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WATER AND WASTEWATER SECTOR SUPPORT PROGRAM

Final Report

SEPTEMBER 2013

This publication was produced for review by the United States Agency for International Development.
It was prepared by Chemonics International Inc.

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FINAL REPORT

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CONTENTS

Acronyms i

Executive Summary 1

Section I. Development of the Water and Wastewater Sector 5

Section II. Objectives and Approach 11

Section III. Summary of Activities 15

Section IV. Looking Forward 36

Annexes

Annex A. Financial Report 38
Annex B. Contract Scope of Work Tracker 40
Annex C. Activities by Location 43
Annex D. Activity Summaries 45
Annex E. Deliverables with Abstracts 49
Annex F. Equipment Delivered to Counterparts 65
Annex G. Life-of-Project Performance Monitoring Plan Indicator Values 77
Annex H. Training Statistics 84
Annex I. Program Team List 85

Front Cover: A family in the Bahbasheen village in the Beni Suef region enjoys their new USAID-funded water tap. The Water and Wastewater Sector Support Program provided construction management services for more than 100 million Egyptian pounds of USAID-funded projects extending and improving service to underserved communities, including more than 26,000 household connections.

PHOTO CREDIT: ALL PHOTOS COURTESY OF THE WWSS PROGRAM.

ACRONYMS

CAD	Computer-Aided Design
CIP	capital investment planning
EGP	Egyptian pound
EWRA	Egyptian Water Regulatory Agency
FARA	fixed amount reimbursement agreement
GIS	geographic information system
GIZ	*Gesellschaft für Internationale Zusammenarbeit*
HCWW	Holding Company for Water and Wastewater
HR	human resources
HRD	human resource development
IT	information technology
JCESD	Job Creation through Essential Service Delivery
KfW	*Kreditanstaldt fur Wiederaufbau*
LWG	local working group
MARS	monitoring, analysis, and reporting system
MASTER	Maintenance through Systematic Tracking & Equipment Repair
MHUUD	Ministry of Housing, Utilities, and Urban Development
MIS	management information system
O&M	operations and maintenance
PA	public awareness
PRISM	Program Management Information System
SOPs	standard operating procedures
TOT	training of trainers
UAS	unified accounting system
UFW	unaccounted-for water
WPRR	Water Policy and Regulatory Reform
WWC	water and wastewater company
WWSS	Water and Wastewater Sector Support

EXECUTIVE SUMMARY

The Water and Wastewater Sector Support (WWSS) Program was USAID's most recent effort in water and sanitation in Egypt, building on more than 30 years of assistance. Initial agreements focused on infrastructure development, while more recent projects focused on legal, regulatory, and institutional reform and on capacity building of service providers. In particular, USAID played a key role in the sector reform that resulted in formation of the Holding Company for Water and Wastewater (HCWW) and the Egyptian Water Regulatory Agency (EWRA) in 2004, and subsequently designed institutional strengthening efforts working directly with these new sector leaders. Launched in 2008, the WWSS Program targeted HCWW and 13 of its 25 subsidiary companies, while the parallel Water Policy and Regulatory Reform (WPRR) Program targeted the EWRA and its parent agency, the Ministry of Housing, Utilities, and Urban Development (MHUUD).

Objectives and Approach

WWSS' goal was to support select water and wastewater companies (WWCs) in achieving the vision of the 2004 sector reform, of becoming efficient and autonomous service providers, more accountable to their customers and local boards of directors and less reliant on central government support. The program was designed to assist the newest companies get on their feet while increasing efficiencies at all participating companies and catalyzing sector-wide shifts in particular areas in need of change, including capital investment planning and management and human resource development (HRD).

The WWSS team, led by Chemonics International Inc. with participation from subcontractors CH2M HILL and Chemonics Egypt Consultants, developed a robust approach to achieve program objectives, focusing on improving practices of the utilities' technical or engineering operations as well as "soft side" management functions such as planning, financial management, and HRD. In line with the task order scope of work, WWSS delivered activities in business planning, human resource management and development, financial and commercial management, capital investment planning and program management, unaccounted-for water (UFW) and other efficiency improvements, operations and maintenance (O&M), and communications and public outreach.

All along, the understanding was that WWSS was the final USAID technical assistance project in the sector, so sustainability was of the utmost concern from the beginning. All activities, whether oriented toward utility technical or managerial functions, aimed not to solve a problem but to equip the utilities to identify and address their companies' priority concerns. This approach was embodied in the WWSS team's insistence on:

- Promoting business planning as a central management and accountability tool
- Emphasizing human resource development at all levels of utility management
- Jointly planning and implementing activities with utility staff

Another hallmark of the WWSS approach was the focus on efficiency improvement activities. Considering the difficult financial situation of the sector's institutions and their lack of influence over tariff rates, WWSS worked jointly with the companies to identify areas

where they could reduce operational costs and otherwise improve the efficiency of their operations; these initiatives proved some of the most effective of WWSS' interventions.

Activity Highlights

- *Completion of first-ever business plans for 11 water and wastewater companies*. The plans, developed with broad participation from utility line staff and leaders, were subsequently used to prioritize WWSS activities and to monitor the companies' progress over the life of the program.

WWSS students visit a treatment plant Minya, Egypt. Field visits and hands-on applications were key elements of WWSS training programs.

- *Leadership development courses for all tiers of utility management.* Three parallel training programs were designed and launched for promising sector personnel: a certificate program for utility executives developed with the American University in Cairo's Management Center, