWSS (MK)	Training Completed	Feb., 2012
3.1.2	Build WE capacity in consolidating and issuing end of month and end of year financial reports	EMC (MC), LWWSS (AS), ABA	Training completed Follow-up in place	March, 2012
3.1.3	Define cost centers, create/update chart of accounts, and accounting coding procedures	EMC (MC), LWWSS (AS), ABA	Information collected New COAs and procedures defined	March, 2012
3.1.4	Develop procedures for asset and inventory identification, coding and valuation	EMC (MC), LWWSS (AS), ABA	Procedures defined with the WE	March, 2012
<b>3.2</b>	<b>Integrate the WEs Financial, Accounting, Customer Service and Business Process Systems</b>			

3.2.2	Implement software platform including Finance and Accounting System and Customer Relationship Management solution (corresponds to Steps 1-7 in the Gantt Chart below)	EMC (MC, NA), LWWSS (AS), ABA EDM	Implementation completed and approved	Aug., 2012
3.2.3	Implement intranet system enabling web-browser based e-training, communication and business process tools (corresponds to Step 8-11 in the Gantt Chart below)	EMC (MC, NA), LWWSS (AS), ABA EDM	Implementation completed and approved	Aug., 2012
3.2.4	Conduct training, assist in transition phase and provide one to two years of on-site support (corresponds to Gantt chart step 6 below)	EMC (MC, NA), LWWSS (AS), ABA EDM	Training started	Sept., 2012
3.2.5	Supply and install time attendance machine and implement administrative and HR measures to increase HR efficiency	EMC (MC, NA), LWWSS (AS) EDM	Core equipment installed with training in Year Two. Two sets of equipment planned for Year Three.	Sept., 2012
<b>3.3</b>	<b>Pilot Stakeholder Exercise to Sustain O&amp;M of USAID WWTP</b>	DAI (SC, BJ)	Assessment report	September, 2012

MC-Mike Chalah; NA-Nada Akl; AS-Ahmad Siddiq; SC-Sam Coxson; BJ-Bassam Jaber

### *Activity 3.1: Upgrading Finance and Accounting Standards and Methods*

#### *Scope*

This activity is the foundation for the ERP information system upgrade. The required financial transaction accounting and reporting would bring with it accrual based accounting, which requires successful closure of the books at the end of one accounting period and accurate starting numbers for opening the books for the next accounting period, which the ERP system would allow to be accomplished in a timely manner.

#### *Progress*

During July and August, LWWSS' Financial Specialist Mike Chalah finalized the fixed assets inventory with BWE personnel and finalized his work on the end of year financial reports. These activities were being implemented in parallel to the implementation of the ERP platform (see activity 3.2), which was kicked off in the third quarter.

#### *Timeline*

## Finance and Accounting Standards Capacity Building

Activity Progress	O 2011	N 2011	D 2011	J 2012	F 2012	M 2012	A 2012	M 2012	J 2012	J 2012	A 2012	S 2012
Build the WE capacity in consolidating and issuing end of year financial reports	100%											
Training in Public Accounting, Finance, Procurement, Auditing	100%											
Define cost centers, create/update chart of accounts, and accounting coding procedures	100%											
Develop procedures for asset and inventory identification, coding and valuation	100%											

Activity schedule, as per Year Three Workplan, detailing percentage completion as of September 30, 2012

### Activity 3.2 - Integrating the WE's Financial, Accounting, Customer Service and Business Process Systems

The WE's management information system allows the WE to use software advancement without being tied to one provider contractually. Because of this positive characteristic BWE was included in the enterprise resource planning (ERP) software system installation.

#### *Progress*

During the fourth quarter of year three, LWWSS made substantial progress in implementing the ERP in the BWE. The finance, warehouse, budgeting, purchasing, payroll and human resources modules went "live" to test the system. Weekly follow-up sessions were conducted by LWWSS and ERP vendor, EDM, to control and monitor the process and to validate the data accuracy for each module. The Zahle branch went "live" in September for billing and collections, thus bringing two LWWSS activities to bear on a critical process of the WE: successful operation of the branch that LWWSS rehabilitated and successful functioning of the ERP at the branch office and branch staff. These two activities underpin the increase in WE revenues that improve the WE's financial sustainability.

Further progress was made in going "live" with the ERP in the Baalbek branch during the quarter. The purchasing, budgeting, financial, warehouse, and customer relations management modules were successfully tested. Follow up sessions will be carried out in the next quarter.

In late September, LWWSS gave a comprehensive presentation of the whole ERP system to the Director General, Maroun Msallem. The Director General was very impressed with the system and the amount of information at his fingertips. He stated that he can get a report in a few minutes that before ERP would have been at least a week. This type of ownership of the system and process is further assurance that the system is sustainable and essential to the increased management capacity of the WE.

#### *Timeline*

## BWE Enterprise Resource Planning System Installation

	10/1/2010 to 3/30/2011	4/1/2011 to 9/30/2011	10/1/2011 to 3/30/2012	4/1/2012 to 9/30/2012	10/1/2012 to 3/30/2013	4/1/2013 to 9/30/2013
<b>BWE-ERP Timeline</b>						
1. Assessment of BWE IT System	█					
2. Process Mapping and Specification Development	█					
3. MIS Procurement		█				
4. MIS (ERP) System Implementation			█			
	Initial Timeline from yr-2 and yr-3 Work Plans					
<b>BWE Enterprise Resource Planning System Installation</b>						
1. On site Assessment of information software needs	█					
2. Development of software system specifications		█				
3. Bidding and approval of procurement			█			
4. Initial software vendor and LWWSS meetings with WE Staff to determine specific processes needed			█			
5. Specific tailoring of the ERP system to meet WE senior management and staff needs			█			
6. Training on the ERP system for WE staff				█		
7. Entry of data to the new system and testing				█		
8. Coaching WE staff in use of the new system; providing remedial training where needed				█		
9. "Go Live" with the ERP system using its various modules					█	
10. Working on bugs in the system and monitoring staff to assist when needed					█	
11. On site technical assistance by Subcontractor EDM					█	
	Current Time Line As Evolved With Project					

### Note on Overall Progress

Step 1 was conducted by DAI subcontractor Cardno for BMLWE. As the assessment was reviewed, it became clear that the BWE had nearly the same problems and would benefit from the same system. Additionally, LWWSS felt that BWE would benefit substantially from the system's capacity and avoid hiring additional personnel in the finance department. After LWWSS hired an IT specialist, the project developed the detailed software specifications and procured the software. Concurrently, the LWWSS finance specialist began the preparation of the various departments by process mapping and information needs analysis and the

administrative changes required to implement the ERP system (See upgrading financial accounting standards and methods above in 3.1). After the software vendor was chosen, that vendor and LWWSS met extensively with BWE staff to tailor the Microsoft system to the WE's needs. The BWE staff was then trained on the software and began data migration to the new system. To help the implementation process, LWWSS had the vendor place an on-site specialist from the data migration point on and continues to have that person until the end of their contract in September, 2013. Specific quarter progress on this activity is presented above in activity 3.2.

Initially LWWSS anticipated implementing the ERP system in BMLWE and then in BWE; however, circumstances described below allowed the two systems to be implemented in tandem with only two weeks apart in progress. This has been challenging from a scheduling perspective with only two LWWSS specialists to oversee the process. However, LWWSS staff was able to utilize subcontractor staff to augment their efforts and overcome any delays in the implementation process. Another factor that allowed LWWSS to run the implementation in tandem was that the larger, more complex BMLWE organization, although more technically able to absorb a new IT system, also required more time to get the institutional process to accommodate the changes and occasional personnel resistance.

At the end of the third year of LWWSS, the ERP development and implementation has thus far been successful. Both BMLWE and BWE have utilized almost all the ERP modules (BMLWE is undertaking the billing and collection module and BWE is finalizing aspects of the asset management module) but has not completed them as of the end of the fourth quarter of year three. It is anticipated that the two modules will be implemented fully in the next quarter and that LWWSS will then need to monitor only the successful use of the system.

## **ERP Related Activity: Time Attendance Machine Installation in Branch Offices**

### *Background*

The BWE Director General knew there was very substantial employee absenteeism in the BWE, but had no way to verify this absence because employees and their supervisors would cover for each other or simply and brazenly just not show up. Many employees, forced on the WE by powerful politicians in their district, would refuse to show up and yet expect to be paid, and if not paid, the political sponsor would intervene. In order to combat this severe handicapping of absenteeism, the Director General and LWWSS developed a solution that would stop the process of one employee or a supervisor from covering for another by installing time attendance palm readers at all branches. The palm reader allows the employee to register his or her presence by reading the palm and sending the information to a computer that keeps the time for employees. Although the time keeping machines are not 100 percent effective because the employee backed by powerful politicians still may not show up, the system is expected to substantially reduce absenteeism.

### *Progress*

Although reported in more detail in the monthly reports, a brief summary of the activity is presented here for those who may not have access to the monthly reports. A total of five time attendance machines were installed by April, 2012 and began keeping track of employee attendance.<sup>1</sup>

### *Impact*

During the five months of their operation, absenteeism has dropped by a significant 10 percent. The cost of the time machines and the accompanying software was \$3,500, but the gain in productivity monetized pays for the machines in one month in the Zahle headquarters office alone.<sup>2</sup> A secondary gain in installing the time machines is that the Director General can check on the overtime requested. Prior to the installation of the time tracking machines, personnel would put in for overtime and would have a co-worker cover or countersign that the worker was there. The time tracking machines have made this practice impossible and thereby reduced the cost of overtime payment.

## Activity 3.3 – Developing Pilot Stakeholder Exercise to Sustain O&M of USAID Wastewater Treatment Plants

### *Background*

The RFP for the LWWSS project pointed out that an effort to increase the WE and the MOEW activity in wastewater treatment should be made by the project. LWWSS began by reviewing the work by other donors for wastewater treatment and existing legislation and the capacity of the WEs to take on the wastewater effort. LWWSS found that WEs were doing very little wastewater treatment. The BMLWE had agreed to manage and operate some small package wastewater treatment plant and nominally operates the incomplete treatment at the Bourj Hamoud-Beirut plant (the plant strains the sewage prior to its flowing into the Mediterranean).

LWWSS further found that the other water establishments had no treatment staff for the treatment plants that have been built by donors (there are 10 wastewater treatment plants in operation but the operation is carried out by subcontractors and funded by CDR or MOEW.)

USAID has built three small wastewater treatment plants in the BWE with agreements with two municipalities and one union of municipalities covering the treatment plants in Foursol, Ablah and Aitenit. The cities and Union of Lakes Municipal Union agreed to operate the plants in their cities but later communicated concern that the cost of operating the plants was more than their annual budgets and sought Ministry of Interior and Municipalities assistance to ensure

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<sup>1</sup> Two time tracking machines were installed at the Zahle headquarters office, one at the Zahle customer service branch and two in the Baalbek branch office.

<sup>2</sup> The gain in productivity that is monetized is the salary of those who would not otherwise be working (absent yet getting paid) is calculated by taking the average monthly wage at the headquarters office \$590 times the absenteeism that is reduced. Ten percent of the 70 employees in the Zahle headquarters office is seven employees times, the \$590 times seven equals \$4,130 savings in one month.

the wastewater treatment plants operation. USAID requested LWWSS to review the situation in the context of whether the three plants were sustainable under current circumstances

### *Progress*

During the fourth quarter, LWWSS' COP Sam Coxson and LWWSS' Senior Advisor Bassam Jaber continued to work on the pilot service agreement for operating the wastewater treatment plants. In July, they met with the Mayor of Foursol, Mr. Nasrallah, to discuss the possibility of the municipality entering into a service agreement with the Beka'a Water Establishment. The LWWSS Team presented the general outline of the service area agreement with specific reference to the WE taking responsibility of the operations of the wastewater treatment plant (WWTP). The Mayor responded that he was not as interested in the WE taking over the operations of the WWTP as he was in getting additional funding so that the municipality could operate the plant. The Mayor of Foursol stated a common concern that the other two mayors (Ablah and the Union of the Lakes Municipal Association and Mayor of Jeb Jenine) stated, "That they did not trust the BWE to have the capacity or funds to take over the operation of the treatment plants in their jurisdictions." While the Mayors of Ablah and Foursol emphasized the lack of funding, the Mayor of Jeb Jenine and the President of the Union of the Lakes Municipal Association went further and described a situation where the Municipality has water service dealings with the WE and were not at all satisfied with the results.

Mssrs. Coxson and Jaber wrote up this set of interviews and presented a report and recommendations to USAID in August. As an overview, the three municipalities in which the USAID-funded municipalities are located are not interested in negotiating a service agreement with the BWE. The municipalities want the funding but are fearful that BWE will not provide service. Also, they are concerned they will receive the brunt of complaints about failed service. Additionally, the municipalities argue that they do not see where the BWE has the funding to take over the operational responsibilities of the three USAID-funded WWTPs. In the discussion with the Mayor of Foursol, the visit of the USAID Mission and Small Village Wastewater Treatment (SVWWT) COP along with General Habr, Advisor to the Prime Minister, suggested that the problem may begin to be recognized by the GOL and, perhaps, a systematic, cohesive and rational solution that is sustainable will evolve from the General's review and report to the Prime Minister. Most likely any comprehensive solution will require legislative change in Law 221 that addresses the vague language in the law relative to municipality's role in wastewater treatment. The aspects of the current challenges were addressed in the full report that was submitted in August. Nonetheless, immediate steps will require the intervention of the GOL through its two ministries, the Ministry of Interior and Municipalities and the Ministry of Energy and Water.

The BWE Director General has indicated that BWE cannot assume the financial responsibility for subcontracting the operations and maintenance of the three USAID-funded wastewater treatment plants, nor does it have the qualified personnel to take over the operations and maintenance itself. Additionally, the BWE has not been given authority to levy a wastewater tariff, further limiting the WE's resources. Given the lack of commitment for wastewater service improvement as contrasted with the water supply services, it is not clear how much LWWSS can do to assist the increase and improvement of wastewater services in selected WEs.

In conclusion, the service agreement approach has reached an insurmountable obstacle and based on the feedback received from the parties involved on this activity, LWWSS will not be pursuing the pilot agreement in year four. Instead, LWWSS is proceeding with proposing activities that lay the foundation for establishing wastewater within WEs, such as developing wastewater master plans and ensuring that the forthcoming ERPs within the WEs take account of the wastewater requirements that the WE must undertake.

### *Timeline*

## Wastewater Assessment

Activity Progress	O 2011	N 2011	D 2011	J 2012	F 2012	M 2012	A 2012	M 2012	J 2012	J 2012	A 2012	S 2012
Draft assessment report	100%											
Discuss, amend and issue to USAID						100%						

Activity schedule, as per Year Three Workplan, detailing percentage completion as of September 30, 2012

## Component 4: Capital Investment Planning and Program/Project Management

### Work Plan Activity

Item	Activity Description	Program Resource	Deliverable by End of Year Three	Target Date for Deliverable Completion
4.4	Master planning			
4.4.1	Water Supply and Sewerage Master plan	Local subcontractor (TBC) Valuadd	Activity SOW defined. Services procured	Sept, 2013

### Activity 4.4 - Developing Water Supply and Sewerage Master plan

#### *Background*

The National Water Sector Strategy (NWSS) includes sections that refer to wastewater and recognizes that the WEs do not have or have out of date master plans for water or wastewater. LWWSS, in negotiation with the BWE, agreed to provide the BWE with the master plan called for in the NWSS.

#### *Progress*

Specifications for a water and wastewater master plan were developed and expressions of interest (EOI) advertised during the second and first part of the third quarter of this work plan year (Feb-April, 2012). Twelve consulting firms took copies of the RFP and five companies filed responses to the RFP. Two firms scored high on the technical scoring, but the review committee found that both firms had not provided adequate information concerning personnel assigned to the project so LWWSS sought best and final offers to determine the winner. This process added another month to the selection process. At the end of this quarter LWWSS was awaiting the final responses from the two top competing firms.

#### *Anticipated Impact*

The BWE master plan, when completed, will have significantly more information from which to make water and wastewater service decisions, capital, and financing decisions. The master plan will also provide guidance to the five-year business plan updated annually by the WE. That is, the business plan and the master plan are integrated planning documents with the master plan taking the longer view and the business plan addressing present and near future operations and maintenance. Also, the master plan offers the MOEW and donors a more comprehensive and definitive view of the current situation with respect to water and wastewater services of the WE. This in turn helps the donor or MOEW determine where scarce capital funds will be placed.

The BWE water and wastewater master plan will impact the entire service population of the BWE in a positive manner. Through informed policy and decision-making based on the detailed information that the master plan offers senior and mid-level management can better determine capital needs, major rehabilitation and service expansion needs. This coupled with the annual business plan update will enable the WE to address current and near future budget, capital and manpower needs.

*Timeline*

**BWE Master Plan For Water and Wastewater**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	
1		10/1/2011 to 3/28/2012				4/1/2012 to 9/30/2012				10/1/2012 to 3/28/2013				4/1/2013 to 9/30/2013												
2	BWE Master Plan For Water and Wastewater																									
3	1. Draft specifications for solicitation of an EOI																									
4	2. Short-list responses for full RFP response																									
5	3. Evaluate bids and select winning bid																									
6	4. Collect data and write up draft water and sewer master plan																									
7	5. Review master plan with BWE and draft final master plan																									
8																										
9																										
10																										
11																										
12																										
13																										
14																										
15																										

*Activity Progress:* This activity has been slightly delayed because of the need to carry out a best and final offer process. The delay is not expected to negatively affect the completion of the master plan by September, 2013.

**Component 5: Procurement of Technical Equipment to Strengthen WEs**

The procurement of equipment for the BWE is a part of a larger capacity building effort that improves management’s ability to make timely decisions (ERP process) and to ensure that the water quality provided is safe and meets all Lebanese Government requirements (LIBNOR).

**Work Plan Activities**

Item	Activity Description	Program Resource	Deliverable by End of Year Three	Target Date for Deliverable Completion
5.4	<b>Upgrading the Water Analysis Laboratories</b>			
5.4.1	Upgrade the water testing laboratories with infrastructure and equipment	AUB Local suppliers	Laboratory equipment procurement planned and agreed with BWE	Jan., 2013

5.4.2	Establish service agreements for water testing equipment and conduct equipment user training programs	AUB LWWSS (MK)*	Service agreements and training provided	Sept., 2013
<b>5.5</b>	<b>Water Treatment and O&amp;M Training</b>			
5.5.1	Install up to 20 UNICEF-supplied chlorinator units; Supply and install safety equipment and gas detection systems	CDM (BG, GT, EH) Sanabel	Installation complete	Completed
5.5.2	Training course for operators and year-long service and supply of consumables	CDM (BG, GT, EH), LWWSS (MK) Sanabel	Training conducted (done) 1 year service agreement, consumables	Completed
<b>5.6</b>	<b>Increase IT Infrastructure Efficiency</b>			
5.6.1	Assess and design IT infrastructure for WE headquarters and connectivity to branches	LWWSS (AS)	Report issued and adopted by SLWE	Completed
5.6.2	Upgrade server installation and power supply infrastructure at head office and selected branches	LWWSS (AS) Local subcontractor (MDS + TBD)	Scope defined Procurement and implementation started	Completed
<b>5.8</b>	<b>Establishing Direct Customer Interface</b>			
5.8.1	Design branch office and customer service center in WE's premises in Zahle	EMC (NA)*, LWWSS (AS) Boudy Esta Architects	Design complete and approved by WE	Completed
5.8.2	Implement interior works and furnish the new customer service center; connect IT systems to head office	Boudy Esta Architects, LWWSS, EMC Al Handassa Constructors	Implementation complete Project handed over to WE	completed

BG-Bassen Ghayda; GT-Gulnard Ters; EH-Elie Hreiz; MK-May Koleilat; NA-Nada Akl; AS-Ahmad Siddik

#### Activity 5.4 – Upgrading Water Analysis Laboratories

##### *Scope*

This activity follows the AUB Water Quality Testing Management Plan (activity 2.2) and will be completed in year four of this project. The plan will recommend equipment needed to carry out the testing protocols. LWWSS will provide the equipment as a part of the overall water quality testing improvement program.

*Progress*

As mentioned in Activity 2.2 above, the AUB report relating to some urgent laboratory equipment procurement is completed. LWWSS is currently preparing for the commencement of the procurement for laboratory equipment based on the recommendations of the report. CDM Smith, the LWWSS engineering subcontractor, is tasked with detailing the specifications of equipment needed and prescribing any basic civil, mechanical, and electrical work needed for procurement to start. CDM Smith's design is expected to be finalized during the month of November, following which, the procurement of equipment and minor fit-out work will commence.

*Anticipated Impact*

By utilizing the water quality testing management plan and procuring the needed equipment, BWE laboratory staff will be empowered to carry out the required daily and quarterly water testing to assure the BWE customer base that their water is safe to drink. This assurance process will take time to win the customer base over to the safety of the water to drink. Currently 70 percent of the BWE customer base buys its drinking water.

*Timeline*

**Upgrade BWE Water Analysis Management**

Activity Progress	O 2011	N 2011	D 2011	J 2012	F 2012	M 2012	A 2012	M 2012	J 2012	J 2012	A 2012	S 2012
Based on water quality mapping, investigate and plan laboratory equipment needs										90%		→
Start procurement											10%	→
Establish service agreements, and conduct user training programs for the above activities											0%	→

Activity schedule, as per Year Three Workplan, detailing percentage completion as of September 30, 2012 (0% indicates that the activity has not yet started) → Activity continues in Year Four

Activity 5.5 – Water Treatment and O&M Training

*Background/Scope*

The chlorination systems installed are not being properly operated and maintained due to pump station operator absence from the pump stations. This in turn causes chlorine systems to malfunction or cause damage to the chlorination system.

*Progress*

**Chlorination Equipment Follow Up**

The service and maintenance phase of this activity is ongoing with LWWSS engineers and supplier Sanabel making weekly site inspection visits to the 14 stations where chlorinators were installed to follow up on the operations and maintenance of the systems.

During these site visits, LWWSS engineers routinely check on the following:

- System function
- System pressure gauges (suction and injection pipe lines)

- Chlorine gas cylinders pressure

In addition, they test the following:

- Leak detection alarm system and ventilation exhaust fans system
- Emergency shower
- Flow switch
- Change over
- Flow meter
- Measurement of the free chlorine parts per million in the distribution line
- Other tests required as per the O&M manuals

The LWWSS engineers also continually encourage the operators and assist them in their daily operations, though this is subject to operator availability. The service and maintenance phase will end in November, 2012, at which point Sanabel and LWWSS will hand over the activity to the BWE. Challenges encountered with this activity are detailed in Section H.

*Timeline*

**Chlorination System Monitoring and Provision of Consumables**

Activity Progress	O 2011	N 2011	D 2011	J 2012	F 2012	M 2012	A 2012	M 2012	J 2012	J 2012	A 2012	S 2012
Ongoing training and follow-up with operators							95%					→
Provide consumables							95%					→

Activity schedule, as per Year Three Workplan, detailing percentage completion as of September 30, 2012 → Activity continues in Year Four

Activity 5.6 - Increasing IT Infrastructure Efficiency

*Progress*

As a prerequisite to the ERP platform (activities 3.1; 3.2), LWWSS upgraded IT infrastructure at BWE. The upgrade included a server and essential air conditioning equip and a robust internet connection that establishes permanent connectivity between the branch offices and the servers at the head office. Most of the equipment was installed during April, May, and June, and during July the ADSL was replaced by the HDSL.

**Activity Timeline**

## BWE IT Equipment Procurement

Activity Progress	O 2011	N 2011	D 2011	J 2012	F 2012	M 2012	A 2012	M 2012	J 2012	J 2012	A 2012	S 2012
Complete procurement of IT equipment required	100%											
Equipment delivery on site					100%							
Install and launch equipment, ahead of programming the ERP platform						100%						

Activity schedule, as per Year Three Workplan, detailing percentage completion as of September 30, 2012

→ Activity continues in Year Four

## Activity 5.8 – Establishing Direct Customer Contact

### Customer Service Center Progress

#### Background

The former equipment storage space in central Zahle was remodeled in order to open a customer service center conveniently located to a large number of customers. The remodeling required refinishing the interior of the space, provision of equipment, and furniture.

#### Progress

The customer service center in Zahle was completed and open for customers in mid-June, 2012. Some LWWSS activities continue, such as the ERP training, CRM training and follow-up site visits to monitor progress in application of the ERP and training.

#### Timeline

### Customer Service Center--Zahle

Activity Progress	O 2011	N 2011	D 2011	J 2012	F 2012	M 2012	A 2012	M 2012	J 2012	J 2012	A 2012	S 2012
Commence interior works associated with the branch	100%											
Commence procurement of furniture and other associated packages			100%									
Finalize and handover branch to WE ahead of launching								100%				
Provide specialist customer service training to staff										100%		

Activity schedule, as per Year Three Workplan, detailing percentage completion as of September 30, 2012

## Component 6: Small- to Medium-Scale Infrastructure Work on Water and Wastewater in the BWE

### Background

As a part of the LWWSS infrastructure funding and contract extension, LWWSS proposed the rehabilitation of water supply lines within the Zahle area of the BWE. The proposal, water supply line replacement in five districts of Zahle with a new line, will result in reducing a significant amount of water loss (we can only estimate the amount of water lost because the amount of water production and consumption is not metered). However, the WE is clear on the number of times it has had to repair the lines contained within the proposal. Hence, the WE points out, not only would replacement reduce the water loss but also reduce the repair and maintenance budget.

### Progress

The project consulting engineering firm, WET, conducted its final design of the proposed distribution line replacement. However, WET's preliminary cost estimates indicated that additional work could be done. The project proposal initially proposed the replacement of the five branch lines that would take approximately 6.2 kilometers steel pipe ranging in size from four to 10 inches with four- and six- inch high density polyethylene (HDPE) pipe. However, during the preliminary work this quarter, the consulting engineer suggested that six-inch pipe should be used throughout the length of the replacement. Also, LWWSS may be able to add approximately three kilometers to the initial length of pipe to be replaced based on preliminary estimates by the consulting engineer. LWWSS will address this potential additional infrastructure work by splitting the construction bid into two parts, one that addresses the original 6.2 kilometers of pipe replacement and one that provides for an alternate bid with the additional three kilometers added on.

### Anticipated Impact

The anticipated impact is to reduce the water loss and maintenance costs as well as provide better service to the 36,660 persons served by the line replacement.

### Workplan Activities

Item	Activity Description	Program Resource	Deliverable by End of Year Three	Target Date for Deliverable Completion
6.1	<b>Decreasing Water Losses and Upgrading Existing Networks</b>			
6.1.1	Hire LWWSS project specific personnel to execute the infrastructure project	LWWSS Program Manager and COP	Hire the Project Manager (PM) and Construction Manager (CM)	Jan., 2012
6.1.2	Project PM oversees development of consulting firm bid development	Project manager	Preparation of consulting firm bid documents	Apr., 2012
6.1.3	Advertise for bids, selection of consulting engineering firm and approvals	Project Manager, COP	Engineering firm Engaged	July, 2012
6.1.4	Preliminary Design network upgrades in Zahle: rehabilitating five branch networks in HAUOUCHE el Oumara, Maalaka,	LWWSS (Infrastructure PM) Local Engineering Firm	Engineering consultant appointed and preliminary design complete	Oct., 2012

	Rassieh, Karak-Forzol and Midan	WET		
6.1.5	Final design approved, tender package developed and bids received	Infrastructure PM, Construction Manager	Winning construction bidder selected	April, 2013
6.1.6	Implement network upgrades in Zahle: rehabilitating five branch networks in HAUOUCHE el OUMARA, MAALAKA, RASSIEH, KARAK-FORZOL and MIDAN	Local Engineering Firm (TBD) Local subcontractor (TBD)	Construction and commissioning of replaced water supply lines	June, 2014



alternate bid approach, LWWSS will add the additional work should the bid and alternate bid with the additional construction work added in, come in within the available funds.

The estimate of construction time is much less than the original proposal. This was determined only after LWWSS hired personnel who could spend more time refining the actual pipe replacement items of the proposed project. Hence, the initial delay in progress (hiring additional staff) is more than made up by the refined estimate of time for the pipe replacement.

**Component 7: Corporate Culture, Customer Service Orientation, and Public Outreach**

The component seven activities for BWE have been completed in previous quarters.

**2. Beirut-Mount Lebanon Water Establishment (BMLWE)**

**Component 2: Capacity Building for Managerial, Technical and Operational Efficiency**

There are no component two activities with BMLWE in the year-three work plan.

**Component 3: Increase Financial and Commercial Viability of Water Establishments**

*Background*

The ERP was chosen as the IT solution because it fully integrates finance, accounting, asset management, billing and collection and payroll. The ERP also allows for the interface with most GIS systems, which will allow the WE to make a quantum leap in terms of replacing equipment from an up to date inventory, track water and wastewater line breaks and plan for timely replacement of the most troublesome lines. The ERP also allows senior management to get all relevant reports when they need them for making asset, personnel or policy decisions. The ERP software package was started in October, 2011.

**Work Plan Activities**

Item	Activity Description	Program Resource	Deliverable by End of Year Three	Target Date for Deliverable Completion
3.1	<b>Upgrade Finance and Accounting Standards and Methods</b>			
3.1.1	Build the WE capacity in consolidating and issuing end of year financial reports	EMC (MC), LWWSS (AS) ABA	Information collected Reports produced	March, 2012
3.1.3	Define cost centers, create/update chart of accounts, and accounting coding procedures	EMC (MC), LWWSS (AS) ABA	Information collected New COAs and procedures defined	March, 2012
3.1.4	Develop procedures for asset and inventory identification, coding and	EMC (MC), LWWSS (AS) ABA	Procedures defined with the WE	March, 2012

	valuation			
<b>3.2</b>	<b>Integrate the WEs Financial, Accounting, Customer Service and Business Process Systems</b>			
3.2.2	Implement software platform including Finance and Accounting System and Customer Relationship Management solution	EMC (MC, NA), LWWSS (AS), ABA EDM	Implementation completed and approved	Aug, 2012
3.2.3	Implement intranet system enabling web-browser based e-training, communication and business process tools	EMC (MC, NA), LWWSS (AS), ABA EDM	Implementation completed and approved	Aug, 2012
3.2.4	Conduct training, assist in transition phase and provide one year on-site support	EMC (MC, NA), LWWSS (AS), ABA EDM	Training started	Sept, 2012

MC-Mike Chalah, AS-Ahmad Siddik, NA-Nada Akl; ABA-Allied Business Advisors

### Activity 3.1 - Upgrading Finance and Accounting Standards and Methods

#### *Progress*

During the fourth quarter, LWWSS' Financial Specialist Mike Chalah finalized the end of the year financial reports, and he will present them to the Director General on October 1. The final data for the inventory will be inserted into the coding system by Mr. Chalah and EDM once the inventory module of the ERP is fully implemented. These activities were being implemented in parallel to the implementation of the ERP platform (see activity 3.2).

#### *Timeline*

## BMLWE Finance and Accounting Standards Capacity Building

Activity Progress	O 2011	N 2011	D 2011	J 2012	F 2012	M 2012	A 2012	M 2012	J 2012	J 2012	A 2012	S 2012
Build the WE capacity in consolidating and issuing end of year financial reports	100%											
Training in Public Accounting, Finance, Procurement, Auditing	100%											
Define cost centers, create/update chart of accounts, and accounting coding procedures	100%											
Develop procedures for asset and inventory identification, coding and valuation	100%											

Activity schedule, as per Year Three Workplan, detailing percentage completion as of September 30, 2012

### Activity 3.2 - Integrating the WE's Financial, Accounting, Customer Service and Business Process Systems

#### *Progress*

ERP progress during the fourth quarter is summarized below:

- Weekly follow-up sessions were conducted to control and monitor the process and validate the data accuracy for the finance, budgeting, purchasing, inventory, human resources and payroll modules.
- The main warehouse located in Dora is still not connected to the Badaro head office due to technical issues. The connection will take place in October, as LWWSS purchased equipment in September. Once the Dora warehouse is connected to Badaro, the inventory module will be fully functional.

#### *Timeline*

## BMLWE ERP System Implementation

	10/1/2010 to 3/30/2011	4/1/2011 to 9/30/2011	10/1/2011 to 3/30/2012	4/1/2012 to 9/30/2012	10/1/2012 to 3/30/2013	4/1/2013 to 9/30/2013
<b>BMLWE-ERP Timeline</b>						
1. Assessment of BMLWE IT System	█					
2. Process Mapping and Specification Development	█	█				
3. MIS Procurement		█				
4. MIS (ERP) System Implementation			█	█	█	
	<b>Initial Timeline from yr-2 and yr-3 Work Plans</b>					
<b>BWE Enterprise Resource Planning System Installation</b>						
1. On site Assessment of information software needs	█					
2. Development of software system specifications		█				
3. Bidding and approval of procurement			█			
4. Initial software vendor and LWSS meetings with WE Staff to determine specific processes needed			█			
5. Specific tailoring of the ERP system to meet WE senior management and staff needs			█	█		
6. Training on the ERP system for WE staff				█		
7. Entry of data to the new system and testing				█		
8. Coaching WE staff in use of the new system; providing remedial training where needed				█	█	
9. "Go Live" with the ERP system using its various modules					█	
10. Working on bugs in the system and monitoring staff to assist when needed					█	
11. On site technical assistance by Subcontractor EDM				█	█	█
	<b>Current Time Line As Evolved With Project</b>					

### *Note on overall progress*

General progress with the implementation of the BMLWE ERP system has gone well. As is always the case with a large organization instituting a new information system, the BMLWE has had its institutional resistance, occasional personnel problems and data migration issues. However, LWSS has mitigated all these minor problems to positively install, train and successfully transition from the old piecemeal system to the fully integrated ERP. All modules are implemented or on time for completion of implementation as represented in the Gantt chart above.

#### **Component 4: Capital Investment Planning and Program/Project Management**

There are no component four activities with BMLWE in the year-three work plan.

#### **Component 5: Procurement of Technical Equipment to Strengthen WEs**

##### **Work Plan Activities**

<b>Item</b>	<b>Activity Description</b>	<b>Program Resource</b>	<b>Deliverable by End of Year Three</b>	<b>Target Date for Deliverable Completion</b>
<b>5.2</b>	<b>Upgrading Pumping and Energy Efficiency</b>			
5.2.1	Jeita Pump Station: Design equipment replacement and sand removal unit solution	CDM (BG, GT, EH)	Design produced and approved by BMLWE	Completed
5.2.2	Jeita Pump Station: Supply 18 pumps and motors (US made), associated valves, fittings and electrical panel boards	CDM (BG, GT, EH) NPC and other US manufacturers	Equipment delivered to BMLWE	June, 2012
5.2.7	Establish service agreements, and conduct user training programs for the above activities	- CDM (BG, GT, EH), DAI (MK) - Local subcontractor (TBD)	Activity planned	September, 2012

BG-Bassem Ghayda; GT-Gulnard Ters; EH-Elie Hreiz

#### Activity 5.2 - Upgrading Pumping and Energy Efficiency

##### *Background*

The highest priority in terms of rehabilitation and infrastructure upgrade for the BMLWE is to enhance the Jeita pump station, one of the largest pump stations in the country that serves coastal Metn (Greater Beirut) and some areas of the capital. Its continuous operation is crucial to the livelihoods of more than a 100,000 Lebanese people, especially the lower-income population who is frequently incurring increasing costs of having to purchase water during shortage periods.

Historically, Jeita has been incrementally designed and expanded over the decades, which has resulted in its current poor installation and record of unreliability. As such, equipment replacement is frequent, given that several of its motors have reached the end of their life cycle. Also, pumps are often damaged by the excessive sand found in the Jeita water. These issues result in ongoing operation and maintenance problems, excessive down time, excessive running costs, low performance, and frequent shut downs especially during the drought season.

As an example, Jeita must pump 1,200m<sup>3</sup> per hour of water, 24 hours per day, to provide continuous water supply to its network. Today, it is only achieving an output of 700-1000m<sup>3</sup> per hour. Furthermore, to achieve this output, Jeita is simultaneously running five sets of pumps and motors instead of three.

### *Scope*

BMLWE has therefore requested DAI to help provide consultancy for a comprehensive rehabilitation of Jeita, to enable it to operate more effectively, thereby achieving its targeted water supply and reducing its running costs. BMLWE is cost sharing with LWWSS where LWWSS provides the design of the equipment and sand removal unit and BMLWE covers the installation of all equipment.

### *Progress*

All equipment (pumps, motors, motor control centers, and valves and fittings) was delivered in August, and during September, the BMLWE began supervising the installation of the new equipment at Jeita pump station. While BMLWE is charged with the installation, LWWSS engineers still conduct site visits to ensure that the installation is being conducted according to CDM's recommendations.

To facilitate the pump and motor installation, LWWSS organized a meeting on September 27 at the LWWSS office with BMLWE engineers, their installation supervisor, and the local agent of the manufacturer NPC in Lebanon (Geobaco) to ensure that all necessary steps are taken for the NPC equipment to be installed by BMLWE's representatives as per the manufacturer's requirements and recommendations. While BMLWE has appointed competent engineering supervision teams and installation contractors, LWWSS expects that NPC's local representatives (Geobaco) must also be present on site to conduct a short check-up inspection during the installation and advise whether the equipment installation is taking place as intended by the manufacturer. LWWSS engineers clarified that this site presence by NPC's representative would achieve the following:

- a. Ensure the installation is taking place within the context intended for by the manufacturer for maintaining the validity of the manufacturer's warranty on installed equipment;
- b. Identify and avoid any equipment start-up issues on the spot

Based on the above, LWWSS engineers asked Geobaco to verify with NPC the roles and procedures required from the manufacturer's representative and confirm this with the LWWSS team. Geobaco advised that they will attend the site installation of pumps and motors, with BMLWE's engineers and subcontractors, inspect each set as it is being installed and countersign the installation check-list. BMLWE also asked for additional effort from all parties to maintain collaboration and communication on site, especially given the number of parties involved.

### *Impact*

The anticipated benefits of this activity include:

- Extended hours of water supply to more than 100,000 water users due to an increase of up to 30 percent in efficiency (through new pumps and motors), a decrease in break-downs and down time (due to new equipment and new electrical and hydraulic installations), and a longer lifecycle for the equipment (due to the sand filter solution designed by DAI and financed by BMLWE).
- More efficient design and installation for this key pump station, decreasing operating and maintenance costs for BMLWE. Currently, installation is so poor that BMLWE spends one-third of its yearly O&M costs on servicing Jeita.
- Jeita staff will be trained, using the LWWSS-developed O&M manuals and checklists, and they will receive additional specialized training by the suppliers of the equipment. This will decrease accidents on site, avoid human errors, extend the life of BMLWE's equipment, and build the capacity of staff to ensure sustainability.

### *Timeline*

## BMLWE Jeita Pump Station Rehabilitation

	10/1/2010 to 3/30/2011	4/1/2011 to 9/30/2011	10/1/2011 to 3/30/2012	4/1/2012 to 9/30/2012	10/1/2012 to 3/30/2013	4/1/2013 to 9/30/2013
<b>BMLWE Jeita Timeline</b>						
1. Survey, Data Gathering, and Design	█					
2. Bidding Specifications and Documents	█					
3. Procurement Advertised	█					
4. Complete Procurement		█				
5. Manufacture and delivery of pumps and motors		█	█	█		
6. Procurement of Valves and Fittings			█	█		
7. Procurement and manufacturing of Motor Control Centers			█	█		
8. Installation Begins					█	
9. Installation Complete and Commissioning					█	
<b>Initial Time Line</b>						
<b>BMLWE Jeita Timeline</b>						
1. Survey, Data Gathering, and Design	█					
2. Bidding Specifications and Documents	█					
3. Procurement Advertised		█				
4. Complete Procurement		█				
5. Manufacture and delivery of pumps and motors			█	█		
6. Procurement of Valves and Fittings			█	█		
7. Procurement and manufacturing of Motor Control Centers			█	█		
8. Installation Begins					█	
9. Installation Complete and Commissioning					█	
<b>Current Time Line As Evolved With Project</b>						

*Note on overall progress:* The original time line for Jeita did not take into account the time delay to get design agreement from the BMLWE. Additionally, the initial approach was that LWWSS would be responsible for the entire project instead of cost-sharing the project with the BMLWE. Only after preliminary cost estimates by LWWSS engineering specialists did it become clear that the amount of funding allocated to Jeita was not going to cover pump station rehabilitation. LWWSS negotiated with BMLWE to undertake the construction of the sand removal unit and to install the equipment procured by LWWSS. The cost share approximates a 50-50 percent cost share for the total pump station rehabilitation. Another delay was encountered with the shop drawing production by the winning bidder for the manufacture of the pumps and motors (National Pump Company). However, any delays were mitigated by the division of the work between BMLWE in site preparation and the construction and installation of the sand removal unit designed by LWWSS's subcontractor CDM during the pump and motor manufacturing period (approximately eight months). Other site preparation work such as the installation of a new source valve was also done while awaiting the delivery of the pumps and motors and the motor control centers.

**Component 6: Small- to Medium-Scale Infrastructure Water and Wastewater Projects**

There are no component six activities with BMLWE in the year-three work plan.

**Component 7: Corporate Culture, Customer Service Orientation, and Public Outreach**

**Work Plan Activity**

Item	Activity Description	Program Resource	Deliverable by End of Year Three	Target Date for Deliverable Completion
7.2	<b>Customer Service Management Capacity Building</b>			
7.2.1	Customer service training aiming at enhancing service effectiveness and increasing customer satisfaction	EMC (NA) LWSS (MK)	Training provided Follow-up in place	July, 2012

NA-Nada Akl; MK-May Koleilat

7.2 - Customer Service Management Capacity Building

*Background*

LWSS in its work plan, agreed to provide BMLWE customer service training to improve the overall effectiveness of the utility’s relationship with customers. Customer service training entails techniques in successful complaint handling, the importance of responding to customer inquiries about billing and service as well as establishing a near-one-stop-shop process.

*Progress*

The customer service management training took place as scheduled on August 28. The 33 participants attending were made up of 13 heads of departments and sections and 20 customer service representatives and administrative staff and clerks. The session covered six basic subjects: the basics of customer service management starting with a brief overview on customer service management at the BMLWE today; the benefits of having a CRM (the latter to be implemented at BMLWE); understanding the culture of service and what it means to provide a quality customer service experience; developing excellent and effective communication with customers; listening and problem solving skills; and, time management including the handling of difficult situations. The session was interactive and the participants were receptive to the material provided. Training evaluation sheets were distributed to each participant and feedback was overwhelmingly positive. Two important recommendations were voiced:

- Heads of Branches would like to be more informed about the new ERP system taking place across the BMLWE; and
- Customer service staff would like additional training on customer service management including service issues, after having worked on the new CRM application of the ERP.

LWSS will take these recommendations into consideration during year four.

*Impact*

The anticipated impact of the training, it is too early to determine the actual impact after training, will be more comprehensive response to customer inquiries, requests for service and complaints. Additionally, the time

involved in customer's requests, inquiries and complaint handling should be reduced based on the specific techniques provided in the training.

*Timeline*

**BMLWE Customer Service Training**

Activity Progress	O 2011	N 2011	D 2011	J 2012	F 2012	M 2012	A 2012	M 2012	J 2012	J 2012	A 2012	S 2012	
Course preparation for customer service training					100%								
Customer service training course provision.									100%				

Activity schedule, as per Year Three Workplan, detailing percentage completion as of September 30, 2012

**3. North Lebanon Water Establishment (NLWE)**

***Component 2: Capacity Building for Managerial, Technical and Operational Efficiency***

**Work Plan Activity**

Item	Activity Description	Program Resource	Deliverable by End of Year Three	Target Date for Deliverable Completion
2.3	<b>Build Pump Stations Operators Capacity in Operation and Maintenance</b>			
2.3.2	Pump station operators advanced training in O&M	- DAI (MK) - Kredo	- Activity started	Sept, 2012

MK-May Kolielat

Activity 2.3 – Building Operators’ Capacity in Operation and Maintenance of Pump Station Equipment

***Advanced Pump Station Operators Training***

*Background*

The NLWE requested advanced training for selected senior operators to include a greater emphasis on management of pump station operations. The advanced training course material took into account the skill and knowledge level of participants. The training material was application oriented and focused on specific areas of learning such as preventive maintenance standards, establishing basic facility management practices, recording operation history of equipment, troubleshooting breakdowns, and health and safety.

*Progress*

LWWSS Capacity Building Specialist May Koleilat and LWWSS subcontractor Kredo prepared an advanced O&M training for pump station operators in coordination with NLWE personnel. The original start date of the training was postponed due to the unstable security situation in Tripoli. Eleven operators attended. The first session that began on August 30 and concluded on September 20. The training took place at the Hab station

in Tripoli with a site visit to the Kousba water treatment plant. The second session will take place in Batroun during October, with a site visit to Kfarhelda pump station.

*Impact*

Such advanced training within a limited number of pump stations will result in a decrease in energy consumption, a decrease in faults and equipment damage, and a reduction in the risk of personal injury of operating staff. The training also helps WEs increase the efficiency of their operating staff, thereby reducing water service disruption due to human errors and O&M-related equipment failures.

*Timeline*

**NLWE Advanced Pump Station Training**

Activity Progress	O 2011	N 2011	D 2011	J 2012	F 2012	M 2012	A 2012	M 2012	J 2012	J 2012	A 2012	S 2012
Staff interviews, training needs assessment							100%					
Course preparation							100%					
Training implementation started											100%	

Activity schedule, as per Year Three Workplan, detailing percentage completion as of September 30, 2012

**Component 3: Increase Financial and Commercial Viability of Water Establishments**

**Work Plan Activities**

Item	Activity Description	Program Resource	Deliverable by End of Year Three	Target Date for Deliverable Completion
3.1	<b>Upgrade Finance and Accounting Standards and Methods</b>			
3.1.2	Training in Public Accounting, Finance, Procurement, Auditing	EMC (MC)*, LWWSS (MK)	Training completed Follow-up in place	April, 2013
3.1.3	Define cost centers, create/update chart of accounts, and accounting coding procedures	EMC (MC), LWWSS (AS) ABA	Information collected New COAs and procedures defined	Sept, 2012
3.1.4	Develop procedures for asset and inventory identification, coding and valuation	EMC (MC), LWWSS (AS) ABA	Procedures defined with the WE	Sept, 2012

MC-Mike Chalah; MK-May Kolielat; AS-Ahmad Siddik; ABA-Allied Business Advisors

Activity 3.1 - Upgrading Finance and Accounting Standards and Methods

*Progress*

On July 5, LWWSS Financial Specialist Mike Chalah, LWWSS IT & Systems Specialist Ahmad Siddik, and LWWSS subcontractor ABA presented the fixed assets valuation RFP in a workshop with the NLWE Head of the Finance, Mr. Maher Tahsildar and his team (six people total). The workshop also covered the Chart of Accounts and definition methodology for cost centers in order to improve NLWE's ability to issue all analytical reports.

The public financial and accounting management training with NLWE personnel have been postponed until year four in order to allow finance and accounting staff time to complete their end of year reporting. Refer to the year four work plan for more details.

*Timeline*

**NLWE Accounting System Updating**

Activity Progress	O 2011	N 2011	D 2011	J 2012	F 2012	M 2012	A 2012	M 2012	J 2012	J 2012	A 2012	S 2012
Training in Public Accounting, Finance, Procurement, Auditing									0%			→
Define cost centers, create/update chart of accounts, and accounting coding procedures									100%			
Develop procedures for asset and inventory identification, coding and valuation (RFP)									100%			

Activity schedule, as per Year Three Workplan, detailing percentage completion as of September 30, 2012 (0% indicates that the activity has not yet started)

→ Activity continues in Year 4 (See Year Four Workplan for details)

**Component 4: Capital Investment Planning and Program/Project Management**

There are no component four activities with the NLWE in the year-three work plan.

**Component 5: Procurement of Technical Equipment to Strengthen WEs**

**Work Plan Activities**

Item	Activity Description	Program Resource	Deliverable by End of Year Three	Target Date for Deliverable Completion
5.2	Upgrading Pumping and Energy Efficiency			

5.2.1	NLWE: Test and design the replacement of 9 submersible pumps and motors	CDM (BG, GT, EH) Local subcontractor (TBD)	Procurement started	Sept., 2012
5.2.2	NLWE: Supply and install the replacement of 9 submersible pumps and motors	CDM (BG, GT, EH) Local subcontractor (TBD)	Activity planned	Sept., 2012
5.2.7	Establish service agreements, and conduct user training programs for the above activities	CDM (BG, GT, EH), DAI (MK) Local subcontractor (TBD)	Activity planned	Sept., 2012
<b>5.3</b>	<b>Increasing Supply Hours to Areas Facing Supply Shortage</b>			
5.3.1	Supply and install up to 9 back-up generators for key NLWE stations	CDM (BG, GT, EH) Local subcontractor (TBD)	Procurement complete Manufacturing complete	Sept., 2012
5.3.2	Establish service agreements and conduct user training program for these generators	CDM (BG, GT, EH), LWWSS (MK) Local subcontractor (TBD)	Activity planned	Sept., 2012

### Activity 5.2 - Upgrading Pumping and Energy Efficiency

#### **Rehabilitation of Pump Stations**

##### *Background*

Among the highest priorities for NLWE is the enhancement of the pumping efficiency in up to 14 key pump stations across North Lebanon with 18 submersible pumps. However, because the WE had placed the procurement of stand-by generators as a higher priority, the number of pump stations was reduced to four and the number of submersible pumps to nine.

##### *Progress*

As noted in the third quarter quarterly report, the pump station rehabilitation activity has been delayed because of the long time it took for the NLWE to select which stations it would prioritize for rehabilitation. The NLWE proposed that four locations requiring nine pumps was its priority. The four locations are:

- Tripoli            Two pumps and motors
- Halba             Four pumps and motors
- Batroun          Two pumps and motors
- Qoubayat        One pump and motor

Before the rehabilitation of the pump stations in Halba can be designed, well condition assessment tests must be conducted in the wells where new pumps and motors will be installed. LWWSS advertised the procurement

package for the well tests on July 25. Four companies collected the RFPs, however, only one bid was returned.

Upon analysis by CDM Smith, the bid was found to be missing key components that are required for a successful evaluation and generation of adequate design data. As such, LWWSS and CDM Smith collectively decided to re-advertise for this package and include a prescriptive requirement for the bids to comply with all the terms of the RFP, in an attempt to solicit compliant bid returns. The re-advertisement took place in early September, 2012 and seven copies of the RFP were collected by local suppliers. LWWSS is expecting bid returns by mid-October. To further ensure compliance this time around, LWWSS will contact the bidders during the pricing period and encourage the bidders to carefully read and respond to all the requirements of the RFP.

The lack of response to the advertisements and poor responses when they were submitted generated a delay on the progress of this activity. A delay of one to two months is anticipated. However, LWWSS and CDM Smith are attempting to mitigate this delay by completing the design of the pumping equipment located in sites where well tests are not needed, which may result in a faster procurement process once the well tests are complete.

#### *Anticipated Impact*

Given the age and poor condition of the existing pumps within NLWE's stations, LWWSS found that submersible pump replacement and basic pump station repair is an essential capital investment that results in immediate improvement of up to 25 percent in pumping efficiency, which reflects as an increase in the quantity of water pumped into the network and a decrease in power consumption. It also results in an immediate reduction in operation, maintenance and reparation costs.

#### *Activity Timeline*



data through well tests, the program will not be completed until the second quarter of year five. Since the end of the project has been extended until the end of April, 2015, the delay poses no completion date problems.

## Activity 5.3 - Increasing Supply Hours to Areas Facing Supply Shortage

### **Back-up Generators for Key Stations**

#### *Background*

The increased uncertainty of Electricite du Liban (EDL) electricity supply has created a water supply problem for the WE. Even though there may be sufficient water to supply, no water is pumped when the EDL system is not operating for those pump stations that do not have standby generators. This has become a much more severe problem over the last three years and has negatively affected the WE in the following ways:

- Hours of water supply and service are reduced
- Customer's willingness to pay is negatively impacted
- Increased cost of producing electricity by stand-by generators

Following several rounds of investigations and negotiations, a shortlist was produced based on specific selection criteria that included the finalized locations and sizes of generators to be investigated, designed and procured.

#### *Scope*

The project includes the following stages:

- Due diligence to identify the detailed power requirements of each pump station (completed in year-three)
- Design of the required generator infrastructure (completed in year-three)
- Procurement and installation of the generators
- Operations and maintenance training to pump station staff

The stations that were identified to receive generator power-supply procurement are the following:

- Hab One 800 KVA Generator
- Ayrounieh One 400 KVA Generator
- Nakhle One 100 KVA Generator
- Berkacha One 400 KVA Generator
- Bechmezzine One 200 KVA Generator
- Qobayyet One 200 KVA Generator
- Kfartoun One 455 KVA Generator
- Rahbeh One 320 KVA Generator

The works include the supply of generators, but also a group of associated works such as power management panels, protection and fencing, power cables, concrete pad, steel bollards, generator fuel tanks as well as necessary electrical and safety protection equipment.

#### *Progress*

As noted in the third quarterly report, lengthy delay in selection of backup generation equipment has been encountered because the NLWE was slow in selecting the priority sites and because it wanted the Board of Directors (BOD) to approve the prioritized locations. The back and forth with the BOD also added time to the procurement process. Further to these negotiations with NLWE, LWWSS finally succeeded in obtaining a letter of commitment from NLWE in August, 2012 in which the WE undertakes



## Component 6: Small- to Medium-Scale Infrastructure Work

### Work Plan Activities

Item	Activity Description	Program Resource	Deliverable by End of Year Three	Target Date for Deliverable Completion
<b>6.2</b>	<b>Expanding Service Provision to Non-Served Areas</b>			
6.2.1	Beit Mellat, Akkar, North Lebanon: Design metered house connections to up to 18 villages	LWWSS (Infrastructure PM) Local Engineering Firm (TBD)	Scope defined, consultant appointed Engineering services started.	Sept, 2012
6.2.2	Beit Mellat, Akkar, North Lebanon: Implement house connections to up to 18 villages	Local Engineering Firm (TBD) Local subcontractor (TBD)	Preparation for procurement started	Sept, 2012
6.2.3	Beit Mellat, Akkar, North Lebanon: Build WE capacity in increasing customer base and implementing consumer metering	Local Engineering Firm (TBD) LWWSS (Infrastructure PM)	Activity planned	Sept, 2012

### Activity 6.1 - Decreasing Water Losses and Upgrading Existing Networks

#### *Background*

This project is part of the infrastructure add-on to the LWWSS program. The Akkar region is a rural *casa* of approximately 230 villages and towns served by the North Lebanon Water Establishment (NLWE). This region is among the poorest in the country. Ample water sources exist in the Akkar region. However, it still lacks essential infrastructure to deliver this resource to the population. Most villages are either not connected to water networks or struggle with deteriorating infrastructure. Water supply projects are among the highest priorities for both the government (MOEW, Ministry of Social Affairs, and so on) and local municipalities.

Water for the Beit Mellat group of 32 villages is supplied from the large Ouyun well station (one of the pump stations to receive new submersible pumps, see activity 5.2) and stored in recently built reservoir tanks. The Lebanese Council for Development and Reconstruction (CDR) designed and executed a \$25million water supply project that focused on transporting water through main transmission lines, main distribution lines and providing branch connections within 32 Akkar villages.

Despite this substantial investment, the completed projects were not fully commissioned and as such, the deployment of the NLWE water services in these regions was incomplete. Today, NLWE is focusing

on commissioning the system, putting it to operation in a phased manner and fixing parts of the transmission and distribution network.

### *Scope*

This project involves completing the most suitable parts of the CDR Beit Mellat project by establishing or upgrading service to up to 18 villages (8,208 households) within the NLWE service area. Of these households, 5,016 have no connections (or illegal connections) and 3,192 have deteriorated networks with problematic service delivery. By completing this project, LWWSS will leverage substantial existing investments and commitments from NLWE and will demonstrably improve service coverage in Akkar.

The project will include the following activities:

- Link up to 3,192 households to the newly built water supply network in these villages and enable 5,016 households to apply for new connections with NLWE.
- Connect a total of up to 8,208 customers to the water supply network, as follows: link up to 3,192 households to the newly built water supply network for immediate service provision in these villages where the service is already available, and provide up to 5,016 additional households with new connections ready to be activated upon household subscription to the Water Establishment, in those villages where the NLWE service is currently unavailable.
- Supply protective metal meter boxes to each building or residential unit.
- Commission the new, but as yet unused, water distribution network.
- Conduct community outreach activities to inform the population of the connection of metered water supply to households, increase awareness of the benefits of connecting to the public water supply, and encourage households to subscribe.
- Build the capacity of NLWE's regional teams to run and operate the metered water supply network.

### *Progress*

Five bidders submitted proposals for the design and supervision of the rehabilitation of a water supply network in Beit Mellat. The opening session took place in early August. The evaluation committee completed the evaluation process and selected Kredo as the winning firm based on their combined financial and technical scores. During the upcoming quarter, LWWSS will submit the consent request to USAID for approval and begin the data gathering stage for the design and specifications and the bid package development.

### *Impact*

This project will result in the following:

- Improved water service delivery by NLWE to up to 3,192 households that will be switched from the old, non-performing network to the new network.
- New service connections available to up to 5,016 households not previously served by NLWE, thereby potentially expanding NLWE's customer base by over 4 percent. This represents a potential new revenue stream of ranging from approximately \$475,500 to \$792,500 per year.
- Contribution to the MOEW National Water Sector Strategy and the five-year business plan adopted by NLWE in 2010, to increase the metered customer base and apply consumption-based tariffs for water use that exceeds the minimum threshold of 1 m<sup>3</sup>/day. This will increase NLWE's revenue and help it move away from the flat annual rate tariff scheme paid by most customers.

This project will leverage existing capital investments made by the World Bank, EIB, and MOEW, representing approximately \$25 million. In addition, NLWE has formally confirmed its willingness to

contribute through a cost-sharing arrangement with LWWSS approximately \$1,022,000 by undertaking part of the works required, as follows:

- Fund the commissioning of the network throughout the 32 villages and rectify any defects (\$150,000).
- Complete other project phases by constructing house connections for seven villages (\$680,000).
- Provide around 3,200 customer meters that LWWSS will install for existing NLWE customers being switched to the new network. NLWE has already purchased and will provide these meters free of charge for LWWSS to install them (these are valued at \$192,000).

To ensure sustainability, NLWE will be able to charge metered consumption for improved services to up to 3,192 subscribers and will have the potential to add another 5,016 subscribers on consumption-based tariffs. The simultaneous provision of more reliable or new service together with the new billing scheme will improve customer satisfaction as well as revenues.

### *Timeline*



**Component 7: Corporate Culture, Customer Service Orientation, and Public Outreach**

**Work Plan Activities**

Item	Activity Description	Program Resource	Deliverable by End of Year Three	Target Date for Deliverable Completion
7.3	<b>Develop Tools and Support WEs in Adopting Corporate Communication</b>			
7.3.2	Design and Implement WE Corporate Website	EMC (NA), Local subcontractor (TBD)	Activity completed	Sept, 2012
7.6	<b>Consumer-Targeted Awareness Programs: World Water Day, Water Quality, Conservation</b>			
7.6.2	Water awareness campaigns on 2012 World Water Day	EMC (NA) Local subcontractor (TBD)	Activity completed	April, 2012

Activity 7.3 –Designing and Implementing WE Corporate Website

**Brand Identity Guidelines**

This activity was completed during the third quarter.

**Corporate Website**

*Scope*

Following the development of brand identity guidelines, LWSS started the development of a corporate website for NLWE. The corporate website will be browsed and used by the public citizens of North Lebanon, particularly those who are connected to the water network. The website will be in three languages: Arabic, French and English with the Arabic site being the default site. The website will include the technology of a dynamic content management system allowing the NLWE non-technical staff to easily and cost effectively update content and modify page layouts after the initial launch.

*Progress*

During the fourth quarter, LWSS' Outreach and Customer Service Specialist Nada Akl began her work on the corporate website. She held a meeting on July 18 with NLWE's IT and Communications Manager to discuss the website features and requirements, followed by a meeting with the NLWE Director General on July 24 to present and discuss the website structure, features and components. The water consumers of North Lebanon will use the corporate website for the NLWE.

Ms. Akl completed the Scope of Work for the website in August and the RFP for the website design was advertised in newspapers in the beginning of September. Six local web design hosting and development consultants collected the RFP document from the LWWSS office. Out of the six consultants, five submitted their bid proposals by the deadline of September 18. The bid opening session took place on September 24, 2012 by the evaluation committee who are currently evaluating the submitted proposals. An award will be made by early October 2012.

*Timeline*

**Corporate Website**

Activity Progress	O 2011	N 2011	D 2011	J 2012	F 2012	M 2012	A 2012	M 2012	J 2012	J 2012	A 2012	S 2012
Obtain approval on corporate guidelines, thereby enabling website design to start.						100%						
Start preparation to enable activity commencement, and to facilitate appointment of web design subcontractor									100%			

Activity schedule, as per Year Three Workplan, detailing percentage completion as of September 30, 2012

Activity 7.6 - Implementing Consumer-Targeted Awareness Programs: World Water Day, Water Quality, Conservation

This activity was completed in the third quarter.

**Activity Timeline**

**NLWE Water Conservation and Customer Awareness**

Activity Progress	O 2011	N 2011	D 2011	J 2012	F 2012	M 2012	A 2012	M 2012	J 2012	J 2012	A 2012	S 2012
Identify target audience, prepare awareness material and brief all stakeholders.				100%								
Conduct interactive activity, record impacts and report to USAID.						100%						

Activity schedule, as per Year Three Workplan, detailing percentage completion as of September 30, 2012

## 4. South Lebanon Water Establishment (SLWE)

### Component 2: Capacity Building for Managerial, Technical and Operational Efficiency

#### Activity 2.1 – Establishing and Building the Capacity of Metering Teams

This activity has been postponed until year four. It will commence when field progress is achieved on the source metering procurement activity (activity 5.1). This sequencing is necessary given that this activity is a follow-up to activity 5.1. The establishing and training of metering teams is closely associated with the ongoing meter installation given that the drafting of a metering strategy, the assignment of teams and their training must be related to the actual metering infrastructure that awaits installation. As such, this activity will commence in the first half of year four. The year-three work plan was updated to reflect this amendment.

### Component 3: Increase Financial and Commercial Viability of Water Establishments

#### Activity 3.2 - Integrate the WE's Financial, Accounting, Customer Service and Business Process Systems

##### Background/Scope

The SLWE has encountered difficulties with its IT service provider in terms of increasing costs to maintain and upgrade the JD Edwards software system. ITEC, the software service provider has the only licenses in the country to service and upgrade the JD Edwards system. This makes ITEC a monopoly and it has taken advantage of the situation. Hence, the SLWE has found it increasingly beyond its budget to have the service provider carry out system maintenance and upgrades. The LWSS accounting and IT team looked into the current situation and, based on further analysis of the existing IT system at SLWE, the team realized that it cannot engage in any system update or improvement. The current IT service provider at SLWE, the JD-Edwards in Lebanon (ITEC) has exclusive rights to the maintenance, repair and upgrade of the JD-Edwards systems and ITEC is the owner of the programming script used in JD-Edwards. As such, no other organization has the rights or knowledge to address the enhancements required for JD-Edwards in SLWE.

LWSS, however, is continuing with the hardware upgrades of the servers that host the JD-Edwards system (activity 5.6). This upgrade will accelerate the operation of the system, pending the implementation of the needed enhancements.

### Component 4: Capital Investment Planning and Program/Project Management

#### Work Plan Activities

Item	Description	Program Resource	Deliverable by end of Year Three	Target Date for Deliverable Completion
4.1	Increase Capacity in Business Planning, Capital Investment Planning and Benchmarking			

4.1.1	Capacity building in planning and updating 5-year business plans, benchmarking and performance monitoring	ValuAdd EMC (MC)	Business plan prepared, issued to WE Follow-up in place	May, 2012
<b>4.2</b>	<b>Implement Asset Survey, Inventory and Valuation</b>			
4.2.1	Pump-station inventory and valuation, in a format that is ready for integration into FAS, MMS and GIS	CDM (BG), EMC (MC), DAI (AS), Cadres	Activity completed	June, 2012
4.2.2	Pump station equipment replacement packages for bidding by BWE	CDM (BG), EMC (MC), DAI (AS), Cadres	Activity completed	June, 2012
4.2.3	O&M training needs assessment for pump-station operators	CDM (BG), EMC (MC), DAI (AS), Cadres	Activity completed	June, 2012

MC-Mike Chalah; BG-Bassem Ghayda; AS-Ahmad Siddik

#### Activity 4.1 - Increase Capacity in Business Planning, Capital Investment Planning and Benchmarking

##### ***Five-Year Business Plan Update***

The final business plan was completed in July in both English and Arabic and a letter was issued to the SLWE Director General requesting his review and approval.

#### Activity 4.2 - Implementing Asset Inventory and Valuation

##### ***Detailed Pump Station Survey and Technical Assessment***

This activity has been completed, as detailed in the year-three third quarterly report, and the survey, inventory, and bidding packages were handed over to SLWE in September.

##### *Timeline*

## SLWE Business Plan Update

Activity Progress	O 2011	N 2011	D 2011	J 2012	F 2012	M 2012	A 2012	M 2012	J 2012	J 2012	A 2012	S 2012
Final Business Plan Issued	100%											
Pump-station inventory and valuation in a format that is ready for integration into FAS, MMS and GIS.	100%											
Pump station equipment replacement packages for bidding by SLWE.	100%											
O&M training needs assessment for pump-station operators.	100%											

Activity schedule, as per Year Three Workplan, detailing percentage completion as of September 30, 2012

## Component 5: Procurement of Technical Equipment to Strengthen WEs

### Work Plan Activities

Item	Activity Description	Program Resource	Deliverable by End of Year Three	Target Date for Deliverable Completion
5.1	<b>Identifying Water Production and Contributing to Water Demand Management</b>			
5.1.1	Supply and install up to 218 production meters, fittings and protection box/manhole (all non-metered sources in WE)	CDM (BG, GT, EH) Local subcontractor (TBD)	Orders placed, installation started	Sept, 2012
5.4	<b>Upgrading Water Analysis Laboratories</b>			
5.4.1	Upgrade the water testing laboratories with infrastructure and equipment	AUB Local suppliers	Activity completed	Sept, 2012
5.4.2	Establish service agreements, and conduct user training programs for the above activities	AUB DAI (MK)	Activity planned	Sept, 2012
5.6	<b>Increase IT Infrastructure Efficiency</b>			

5.6.2	Upgrade server installation and power supply infrastructure at head office and selected branches	DAI (AS) Local subcontractor (MDS + TBD)	Scope defined Procurement and implementation started	Sept, 2012
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Activity 5.1 - Identifying Water Production

**Source Metering**

*Background/Scope*

Metering source production is an essential part of non-revenue water management and reduction. It is the foundation for knowing the current performance of the water sources, tracking this performance over time, and achieving greater accuracy in determining the water losses for the WE. This activity is to install 221 source meters at pump stations throughout the SLWE. In some cases a concrete enclosure will be constructed prior to meter assembly installation for security purposes. LWWSS completed the survey, specifications and selection of a subcontractor for the supply and installation of the equipment, as well as the implementation of necessary site work.

The subcontractor Modon finished the required pump station site inspections and submitted all documentation to LWWSS engineers in August. As of the end of the fourth quarter, LWWSS engineers were continuing their review of Modon’s shop drawings. Also, Modon started civil site works at two of the pump stations where protective enclosures are required.

*Impact*

Source metering meets the sustainability criteria that LWWSS has set for LWWSS’ procurement, given that it provides water utility with equipment that is highly needed, easy to operate and maintain, durable, and uniformly distributed across the WE’s sources. This activity will enable the water establishment to obtain accurate information on water production, better manage water supply, and plan long-term projects that connect and make use of the meters.

By metering the sources of water at each pump station, the WE will know what its actual water production is and be able to establish a more accurate estimate of water loss within the system (water loss includes leakage and theft). Additionally, by measuring the production throughout the system, the WE will have a better picture of the aquifer drawdown and be able to address areas that are going dry. Finally, reading the meters monthly will give the WE a better planning tool relative to growth and water supply.

*Timeline*

**SLWE Source Metering Procurement and Installation**

	10/1/2011 to 3/30/2012	4/1/2012 to 9/30/2012	10/1/2012 to 3/30/2013	4/1/2013 to 9/30/2013
SLWE Source Metering				
1. Design, development of specifications and bidding for meter installation	█			
2. Selection and Approval of Winning Bid		█		
3. Winning Bidder prepares shop drawings for each site		█		
4. Meter order and site works			█	
5. Installation and Commissioning				█

Activity 5.4 – Upgrading Water Analysis Laboratories

*Progress*

During July, the LWWSS Capacity Building Specialist May Koleilat, and LWWSS Engineer Bassem Ghayda met with SLWE’s Head of Laboratories, Amal Chidiac, regarding a proposed plan on atomic absorption equipment training and sampling. The following points were decided during the meeting:

- Three laboratory operators will test water samples three days per week using the AA during a two month period;
- Ms. Chidiac will prepare a list of supplies (laboratory consumables) needed in order to proceed with the testing plan; and
- Ms. Chidiac will organize a site visit to a laboratory that is also using an AA.

Mrs. Chidiac and two senior technicians from SLWE conducted a site visit to the Lebanese Atomic Energy Commission (LAEC)’s laboratories and inquired about related AA usage on water tests. Photos of the site visit are below:



In September, LWWSS team identified a list of laboratory consumables and issued an RFP for their procurement. The RFP was later amended to include a required visit to the Saida laboratory before offers are submitted. The deadline for submitting offers is October 10.

*Timeline*

**SLWE Water Quality Laboratory Equipment Procurement and Training**

	10/1/2011 to 3/30/2012	4/1/2012 to 9/30/2012	10/1/2012 to 3/30/2013	4/1/2013 to 9/30/2013
SLWE Laboratory Equipment Procurement and Service Agreement				
1. Delivery of laboratory packages				
2. Installation and training on equipment				
3. Service agreement and follow-up site monitoring				

Activity 5.6 – Increasing Information Systems Infrastructure Efficiency

*Background/Scope*

As per the work plan, LWWSS is supporting SLWE in funding an IT hardware upgrade, including a server upgrade and associated equipment.

*Progress*

The RFP for the IT hardware upgrade and associated equipment was finalized in August and advertised in newspapers in early September. Five firms were issued the RFP with a deadline set on September 27 for the return of the bids. Two firms submitted their bid proposals, and the evaluation committee is currently reviewing the proposals submitted. In the meantime, LWWSS IT and Systems Specialist Ahmad Siddik continues to work to complete an Information Resources Management (IRM) approval request to be submitted to USAID’s Office of Information Resources Management. The IRM will be submitted to USAID after LWWSS completes the competitive process in selecting a vendor. The equipment is anticipated to be ordered, delivered, and installed during the first quarter of year four.

*Timeline*

**SLWE IT Equipment Procurement**

	10/1/2011 to 3/30/2012	4/1/2012 to 9/30/2012	10/1/2012 to 3/30/2013	4/1/2013 to 9/30/2013
SLWE IT Equipment Procurement				
1. Develop equipment specifications and obtain IRM approval				
2. IT Equipment advertisement, procurement and Installation				

**Component 6: Small- to Medium-Scale Infrastructure Work**

**Work Plan Activities**

Item	Activity Description	Program Resource	Deliverable by End of Year Three	Target Date for Deliverable Completion
<b>6.3</b>	<b>Upgrading Pumping and Energy Efficiency</b>			
6.3.1	SLWE: Test and design pumps, motors and associated works for the rehabilitation of selected stations	CDM (BG, GT, EH) Local subcontractor (TBD)	Design Produced and Approved by SLWE	Sept, 2012
6.3.2	SLWE: Supply and install pumps, motors and associated works for the rehabilitation of selected stations	CDM (BG, GT, EH) Local subcontractor (TBD)	Activity planned	Sept, 2012
6.3.3	Establish service agreements, and conduct user training programs for the above activities	CDM (BG, GT, EH), DAI (MK) Local subcontractor (TBD)	Activity planned	Sept, 2012

## Activity 6.3 – Upgrading Pumping and Energy Efficiency

### *Background*

This project is part of the infrastructure add-on to the LWWSS program. SLWE's business plan, developed with LWWSS support, prioritizes pump station rehabilitation as one of the most urgent issues related to enhancing water supply to the population and decreasing the WE's operating expenses. Many SLWE pump stations are in dire condition and require immediate intervention to replace their inefficient pumps and motors, enhance their overall performance, reduce their electrical consumption, and increase their supply hours to the population of South Lebanon.

Since late 2009, LWWSS and SLWE have proceeded with a detailed survey covering the WE's pump station infrastructure and aimed at prioritizing the rehabilitation needs among SLWE's stations. The early findings of the survey revealed that key stations in SLWE need rehabilitation, and that the impact on water supply continuity (hours of service) and O&M costs will be immediate and lasting.

### *Scope*

On-site information and planning data provided by the survey and by SLWE and detailed infrastructure planning workshops held with the WE management, helped LWWSS identify up to six key pump stations that are in most need for rehabilitation. These stations cover important service areas and impact hundreds of thousands of the South Lebanon population. These stations are located throughout SLWE and include the following by order of priority:

- 1) Wadi Jeelo 1 Station and Al Shehabieh Station (two "linked" stations that will be designed and implemented jointly) – benefitting a minimum of 51,000 people
- 2) Ebel El Saki Station – benefitting a minimum of 35,000 people
- 3) Al Hasbani Station – benefitting a minimum of 8,200 people
- 4) Wazzani Fawka (Maysat) Station and Wazzani Tahta Station (these will also to designed and implemented jointly. These stations are located in a geographic area that presents some security risks, and as such, their selection is still subject to assessment by LWWSS) – benefitting a minimum of 35,000 people

LWWSS and SLWE prioritized these larger stations jointly based on agreed criteria that included the number of beneficiaries, urgency of repairs, potential for efficiency improvements, and the condition of other parts of the pump station's network. More than 116,000 people will benefit from an increased supply of water if these stations are rehabilitated.

Initially, LWWSS had proposed to rehabilitate up to 40 stations, assuming that the program will be rehabilitating small, single-well stations. However, further technical investigations revealed that a smaller number of larger stations would yield a more impactful result and would provide a longer term benefit to the SLWE. The above stations have an impact on a larger number of people than the initially planned (116,000 vs. 109,600 people).

### *Progress*

At the beginning of the fourth quarter, LWWSS sent a memo to USAID detailing a request to change the pump stations that will be rehabilitated in South Lebanon. This change is based on SLWE Director General request to rehabilitate the Batoulay station instead of the Ebel El Saki Station, the Al Hasbani Station, the Wazzani Fawka (Maysat) Station, and the Wazzani Tahta Station. As it is a very large station, its rehabilitation would impact over 116,000 people – 35,000 more people than would benefit from the rehabilitation of the four smaller pump stations mentioned above. USAID approved this change and the engineering subcontractor DEP (hired by CDM Smith) has been moving forward with investigation of the Batoulay pump station, as well as continuing their investigation work at the Wadi Jeelo and Al Shehabieh stations.

The rehabilitation of these three stations will include upgrading pumps and associated equipment that are located in the booster pump stations at all three of these stations, as well as upgrading pumps that are inside wells that are located in the vicinity of the Wadi Jeelo and Batoulay stations. These wells pump water to the reservoirs at the booster pump stations.

Design of the Wadi Jeelo and Batoulay pump stations rehabilitation require conducting well condition assessment tests to identify the cleaning and repair work necessary in the wells and the size of the pump that should be installed in the wells. After the well condition assessments tests are completed, the design of the rehabilitation of the pump stations can begin. DEP completed the well condition assessment tests at the Wadi Jeelo station and the CCTV tests on two of the wells at the Batoulay station. DEP also began the tests at Batoulay's well number three, but was delayed in completing this work due to a rumor that there is an unexploded bomb from an Israeli aircraft located underground in the area. CDM Smith is verifying this with the SLWE Director General (DG) and the local military before DEP continues work in the area.

In September CDM Smith also submitted the Preliminary Design Reports (PDR) for Wadi Jeelo and Al Shehabeih Pump Stations to DAI and to the SLWE Director General for their review and comment. CDM Smith engineers then met with the SLWE DG to review the PDR. The PDR for Batoulay Pump Station will be submitted separately at a later date after all well condition assessment tests are completed. Upon approval of the PDRs, DEP will begin working on the detailed design phase of the Wadi Jeelo, Al Shehabieh, and Batoulay pump stations and wells, including technical specifications.

#### *Impact*

The project will substantially increase the efficiency of these pump stations, resulting in up to a 25 percent enhancement in the number of hours of water supply delivery for over 116,000 people. Efficiencies will also include up to a 25 percent reduction in electricity costs for SLWE, which represent one of the highest operating costs for these stations. The reduction is a crucial contribution to SLWE's strategic targets set in its five-year business plan of achieving full O&M cost recovery.

The proposed upgrades will also reduce the frequency of equipment breakdowns—minimizing repair costs from labor assigned to these works and enabling staff to focus on other tasks. Importantly, the upgrades will also stem the long hours of service disruption due to these repairs. Furthermore, the new equipment will enhance health and safety practices in these stations because of the upgraded electrical installations, user training, and O&M capacity building. A safer working environment will in turn lead to less service disruption due to accidents.

Finally, the WE will continue to build relationships with customers through enhanced service, and SLWE will have the water pumping capacity needed to extend the service to new customers.

#### *Timeline*

## SLWE Pump Station Rehabilitation Infrastructure Project

	10/1/2011 to 3/30/2012	4/1/2012 to 9/30/2012	10/1/2012 to 3/30/2013	4/1/2013 to 9/30/2013	10/1/2014 to 3/30/2014	4/1/2014 to 9/30/2014	10/1/2014 to April/30/2015
SLWE Pump Station Rehabilitation							
1. Agree with SLWE the scope of work	█						
2. Obtain USAID approval of the Scope of Work	█	█					
3. Develop Consulting Firm Bids		█					
4. Selection of Winning Firm		█					
5. Consent Request to USAID and Approval	Current Time Frame						
6. Complete Data collection and design work		█	█				
7. Preliminary Design approval by SLWE			█				
8. Final Design Approval by SLWE			█	█			
9. Bids Advertised, Bids Received, Evaluated				█			
10. Consent request approved by DAI and USAID				█	█		
11. Completion of construction and related work					█	█	█
	10/1/2011 to 3/30/2012	4/1/2012 to 9/30/2012	10/1/2012 to 3/30/2013	4/1/2013 to 9/30/2013	10/1/2014 to 3/30/2014	4/1/2014 to 9/30/2014	10/1/2014 to April/30/2015
SLWE Pump Station Rehabilitation							
1. Agree with SLWE the scope of work							
2. Obtain USAID approval of the Scope of Work							
3. Develop Consulting Firm Bids	█						
4. Selection of Winning Firm	█						
5. Consent Request to USAID and Approval		█					
6. Complete Data collection and design work		█	█				
7. Preliminary Design approval by SLWE			█				
8. Final Design Approval by SLWE			█	█			
9. Bids Advertised, Bids Received, Evaluated				█			
10. Consent request approved by DAI and USAID				█	█		
11. Completion of construction and related work					█	█	█

*Note on Overall Progress:* This project activity encountered a delay almost from the start of the infrastructure add-on period. The problem arose when the Director General of the SLWE realized that the original 40 pump station rehabilitation proposed would shut down the pump stations too long given that a well test and closed-circuit television review needed to be done prior to design of the pump and well replacement. LWSS decided to request USAID to approve the change in the scope of work from rehabilitation of up to 40 pumping stations. USAID approved the change in scope of work in March 2012 and the process of selecting a consulting engineering firm to design the rehabilitation of three major pumping stations began. The change in scope of work is the primary difference between the project as envisioned at the time of proposal and the current work plan. CDM-Smith is confident that the current time line allows time for completion of the work within the project time frame.

**Component 7: Corporate Culture, Customer Service Orientation, and Public Outreach**

**Work Plan Activities**

Item	Activity Description	Program Resource	Deliverable by End of Year Three	Target Date for Deliverable Completion
7.6	<b>Consumer-Targeted Awareness Programs: World Water Day, Water Quality, Conservation</b>			
7.6.2	Water awareness campaigns on 2012 World Water Day	EMC (NA) Local subcontractor (TBD)	Activity completed	April, 2012

Activity 7.6 - Implementing Consumer-Targeted Awareness Programs: World Water Day, Water Quality, Conservation

This activity was completed in the third quarter.

*Timeline*

**Water Conservation and Customer Awareness**

Activity Progress	O 2011	N 2011	D 2011	J 2012	F 2012	M 2012	A 2012	M 2012	J 2012	J 2012	A 2012	S 2012
Identify target audience, prepare awareness material and brief all stakeholders				100%								
Conduct interactive activity, record impacts and report to USAID						100%						

Activity schedule, as per Year Three Workplan, detailing percentage completion as of September 30, 2012

**D. COLLABORATION WITH DONORS AND GOL OFFICIALS**

Donor coordination is an essential part of LWWSS project planning and execution in order to (1) avoid unnecessary duplication, (2) identify specific areas of coordination and (3) identify areas where LWWSS can collaborate with other donors on specific projects or programs. The list of meetings and special events with the GOL and other donors below provides a clear picture of this important program activity.

Meeting or Special Event with Donor or GOL Official	Date	Attendees	Brief Synopsis of Meeting
MOEW, other Donors at watershed planning workshop	July 11, 2012	EU, USAID Implementers, MOEW	Workshop presented the MOEW's use of the WEAP/DSS software on a watershed basis
Mayor of Foursol	July 12 2012	Sam Coxson, Bassam Jaber, Mayor Nasrallah	Discussed the possibility of Foursol participating in the negotiation of a service agreement with the BWE
World Bank; BWE; DAI	July 17, 2012	Sam Coxson; Bassam Jaber; Maroun Msallem; Mouna Couzi; Christophe Chung	Discussed the World Bank communication capacity building program and possible coordination based on the LWWSS ongoing program
European Union Task Force	July 19, 2012	Cyril Dewaleyne; Sam Coxson	Review of LWWSS activities and potential coordination with the EU program to start in October, 2013
SLWE	August 3, 2012	Raed Ghantous, Sam Coxson, Jaques Bechaalany, DEP President, Ahmad Al Nizzam	Detailed discussion of progress on the well tests and next steps.



## **E. CONTRACT DELIVERABLES**

- Quarterly Report for third quarter of year three
- Wastewater Treatment Service Agreement Assessment

## **F. CHALLENGES, PROBLEMS, ISSUES**

### ***Challenge in Pump Station and Chlorination System Operations in the BWE***

The LWWSS team is facing ongoing challenges with the sustainability of this activity, mainly due to pump station operators charged with operating the chlorination systems failing to show up to work or failing to monitor the functionality of the system or chlorine levels. During the third quarter, the following was determined:

- Only 14 percent of the total number of operators are available as scheduled to work in the pump stations
- Only 35 percent operators are collecting the minimum required data on a daily basis (that is, 35 percent of 14 percent!)
- Only 20 percent operators call and report in case of system failure, the rest don't bother to call and report that there are problems with the chlorination system

Given that the chlorination system is composed of sensitive equipment (circulating pumps, ejector, injector non return valve, chlorine flow meters, pressure regulators), this system requires periodic maintenance by the pump station operators. The maintenance is a series of simple cleaning procedures to avoid clogging by hard water or chlorine gas impurities that can lead to system failure and equipment damages. Despite ongoing training and assistance, there is an absence of daily and preventive maintenance (cleaning and inspection) and record keeping by BWE. This lack of care will minimize the reliability and life of the equipment and could eventually lead to system damage and failure.

While these are serious issues that are ultimately out of the control of LWWSS, the LWWSS engineers and the LWWSS Capacity Building Specialist are doing everything possible to ensure that when the handover takes place, the BWE will take charge of monitoring the success of this activity. Since April, 2012 the LWWSS team has been in discussion with the BWE Director General (DG) and Head of Stations and Laboratories Department to develop a team that will conduct regular site visits and be in charge of on-going monitoring of this activity. The DG and Head of Stations and Laboratories Department enthusiastically support this recommendation, but have not yet developed a team. A meeting took place in July, 2012 between LWWSS and BWE to confirm the personnel on the team and the obligatory monitoring activities.

LWWSS has been following up with the WE's management, to prepare and further incentivize the WE to take ownership of the chlorinators. During meetings with the Director General, the last of which took place on September 21, the LWWSS team has reiterated the request for the WE to take action by confirming the names of the WE team who will manage the O&M of the chlorinators, assigning funding and starting the process of procurement for consumables and maintenance services for these chlorinators. LWWSS' Capacity Building Specialist May Koleilat, in coordination with the engineering team and the procurement and program managers at LWWSS, will continue to follow up with BWE on this matter.

## G. STTA DURING QUARTER

During this quarter the following personnel worked on LWWSS as STTA.

Person Subcontractor	and	Period of STTA	STTA Activity
Ahmad Al Azzam		July 30—August 16	<ul style="list-style-type: none"> <li>• Follow-up billing and collection implementation and training</li> <li>• Assist BMLWE and BWE in reconciling and issuing the June 2012 Financial Report</li> </ul>
Gamil Messih		July 2—July 6	<ul style="list-style-type: none"> <li>• Jeita Pump Station Inspection and Installation Guidance</li> <li>• Coordination with DEP—SLWE Pump Station Design</li> <li>• Coordination meeting with SLWE DG on design progress</li> </ul>
John Crippen		Sept 15—Sept 23	<ul style="list-style-type: none"> <li>• Jeita PS Inspection</li> <li>• Jeita Electrical system Installation plan</li> <li>• Jeita Hydraulic System Progress</li> <li>• Jeita Sand removal system operation observation</li> </ul>
Walter Weaver		Sept 4—Sept 20	<ul style="list-style-type: none"> <li>• Acting COP</li> <li>• Project progress review</li> <li>• Year four work plan preliminary review</li> <li>• Meeting with USAID to discuss project progress</li> </ul>

## H. MAJOR ACTIVITIES PLANNED FOR NEXT QUARTER

### *BWE Water Establishment Activities*

2.2 Continuation of the water quality management program with completion of the laboratory equipment procurement recommendations and the draft of the combined wet and dry season water quality baseline study and water test sampling strategy and protocols

3.1 Continuation of ERP related financial transaction process training and improvement such as properly closing and opening account balances at mid-year and year end for financial reports on an accrual basis

3.2 A summary of the ERP implementation next steps is below:

- CRM and Billing and Collection go-live in BWE's Baalbeck branch will be in mid-October.
- The SharePoint implementation will take place in October 2012. The delay in the Sharepoint platform is based on discussions and agreement between LWWSS and the BWE to enable a better sequencing of deployment of the ERP modules to avoid overloading the WE with simultaneous modules.
- The Document Control implementation will take place in October 2012.

3.3 Determination of the next steps relative to the wastewater plant sustainability; determination of whether the service agreement approach can be pursued in the current operational environment; meeting with the MOEW to determine how best to ensure the operational and maintenance sustainability for USAID-funded wastewater treatment plants in the BWE

4.4 Consent request for the master plan consulting firm selection and work started on the master plan

5.5 Continued chlorination system site visits, provision of chlorine and system operation checks as well as remedial training, if needed. Continued efforts to deal with the operational challenges presented above

6.1 LWWSS will continue to work on the Zahle branch water lines replacement. The consulting engineering firm World Engineering and Technology will continue the design phase of the infrastructure project. LWWSS anticipates going to bid in December, 2012 and construction of the project to start in January, 2013. Construction is expected to last approximately eight months.

#### ***Beirut-Mt. Lebanon Water Establishment***

3.2 Continuation of ERP testing and training

5.2 Installation by BMLWE of Jeita pumps, motors, motor control centers, valves and fittings

#### **North Lebanon Water Establishment**

5.2 LWWSS will continue its work on the NLWE submersible pump replacement program in the next quarter by completing the well testing, pump design and bid package

5.3 LWWSS will continue the procurement of the NLWE standby generators

6.1 Award Beit Mellat design and supervision subcontract

7.3 Award NLWE corporate website design contract

#### ***South Lebanon Water Establishment***

##### ***South Lebanon Water Establishment***

5.1 The subcontractor Modon will continue construction of meter protection enclosures and begin meter installation

5.6 LWWSS IT Specialist will finalize specifications for the hardware procurement and obtain IRM approval for the hardware procurement.

6.1 CDM Smith will continue to work with DEP, its local consulting engineering firm, to develop the final design and bid specifications for the rehabilitation of up to three SLWE pump stations.

## I. ENVIRONMENTAL COMPLIANCE REPORTING

The LWWSS Project Environmental Mitigation and Monitoring Plan (EMMP) details the project environmental compliance requirements, as well as including a list of reports for submission to USAID. The primary environmental compliance reporting tool will be the Quarterly Reports, and this quarter commences the reporting.

The LWWSS EMMP notes that an initial screening form must be completed for each project activity. If the activity is determined to be in category 2, 3, or 4, then an environmental review and assessment checklist (ERAC) and an environmental mitigation and monitoring plan (EMMP) must be completed and approved by the LWWSS COTR.

Initial screening forms were completed for each activity (available in the files of the LWWSS Environmental Specialist), and it was determined that the activities under components 5 and 6 all require ERACs and EMMP. The first table below entitled “LWWSS Environmental Compliance Overview” summarizes the environmental compliance actions for each LWWSS activity. The second table below entitled “LWWSS Environmental Mitigation and Monitoring Actions” details environmental mitigation and monitoring actions for each activity that requires an ERAC and EMMP.

**Environmental Compliance Table 1:**

<b>LWWSS Environmental Compliance Overview</b>				
<b>Activities (Completed, On-going, and Planned)</b>		<b>Environmental Compliance Actions</b>		
<b>#</b>	<b>Activity Description</b>	<b>Has an initial screening form been completed?</b>	<b>As per the screening form, is an ERAC and EMMP necessary?</b>	<b>Is there an approved ERAC and EMMP (if applicable)?</b>
<b>Component 2</b>				
2.1	Source metering training in SLWE	Yes, see activity 5.1	See activity 5.1	See activity 5.1
2.2	Water quality management in the Bekaa implemented by AUB	Yes	No	N/A
2.3	O&M trainings for pump station operators in BWE and NLWE	Yes	No	N/A
2.4	IT literacy training for BMLWE	Yes, see activity 3.1	No	N/A

<b>Component 3</b>				
3.1	Upgrade finance and accounting standards and methods	Yes	No	N/A
3.2	Enterprise Resource Planning (ERP) platform and associated activities	Yes	No	N/A
3.3	Pilot Stakeholder exercise to sustain O&M of USAID WWTP	Yes	No	N/A
<b>Component 4</b>				
4.1	Business planning for BMLWE and SLWE	Yes	No	N/A
4.2	Pump station inventory in South Lebanon	Yes	No	N/A
4.3	Water utility management: conferences, workshops, specialist trainings and study tours	Yes	No	N/A
4.4	Masterplanning for the Bekaa	Yes	No	N/A
<b>Component 5</b>				
5.1	Source metering installation and training	Yes	Yes	Yes – see “LWWSS Environmental Mitigation & Monitoring Actions” table below
5.2.1-5.2.2	Jeita pump station rehabilitation	Yes	Yes	Yes - see “LWWSS Environmental Mitigation & Monitoring Actions” table below
5.2.3-5.2.4	Pump station rehabilitation in North Lebanon	Yes	Yes	No - planned for Q1 of Y4
5.3	Back-up power generators for NLWE pump stations	Yes	Yes	Yes - see “LWWSS Environmental Mitigation & Monitoring Actions” table below
5.4	Upgrading water analysis laboratories in SLWE and BWE	Yes	Yes	Yes - see “LWWSS Environmental Mitigation & Monitoring Actions” table below
5.5	Chlorination systems installation and training	Yes	Yes	Yes - see “LWWSS Environmental Mitigation & Monitoring Actions” table below
5.6	Upgrade IT equipment in BWE and SLWE	Yes	Yes	-Yes for BWE -No for SLWE, but planned for Q1 of Y4
5.7	GNSS procurement and training for SLWE	Yes	Yes	Yes - see “LWWSS Environmental Mitigation & Monitoring Actions” table below
5.8	Customer Service Center in BWE	Yes	Yes	Yes - see “LWWSS

				Environmental Mitigation & Monitoring Actions” table below
<b>Component 6</b>				
6.1	Network rehabilitation in Zahle (BWE)	Yes	Yes	Yes - see “LWWSS Environmental Mitigation & Monitoring Actions” table below
6.2	Expanding service provision in Beit Mellat (NLWE)	Yes	Yes	No - planned for Q2 of Y4
6.3	Pump station rehabilitation in South Lebanon	Yes	Yes	No - planned for Q1 of Y4
<b>Component 7</b>				
7.1	Building customer service management structure at BWE	Yes	No	N/A
7.2.1	Customer Service training at BWE and BMLWE	Yes	No	N/A
7.2.2	On-the-job training in communication planning	Yes	No	N/A
7.3.1-7.3.2	Design and implement WE brand identity guidelines and design and implement corporate website	Yes	No	N/A
7.3.3	Design and adopt customer service application forms	Yes	No	N/A
7.4	Customer satisfaction survey	Yes	No	N/A
7.5	Youth water conservation programs	Yes	No	N/A
7.6.1	Media campaign in the Bekaa	Yes	No	N/A
7.6.2	World Water Day 2012 youth outreach	Yes	No	N/A

ERAC = Environmental Review and Assessment Checklist

EMMP = Environmental Mitigation and Monitoring Plan

Environmental Compliance Table 2:

LWWSS Environmental Mitigation & Monitoring Actions		
Activity # (as per Y3 Workplan)	Activity Description	Environmental Mitigation and Monitoring Update (as of September 30, 2012)
<b>5.1</b>	<b>Source metering installation and training</b>	The ERAC and EMMP were approved by LWWSS' COTR at the end of the third quarter of Year Three.
		An initial EMMP was included in the subcontract with Modon (signed in April 2012), the vendor that is supplying and installing source meters at up to 221 sites. A more detailed EMMP, as well as an environmental mitigation inspection checklist was given to Modon personnel at the end of the second quarter and discussed in detail with them.
		As per the EMMP, Modon's site supervisor is responsible for ensuring that all mitigation measures are followed and must complete an environmental mitigation inspection at each site. These checklists will be turned in with monthly reports.
		Preparation works for the installation of source meters began at the end of the fourth quarter, and installation will begin at the end of the first quarter or the beginning of the second quarter of Year Four. An LWWSS engineer is on site four days/week to supervise Modon's work.
		Starting in the first quarter of year four, LWWSS' ES will go on monthly site visits with the LWWSS engineer to ensure that all mitigation measures are being followed.
<b>5.2.1-5.2.2</b>	<b>Jeita pump station rehabilitation</b>	The ERAC and EMMP were approved by LWWSS' COTR during the fourth quarter of Year Three.
		The EMMP includes an environmental mitigation inspection checklist that BMLWE's engineers must complete during the rehabilitation and at the beginning of the operation of Jeita. LWWSS is still awaiting a commitment letter from BMLWE's Director General concerning the environmental mitigation process. However, LWWSS' ES met with BMLWE engineers during the fourth quarter to discuss the EMMP and the environmental mitigation inspection checklist. The engineers understood the process and agreed to complete the checklists and turn them in during meetings with LWWSS engineers.

		The rehabilitation began at the end of the fourth quarter and will continue through the first quarter of Year Four. LWWSS' ES will go on a couple site visits with the LWWSS engineer to ensure that all mitigation measures are being followed during the rehabilitation process.
<b>5.2.3-5.2.4</b>	<b>Pump station rehabilitation in North Lebanon</b>	This activity will begin during Year Four. The ES will complete the ERAC and EMMP during the first quarter of Year Four.
<b>5.3</b>	<b>Back-up power generators for NLWE pump stations</b>	<p>The ERAC and EMMP were approved by LWWSS' COTR during the fourth quarter of Year Three.</p> <p>The EMMP, as well as an environmental mitigation inspection checklist, was included in the subcontract with Edan Group International (signed in September 2012), the vendor that is supplying and installing the back-up generators.</p> <p>Once the installation of the generators begins, Edan Group International's site manager will ensure that the mitigation measures are followed at each site and will complete the checklist. LWWSS engineers will be on site during the installation, and the ES will also conduct monthly site visits to ensure that mitigation measures are being followed.</p>
<b>5.4</b>	<b>Upgrading water analysis laboratories in SLWE and BWE</b>	<p>The ERAC and EMMP were approved by LWWSS' COTR during the second quarter of Year Three.</p> <p>LWWSS' capacity building specialist and engineers conducted frequent site visits to the laboratories throughout Year Three to ensure that all mitigation measures were followed and reported back to the ES, as well as taking photos for documentation. The ES also conducted a couple site visits to both SLWE and BWE and found that all mitigation measures were being followed.</p> <p>As per the EMMP, both the SLWE Director General and the BWE Director General signed commitment letters agreeing to follow detailed safety procedures during use of the equipment and to dispose of laboratory equipment in an environmentally responsible manner at the end-of-useful life of the equipment.</p>
<b>5.5</b>	<b>Chlorination systems installation and training</b>	The ERAC and EMMP were approved by LWWSS' COTR during the first quarter of Year Three.

		LWWSS' capacity building specialist and engineers conducted frequent site visits to chlorination sites throughout Year Three to ensure that all mitigation measures were followed and reported back to the ES, as well as taking photos for documentation.
<b>5.6</b>	<b>Upgrade IT equipment in BWE</b>	The ERAC and EMMP were approved by LWWSS' COTR during the second quarter of Year Three.  As per the EMMP, the BWE Director General signed a commitment letter agreeing to dispose of IT equipment in an environmentally responsible manner at the end-of-useful life of the equipment.
	<b>Upgrade IT equipment in SLWE</b>	This activity has not yet begun. The ERAC and EMMP for SLWE will be completed during the first quarter of Year Four.
<b>5.7</b>	<b>GNSS procurement and training for SLWE</b>	The ERAC and EMMP were approved by LWWSS' COTR during the second quarter of Year Three.  As per the EMMP, the SLWE Director General signed a commitment letter agreeing to dispose of the GNSS equipment in an environmentally responsible manner at the end-of-useful life of the equipment.
<b>5.8</b>	<b>Customer Service Center in BWE</b>	The ERAC and EMMP were approved by LWWSS' COTR during the third quarter of Year Three.  <i>Rehabilitation</i> - The contractor ensured that all mitigation measures were followed, and completed an environmental mitigation inspection checklist and turned this into the ES. LWWSS' Customer Service Specialist conducted frequent site visits during the rehabilitation and reported back to the ES, as well as taking photos for documentation.  <i>Operation</i> - As per the EMMP, the BWE Director General signed a commitment letter to follow the mitigation measures during operation. The ES also conducted a couple site visits to the customer service center during operation to ensure that these measures are being followed and took photos for documentation.
<b>6.1</b>	<b>Network rehabilitation in Zahle (BWE)</b>	The ERAC and EMMP were turned into the LWWSS COTR at the end of the fourth quarter of Year Three.

		<p>Environmental compliance language was included in the subcontract with WET, the contractor that is designing the supervising the network rehabilitation.</p> <p>The EMMP was developed after the preliminary design was submitted by WET. WET will be given the EMMP and the environmental mitigation inspection checklist once the ERAC and EMMP are approved by LWSS' COTR.</p> <p>The EMMP will be included in the subcontract with the construction subcontractor, who will be responsible for following mitigation measures during the rehabilitation. WET will be responsible for monitoring the construction subcontractor and will fill out the checklists and turn them in with monthly reports.</p> <p>Once the rehabilitation begins in Year Four, LWSS' ES will conduct monthly site visits to ensure that all mitigation measures are being followed.</p>
<b>6.2</b>	<b>Expanding service provision in Beit Mellat (NLWE)</b>	This activity will begin during Year Four. The ES will complete the ERAC and EMMP during the first quarter of Year Four.
<b>6.3</b>	<b>Pump station rehabilitation in South Lebanon</b>	This activity will begin during Year Four. The ES will complete the ERAC and EMMP during the first quarter of Year Four.

ERAC = Environmental Review and Assessment Checklist

EMMP = Environmental Mitigation and Monitoring Plan

ES = LWSS Environmental Specialist

## **ANNEX 1: YEAR-THREE PMP REPORTING**

- 1. Summary Performance Data Table**
- 2. Justification for Discrepancies between Targets and Actuals for Indicators 1, 4, 5, 6, 8, 9, and 11**
- 3. Justification for Indicator Targets Beyond Year Four**

## 1. Summary Performance Data Table

Progress towards achieving LWWSS program outcomes is measured in part through tracking of LWWSS' 11 performance indicators. The indicator targets are reported in the Performance Management Plan (PMP) at the beginning of each program year, while the actuals are reported twice throughout the year – interim figures are reported in the second quarter report and final figures are reported in the fourth quarter report. As this is the fourth quarter report for Year Three, the final annual figures for each indicator are reported below. The cumulative figures – adding together the actuals from years one, two, and three – for each indicator are also included below in the right-hand column.

Indicator/Unit of Measure	Disaggregation	BL Year Value	2010 Target	2010 Actual	2011 Target	2011 Actual	2012 Target	2012 Actual	2013 Target	2013 Actual	2014 Target	2014 Actual	2015 Target	2015 Actual	Cumulative (as of 2011):
1. Number of people gaining access to an improved drinking water source as a result of USG assistance (F) <sup>1</sup>	Gender <sup>2</sup>	0	Male	0	Male	Male	Male	Male	Male		Male		Male		Male
			14,700	14,700	333,418	131,418	370,756	49,000	0	18,329	704,174				
			Female		Female										
			15,300	15,300	347,028	136,782	385,889	51,000	0	19,077	732,917	0	37,406	1,437,091	
			Total-	Total -											
			30,000	30,000	680,446	268,200	756,645	100,000	0	37,406	1,437,091				
2. Percent customer satisfaction with water services in targeted areas.	WE	42%	42%	42%	None	None	N/A	(1)	N/A	N/A	N/A	N/A	47%		42%

<sup>1</sup>Indicators 1, 5, and 7: People benefiting from multiple activities are only counted once. Cumulative values are also shown in the further column to the right.

<sup>2</sup>The CIA Factbook lists the ratio of male to female population in Lebanon as 49% male and 51% female.

<sup>3</sup> While there are several activities during year five of the program that will improve access to drinking water, the beneficiaries of these activities will not be counted, as they were already counted during years two and three of the LWWSS program.

Indicator/Unit of Measure	Disaggregation	BL Year Value	2010 Target	2010 Actual	2011 Target	2011 Actual	2012 Target	2012 Actual	2013 Target	2013 Actual	2014 Target	2014 Actual	2015 Target	2015 Actual	Cumulative (as of 2011):
3. Percent of water revenues collected by targeted water entities	WE	59.1 %	48%	62.5%	53%	63%	64%	(2)	65%		66%		N/A	N/A	63%
4. Number of training activities provided to staff from water entities as a result of USG assistance	N/A	0	4	3	4	6	4	22	8		1		2		31
5. Number Staff from Water Entities Trained as a Result of UGG Assistance	Gender	0	M-25 F-10 Total – 35	M-3 F-5 Total - 8	M-40 F-20 Total – 60	M-91 F-15 Total – 106	M-55 F-30 Total – 85	M-98 F-46 Total – 144	M- 35 F- 20 Total – 55		M- 2 F- 1 Total – 3		M- 6 F- 0 Total – 6		M-192 F-66 Total - 258
6. Number of management systems and plans used at water management entities as a result of USG assistance	N/A	0	4	3	2	3	2	14	10		1		N/A	N/A	20
7. Number of water users trained on efficient water management*	Gender	0	M-1,300 F-700 Total 2,000	0	M-1,300 F-700 Total 2,000	M-81,570 F-84,933 Total-166,503	M-5,047 F-5,253 Total 10,300	M- 5,465 F- 5,643 Total 11,108	M-4,500 F-4,500 Total-9,000	M- F- Total	N/A		N/A		M-87,035 F-90,576 Total-177,611

Indicator/Unit of Measure	Disaggregation	BL Year Value	2010 Target	2010 Actual	2011 Target	2011 Actual	2012 Target	2012 Actual	2013 Target	2013 Actual	2014 Target	2014 Actual	2015 Target	2015 Actual	Cumulative (as of 2011):
8. Number of dialogue events held between stakeholders and water authorities as a result of USG assistance	N/A	0	3	2	2	4	2	11	2		N/A		N/A		17
9. Number of functioning water and wastewater facilities constructed or rehabilitated with USG assistance	Water	W-0	W-0	W-0	W-1	W-1	W-10	W-18	W-200		W-15		W-15		W - 19
	Waste-water	WW-0	WW-0	WW-0	WW-0	WW - 0	WW-0	WW-0	WW-0		WW-0		WW-0		WW - 0
10. Number of Proposed Legal, Regulatory and Policy actions to enhance Efficiency and Effectiveness of Water Entities as a result of USG Assistance	N/A	0	1	2	1	2	1	2	1		1		N/A		6
11. Number of participants attending regional water and wastewater utility study tours, conferences, or workshops	Gender/ Type of Participant (Mgt., Supervisory or Staff)	0	0	0	Mngmt-0 Supr-3 Staff-12 (M-11 F-4)  Total 15	Mngmt-1 Supr - 1 Staff - 1 (M- 2 F- 1)  Total 3	Mngmt-0 Supr- 3 Staff- 12 (M-11 F-4)  Total 15	Mngmt - 3 Supr- 0 Staff- 0 (M-3 F-0)  Total 3	Mngmt-2 Supr-2 Staff-0 (M-3 F-1)  Total 4		N/A		N/A		Mngmt-4 Supr- 1 Staff- 1 (M-5 F-1)  Total 6

**Footnotes:**

- (1) As agreed with USAID, LWWSS will be conducting a Customer Satisfaction Survey in Q2 of Y6.
- (2) This number will not be available until Q2 of Y4, as the WE fiscal year ends on December 31<sup>st</sup>. In the subsequent second quarter report, LWWSS will be able to report this metric for the end of year three.

## 2. Justification for Discrepancies between Targets and Actuals for Indicators 1, 4, 5, 6, 8, 9, and 11

### Indicator 1:

There is a large discrepancy between the targets and the actuals because the targets were set in the 2011 PMP and were not updated in the 2012 PMP to reflect the increase in activities and the corresponding increase in beneficiaries. Also, the number of beneficiaries estimated in the targets was not accurate in most cases, and the M&E Specialist discovered this during reporting of actuals throughout 2012.

The targets in 2011 were estimated as such: By September 2013, there would be 623,967 beneficiaries spread over 3 years (2011-2013) based on the following activities: O&M trainings, Wastewater Pilot Service Agreement, Jeita rehabilitation, Lab Equipment upgrade, and Chlorinator Systems installation. The potential value was calculated as 1,039,945 over 3 years x .6 multiplier (contingency factor) = 623,967 (rounded up to 624,000) and were distributed as such:

2010: 30,000

2011: 30,000

2012: 268,200

2013: 296,000

This was the justification written in the Year Two (2011) PMP: *The table below will show this process and the counting procedure to be followed, based on data quality recommendations received by LWWSS. The numbers reflect the practice of counting the beneficiary only once, even though there may be more than one activity that affects the beneficiary. Additionally, the multiplier of .6 was applied to make sure that our estimates were conservative.*

Year Two Activity Number	Activity	Number of Population Affected by the Activity	Number of Population Counted for PMP
1	Pump Station Operations and Maintenance Training	BKWE—150,000 NLWE—175,000	BKWE—150,000 NLWE---175,000
6	Wastewater Pilot Service Agreement Between Municipalities and the WE	BKWE—30,000	BKWE—See Activity 1
10	Pump Station Equipment Replacement	BMLWE—138,000	BMLWE—138,000
11	Laboratory Equipment Procurement	SLWE—576,945	SLWE—576,945
12	Installation of Chlorine Systems	BKWE—35,000	Counted in Activity 1
	<b>Total Estimated population for Year-Two times .6</b>		1,039,945 times .6 = <b>623,967</b>

*The total numbers shown above are distributed across the forthcoming three years' targets, to match activity phasing throughout the remainder of the program. As such, the year two target for this indicator changes to a total of 30,000 inhabitants.*

However, here is the breakdown of what was reported for actuals, after an extensive calculation of population affected by our activities, which in most cases is higher than what was originally targeted in the 2011 PMP.

Indicator 1. Number of People Gaining Access to Improved Drinking Water Source As a Result of USG Assistance

Year Three

TARGET		ACTUAL		
Activities	Counted Value	Activities	Source	Counted Value
See Y2 PMP for breakdown of targets.	M-131,418	<p><b>1- Chlorination Systems Installation - BWE</b> - Population subscribed to 14 Stations are considered beneficiaries: 23,072 (* 4.62=avg. family size in Beka'a =106,593). But then we subtract subscribers that benefited from O&amp;M pump station trainings in Y2: Rachaya (743), Zahle - Al Rasiyeh (1158), Wadi Al Arech (265), Dhour Zahle (410), Al Karak (741), Hawch al Omara (2532); Temnin Al Fawqa (365). <b>Total subscribers to be counted: 16,858</b>  <b>* 4.62 (avg. family size in Beka'a) = 77,884</b>  <b>-Male: 49% = 38,163</b>  <b>-Female: 51% = 39,721</b></p>	<p><b>- Data Source:</b>  <i>BWE:</i> BWE Subscribers Dept. (Contacts: Joseph Lteif and Najwa Zarzour)  <i>NLWE:</i> NLWE Financial Dept. (Contact Maher Tahsildar)  <i>SLWE:</i> SLWE Financial Dept. (SLWE obtained this information while working on the Business Plan)  <i>Average Family Size:</i> Central Administration of Statistics (CAS).www.cas.gov.lb  <i>Male/Female ratio:</i> CIA World Factbook</p> <p><b>-Calculation method:</b> No. of subscribers benefiting from each station operated by O&amp;M training, multiplied by average household size in Bekaa and North Lebanon.</p> <p><b>- Risks on data quality:</b> Mike Chalah (LWWSS Financial Specialist) compiled the data related to number of subscribers per station from the BWE Subscribers Dept. (Contacts: Joseph Lteif and Najwa Zarzour), the NLWE Financial Department (Contact: Maher Tahsildar), and SLWE Financial Dept. (while working on business plan) and CAS data is related to Year 2007.</p>	M-370,756
		<p><b>2 - Lab equipment - SLWE</b>  Registered connections in SLWE: 142,702 (Source is SLWE Finance Dept.)  -Family size in South Lebanon/ Nabatiyeh: 4.3 (CAS - 2007)  -Final beneficiary #: 142,702 x 4.3 = 613,619  -Male: 49% = 300,673  -Female: 51% = 312,946</p>		

		<p><b>3 - Lab equipment - BWE:</b> (Oct. 26, 2011) - not all of the population affected will be counted because some are already counted in Year 2 for O&amp;M training and for chlorination systems installation in Year 3.</p> <p>-Population that benefited are those subscribed in South Bekaa and Zahle Service Areas, which include the following Sections: Jib Janine, Rachaya, Machaghara, Riyak, Zahle, and Chtoura. Some of the population were counted as beneficiaries of the O&amp;M pump station trainings in Year 2, and some of the population were counted as beneficiaries for the chlorination systems installation in Year 3 (see activity 1 above).</p> <p><b>The remaining beneficiaries are: 4298 from Zahle and 9802 from South Bekaa = 14,200</b></p> <p>* 4.62 (avg. family size in Beka'a) = 65,142</p> <p>-Male: 49% = 31,920</p> <p>-Female: 51% = 33,222</p>	
	F- 136,782	<p><b>4-NLWE - Advanced O&amp;M PS trainings</b> -No beneficiaries will be counted because they are already counted for Year 2 O&amp;M training</p>	F- 385,889
	<b>268,200</b>		<b>756,645</b>

### Indicator 4:

There is a discrepancy between targets (4) and actuals reported (22) for two main reasons: 1) LWWSS conducted more trainings than originally planned, and 2) the trainings for each module of the ERP were only counted as one activity in the targets, whereas they should have been counted as separate trainings, given that each training was on a very different topic. The definition of the indicator states that: *A training activity is any course of study, classroom or on-site training activity that addresses a single major topic to be trained, (e.g., accounting; computer operation, pump station operations, pump station maintenance, etc).*

Here is a breakdown of the targets and the actuals that were reported:

**Indicator 4. Number of Training Activities as a Result of USG Assistance**

**Year Three**

TARGET		ACTUAL		
Activities	Counted Value	Activities	Source	Counted Value
1) Lab equipment - BWE 2) Lab equipment - SLWE 3) Chlorination systems - BWE 4) ERP - BMLWE 5) ERP - BWE 6) Customer service - BWE	4	<b>1 - Chlorination systems - BWE</b> (completed Oct. 17-19, 2011) people affected (reflected in indicator 1) were counted in Year 2 for O&M training. (NOTE: While the systems were installed throughout Year 2, all of the personnel trainings were not complete until Year 3 and hence this is being reported in Year 3 in indicators 4 and 5.)	See PMP binder and refer to tab "BWE 2: Chlorinator" where back-up documentation can be found.	22
		<b>2 - Lab equipment trainings - BWE</b> (Oct. 26, 2011)	See PMP binder and refer to tab "BWE 3: Lab Eq." where back-up documentation can be found.	
		<b>3 - Lab equipment trainings - SLWE</b> (Oct. 6, 2011 through March 2012)	See PMP binder and refer to tab "SLWE 3: Lab Eq." where back-up documentation can be found.	
		<b>4 - AUB Water Quality Trainings - BWE</b> (kick off in Jan. 2012)	See PMP binder and refer to tab "BWE 4: AUB" where back-up documentation can be found.	
		<b>5 - WSP (UN-HABITAT)</b> - Jan. 2012	See PMP binder and refer to tab "Cross-WE 3: WSP" where back-up documentation can be found.	
		<b>6 - Improving Customer Service training - BWE</b> (Jan 31 - Feb. 2, 2012)	See PMP binder and refer to tab "BWE 5: Cust. Serv." where back-up documentation can be found.	
		<b>7-13 - ERP trainings in BWE</b>	See PMP binder and refer to tab "BWE 6-12: ERP Trainings" where back-up documentation can be found.	
		<b>14-19 - ERP trainings in BMLWE</b>	See PMP binder and refer to tab "BML 3-8: ERP Trainings" where back-up documentation can be found.	
		<b>20 - ACWUA Oman</b> - June 2-5, 2012	See PMP binder and refer to tab "Cross-WE 4: ACWUA Oman"	
		<b>21 - BMLWE customer service training</b> - August 2012	See PMP binder and refer to tab "BWE 9: Cust. Serv." where back-up documentation can be found.	
<b>22 - Advanced O&amp;M training in NLWE</b>	See PMP binder and refer to tab "NLWE 2: Adv. O&M" where back-up documentation can be found.			

## Indicator 5:

The targets were developed in concert with the targets for indicator 4. See notes above, and here is a table with the breakdown for what was targeted and what was reported:

Indicator 5. Number of WE and MOEW Staff Trained as a Result of USG Assistance				
Year Three				
TARGET		ACTUAL		
Activities	Counted Value	Activities	Source	Counted Value
These targets were developed in concert with indicator 4's targets (see above).	M-55	<b>1 - Chlorination systems - BWE</b> (completed Oct. 17-19, 2011) people affected (reflected in indicator 1) were counted in Year 2 for O&M training. (NOTE: While the systems were installed throughout Year 2, all of the personnel trainings were not complete until Year 3 and hence this is being reported in Year 3 in indicators 4 and 5.)	See PMP binder and refer to tab "BWE 2: Chlorinator" where back-up documentation can be found.	M-98
		<b>2 - Lab equipment trainings - BWE</b> (Oct. 26, 2011)	See PMP binder and refer to tab "BWE 3: Lab Eq." where back-up documentation can be found.	
	F-30	<b>3 - Lab equipment trainings - SLWE</b> (Oct. 6, 2011 through March 2012)	See PMP binder and refer to tab "SLWE 3: Lab Eq." where back-up documentation can be found.	F-46
		<b>4 - AUB Water Quality Trainings - BWE</b> (kick off in Jan. 2012)	See PMP binder and refer to tab "BWE 4: AUB" where back-up documentation can be found.	
	85	<b>5 - WSP (UN-HABITAT)</b> - Jan. 2012	See PMP binder and refer to tab "Cross-WE 3: WSP" where back-up documentation can be found.	144

		<b><u>6 - Improving Customer Service training - BWE</u></b> (Jan 31 - Feb. 2, 2012)	See PMP binder and refer to tab "BWE 5: Cust. Serv." where back-up documentation can be found.	
		<b><u>7-13 - ERP trainings in BWE</u></b>	See PMP binder and refer to tab "BWE 6-12: ERP Trainings" where back-up documentation can be found.	
		<b><u>14-19 - ERP trainings in BMLWE</u></b>	See PMP binder and refer to tab "BML 3-8: ERP Trainings" where back-up documentation can be found.	
		<b><u>20 - ACWUA Oman</u></b> - June 2-5, 2012	See PMP binder and refer to tab "Cross-WE 4: ACWUA Oman"	
		<b><u>21 - BMLWE customer service training</u></b> - August 2012	See PMP binder and refer to tab "BWE 9: Cust. Serv." where back-up documentation can be found.	
		<b><u>22 - Advanced O&amp;M training in NLWE</u></b>	See PMP binder and refer to tab "NLWE 2: Adv. O&M" where back-up documentation can be found.	

## **Indicator 6:**

There is a discrepancy between the target (2) and the counted value (14) because the target did not accurately follow the definition. The target included only two activities: 1) The BWE Stock Management Plan and 2) The ERP at both BWE and BMLWE. After a thorough review of the definition, which states that "systems and plans can include general systems and sub-parts of general systems," it is clear that *each module* of the ERP at both BWE and BMLWE can be counted separately because each module is a sub-part of the general ERP system. The entire definition is pasted below. In subsequent years, our targets will accurately reflect the definition of the indicator (note that Year Four targets include the remaining modules of the ERP that are currently being implemented in both BWE and BMLWE).

**Precise Definition(s):** *Systems and plans can include general systems and sub-part of general systems. Examples on general systems are: financial management systems, project monitoring systems, O&M plans, water monitoring systems, water databases, GIS, DSS, etc. Examples on sub-parts of a general system such as the financial system include: business plan, budget system, accounting systems, procurement system, asset management systems, payroll systems, billing system, collection system, human resource management system, policies and procedures that relate to recording and reporting, policies and procedures related to customer service, public outreach programs and etc.*

Here is the table that defines what activities we counted for the actuals:

Indicator 6. Number of Management Systems and Plans Used at Water Management Entities as a Result of USG Assistance

Year Three

TARGET		ACTUAL		
Activities	Counted Value	Activities	Source	Counted Value
1-Stock Management Plan 2-ERP	2	<b>1- BWE Stock Management Plan</b> - creates a methodology to inventory BWE's stock (prerequisite to ERP)	See PMP binder for indicator 6 and refer to tab "Year Three: 2012 - 1" for backup documentation.	14
		<b>2-SLWE Business Plan</b>	See PMP binder for indicator 6 and refer to tab "Year Three: 2012 - 2" for backup documentation	
		<b>3- BWE ERP: Finance system</b>	See PMP binder for indicator 6 and refer to tab "Year Three: 2012 - 3-8 (BWE)" for backup documentation.	
		<b>4- BWE ERP: Budgeting module</b>		
		<b>5- BWE ERP: HR system</b>		
		<b>6 - BWE ERP: Warehouse (stock, inventory) system</b>		
		<b>7- BWE ERP: Payroll system</b>		
		<b>8- BWE ERP: Purchasing system</b>		
		<b>9- BMLWE ERP: Finance system</b>	See PMP binder for indicator 6 and refer to tab "Year Three: 2012 - 9-13 (BMLWE)" for backup documentation.	
		<b>10- BMLWE ERP: Budgeting module</b>		
		<b>11 - BMLWE ERP: HR system</b>		
		<b>12- BMLWE ERP: Payroll system</b>		
		<b>13- BMLWE ERP: Purchasing system</b>		
		<b>14-NLWE Brand identity Guidelines</b>		

## Indicator 8:

There is a discrepancy between the target (2) and the actual (11) for two main reasons: 1) Not all of the activities/meetings/events that happened were planned at the time of PMP writing and 2) Outreach at schools was counted as one activity, whereas the outreach took place at seven schools and each school was counted in the actuals. Here is the definition of the indicator: *Public meetings and formal consultations are defined as: meeting with customers and beneficiaries, public service announcements and programs, focus groups, and outreach activities/brochures that increase communication between water institutions and their customers and beneficiaries.*

Here is the table with the breakdown of targets and actuals reported:

Indicator 8. Number of Public Meetings and Consultations held by Water Institutions				
Year Three				
TARGET		ACTUAL		
Activities	Counted Value	Activities	Source	Counted Value
1) Inauguration of customer service center 2) Meeting with mayors re: pilot service agreement 3) Outreach at schools (Not all were counted in order to include a contingency factor.)	2	<b><u>1 - 3 - Outreach at 3 schools in South Lebanon with SLWE staff</u></b>	Refer to indicator 7	11
		<b><u>4-7 - Outreach at 4 schools in North Lebanon with NLWE staff</u></b>	Refer to indicator 7	
		<b><u>8-Public event - inauguration of customer service center</u></b>	A CD with photos is included in the PMP binder	
		<b><u>9 - Meeting with Mayor Robert Semaan, Mayor of Ablah - Discussion about WE-Municipal Service Agreement process and objectives (June 26, 2012)</u></b>	Assessment written by COP (includes minutes from meetings) is included in the PMP binder	
		<b><u>10 - Meeting with Mr. Khalil Sharanek, Pres. Of Union of the Lake Municipalities - Discussion about WE-Municipality Service Agreement process and objectives (June 27, 2012)</u></b>	Assessment written by COP (includes minutes from meetings) is included in the PMP binder	

		<b>11 - Meeting with Mayor of Foursol</b> - Discussed the possibility of Foursol participating in the negotiation of a service agreement with the BWE (July 12 2012)	Assessment written by COP (includes minutes from meetings) is included in the PMP binder	
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**Indicator 9:**

There is a discrepancy between the targets (10) and the actuals (18) for this indicator because a risk factor was applied during the calculation of the forecasted targets to take into account the uncertainty of the field conditions, especially as concerns the chlorination stations.

Here is the table with the breakdown of targets and actuals reported:

Indicator 9. Number of Functioning Water and Wastewater Facilities Constructed or Rehabilitated with USG Assistance				
Year Three				
TARGET		ACTUAL		
Activities	Counted Value	Activities	Source	Counted Value
-Chlorination stations (count 6, risk factor applied to account for the uncertainty of field conditions) -Lab equipment (count 3) -Customer Service Center (count 1)	Water - 10	<b>1 - Lab equipment - SLWE:</b> Equipment Installed at <b>3 labs</b>	See memos exchanged between SLWE and LWWSS and subcontract with Numelab	Water-18  Wastewater-0 <b>18</b>
	Wastewater-0	<b>2-Chlorination stations - BWE:</b> 15 chlorinators installed at <b>14 stations</b>	See memos exchanged between BWE and LWWSS and subcontract with Sanabel.	
		<b>3- Customer Service Center - Zahle</b>	CD included in PMP binder with photos, drawings, contract, etc.	
	<b>10</b>			

**Indicator 11:**

There is a discrepancy between the targets (15) and the actuals (3) for this indicator because substantial training was conducted in country throughout the past years, including institutional training (with Institute of Finance) that equals or substitutes the benefits of international study tours. As such, the LWWSS program's teams found that there was no justifiable need to conduct overseas study tours. The lower numbers of staff who have been invited to international study tours has therefore been more than accounted for through in-country capacity building. The LWWSS program considers that, whenever possible, customized technical training and in-country capacity building are more efficient and sustainable ways to building the capacity the WEs, and are a better allocation of USAID funding.

Here is the table with the breakdown of targets and actuals reported:

Indicator 11: Number of Participants Attending Regional Water and Wastewater Study Tours Conducted with USG Assistance					
Disaggregation	Year Three				
	TARGET		ACTUAL		
	Activities	Counted Value	Activities	Source	Counted Value
Management		0	<b>1- ACWUA Best Practices Conference in Oman</b> - 3 Director Generals attended from BWE, NLWE, and BMLWE	See PMP binder for back-up documentation.	3
Supervisory		3			0
Staff		12			0
<b>Total</b>		<b>15</b>			<b>3</b>
Male		11			3
Female		4			
<b>Total</b>		<b>15</b>			<b>3</b>

### 3. Justification for Indicator Targets Beyond Year Four

On September 30, 2011, the LWWSS program obtained additional funding and an extension until April 30, 2015. The purpose of the extension and increased funding was to enable the implementation of new infrastructure projects in three water establishments (BWE, NLWE and SLWE). These projects relate to network extensions and pump station rehabilitation.

As such, the indicator table was extended to show years five (2014) and six (2015) of the program.

The targets for these years have been defined as follows:

#### Indicator 1. Number of People in Target Area with Access to Improved Drinking Water Supply As a Result of USG Assistance

The additional infrastructure activities under this indicator are the following (note that this indicator counts a population only once):

Activity Number	Activity Title	Population Affected	Population Counted in Indicator Target
6.3	SLWE: Supply and install pumps, motors and associated works for the rehabilitation of selected stations: Wadi Jilo, Shehabieh, and Batoulay	167,814 (source: LWWSS memo relating to amendment of infrastructure follow-on activity in SLWE- dated July 5, 2012)	None- SLWE's population are already counted as part of the SLWE's water analysis laboratory equipment upgrade activity reported in the year three PMP.
6.1	Implement network upgrades in Zahle: rehabilitating up to 6 branch networks: Haouch Al Omara, Maalaka, Rasiyeh, Karak-Forzol, Midan, Mar Elias.	39,671 (source: LWWSS year three work plan)	None - population are already counted as part of the Pump Station O&M Training Activities (Year Two) and the Chlorinator Installation (Year Three).
6.2	Beit Mellat, Akkar, North Lebanon: Implement house connections to up to 12 villages.	48,374 (source: LWWSS year four draft work plan based on 10,184 households affected; Household size used - based on CAS - is 4.75).	LWWSS will impact up to 12 villages in the Beit Mellat region (48,374 people).  However, we estimate that 2309 subscribers were already counted as part of an earlier LWWSS activity (O&M pump station training). As such, we propose to set this target at 7,875 subscribers or 37,406 people (household size is 4.75 based on CAS).
<b>Total population to be counted:</b>			37,406

This population number will be split as follows: No beneficiaries will be counted in Year Five of the Program because they are already counted in earlier activities, and 37,406 people (18,329 male and 19,077 female) will be counted in Year Six (NLWE activity) of the Program.

## Indicator 2. Percent Customer Satisfaction with Water Services in Targeted Areas

As per discussions with USAID, this indicator will not be measured during the midterm of the program; it will only be measured at the end of the program. The LWWSS program has set the targets for increasing customer satisfaction with water services nationally by targeting increments of 1% aggregate increase for every year of the program, or a 5% increase over the life of the project.

The below table highlights the amendments proposed for this indicator's targets:

Year	Initial Target	Updated Target	Comments
Year One	42%	n/a	Base Year – LWWSS conducted a national customer survey that revealed an average satisfaction rate of 42%.
Years Two through Five	45% (set for year three)	n/a	As per discussions with USAID, no targets were set for these years of the program because a survey will not be conducted again until the end of the program in the second quarter of Year Six.
Year Six	n/a (the program was originally only four years)	47%	LWWSS has set a target for increasing customer satisfaction with water services nationally by increments of 1% per year, or 5% over the life of the project.

## Indicator 3. Percent of Revenues Collected in Target Water Entities

LWWSS will gather the collection information for 2014 (year five), but it will be impossible to collect information for 2015 (year six), because the information only becomes available approximately 3 months after the close of the WE fiscal year, which is December 31<sup>st</sup>.

Note that the infrastructure activities planned for years five and six are expected to lead to a substantial increase in subscriptions following completion of these projects. This increase in subscriptions, coupled with effective collection, will result in increased revenues to the WEs. However, these anticipated increases in subscriptions will only take place once the projects are completed and commissioned, i.e. after the completion of the LWWSS program. As such, they cannot be captured in the targets for years five and six of this PMP and thus the targeted increase for these years remains modest.

## Indicator 4. Number of training activities provided to staff from water entities as a result of USG assistance

Only two training activities are planned for years five and six as part of the infrastructure projects planned for these years:

- Building NLWE's capacity in implementing consumer metering; and
- Building SLWE's capacity in operating and maintaining the newly rehabilitated pump stations.

As such, this activity's target for years five and six shows one activity for year five (NLWE consumer metering training) and one activity for year six (SLWE capacity building on O&M for rehabilitated stations).

## Indicator 5. Number of WE and MOEW Staff Trained as a Result of USG Assistance

The two planned training activities for years five and six relate to NLWE's personnel in the Beit Mellat, Akkar region, as well as the SLWE personnel in the stations where rehabilitation will take place.

As such, this activity is foreseen to impact the following personnel within the WE:

NLWE – Beit Mellat, Halba, Akkar:

- NLWE headquarters finance director and 2 key personnel (total 3 persons)

SLWE – 3 stations:

- 2 technicians per station, i.e. 6 total technicians

As such, only 9 staff will be counted within the targets for years five and six under this indicator, as follows:

- Year five: 3 persons from NLWE headquarters (2 male and 1 female)
- Year six: 6 persons from SLWE (6 male)

#### **Indicator 6. Number of Management Systems and Plans Used at Water Management Entities as a Result of USG Assistance**

The last two years of the program do not include technical assistance activities that contribute to development and adoption of Management Systems and Plans for the WEs. However, the Bekaa Master Plan (also counted under indicator 10) will be completed in year five and thus is counted under year five's targets, while the target for year six is zero.

#### **Indicator 7. Number of Water Users Trained on Conservation and Preservation of Water Resources**

The last two years of the program do not include technical assistance activities that contribute to outreach the population on matters of water conservation. Therefore, the performance target under this indicator for years five and six is zero.

However, LWWSS's activities during these two years, such as the NLWE Beit Mellat project will include installation of metered house connections. As part of LWWSS' agreement with NLWE, the water establishment promised to conduct consumer-metering awareness campaigns which contribute to training water users on water conservation. However, given that these activities will be performed by a third party, they will not be counted under LWWSS' targets for this indicator.

At the end of year four, when the Beit Mellat project is underway and when LWWSS is writing the year five work plan, LWWSS will reconsider whether these activities can be counted as part of our PMP based on staffing, funds available, as well as discussions with the NLWE, and we will then adjust accordingly.

#### **Indicator 8. Number of Public Meetings and Consultations held by Water Institutions**

As per indicator 7, the last two years of the program do not include technical assistance activities or other activities that revolve around holding public meetings and public

consultations. Therefore, the performance target under this indicator for years five and six is zero.

However, as part of LWWSS’s activities during these two years, such as the NLWE Beit Mellat project, NLWE is bound to hold a number of public gatherings, awareness campaigns, and regional outreach events to advise the population of the onset of consumer metering in the region, incite customers to subscribe in areas where water service is being provided for the first time, and promote the WE presence in these regions. However, given that these activities will be performed by a third party (NLWE), they will not be counted under LWWSS’ targets for this indicator.

At the end of year four, when the Beit Mellat project is underway and when LWWSS is writing the year five work plan, LWWSS will reconsider whether these activities can be counted as part of our PMP based on staffing, funds available, as well as discussions with the NLWE, and we will then adjust accordingly.

### **Indicator 9. Number of Functioning Water and Wastewater Facilities Constructed or Rehabilitated with USG Assistance**

During years five and six, LWWSS be delivering the following water infrastructure facilities (either through new construction or rehabilitation):

Activity Number	Activity Title	Facilities Counted under this Indicator
5.2	NLWE: Pump station rehabilitation	Up to 9 pump stations will be rehabilitated
6.3	SLWE: Supply and install pumps, motors and associated works for the rehabilitation of selected stations.	3 water supply pump stations (source: LWWSS memo relating to amendment of infrastructure follow-on activity in SLWE- dated July 5, 2012)
6.1	Implement network upgrades in Zahle: rehabilitating up to 6 branch networks.	6 district water distribution networks in Zahle, BWE (source: LWWSS year three work plan)
6.2	Beit Mellat, Akkar, North Lebanon: Implement house connections to up to 12 villages.	LWWSS proposes to consider each village network (linked to a village reservoir tank) as a single water supply facility. As such, LWWSS anticipates rehabilitating up to 12 water supply facilities.
<b>Total water facilities to be counted:</b>		30

The target of 30 facilities will be counted as follows:

- Year Five: 15 water facilities (reflecting the anticipated progress in NLWE and BWE as per the program for each of these activities)
- Year Six: 15 water facilities (reflecting the anticipated progress in NLWE and SLWE as per the program for each of these activities)

### **Indicator 10. Number of USG Assisted Water Reports or Studies Proposing Legal, Policy, and Institutional Measures or Procedures**

The last two years of the program do not include technical assistance activities that contribute to development and adoption of water reports or studies proposing legal, policy, and institutional measures or procedures. However, the Bekaa Master Plan (also counted under indicator 6) will be completed in year five and thus is counted under year five's targets, while the target for year six is zero.

**Indicator 11. Number of Participants Attending Regional Water and Wastewater Study Tours Conducted with USG Assistance**

The last two years of the program do not include any funding for regional water and wastewater study tours for the program's beneficiaries. Therefore, the performance target under this indicator for years five and six is zero.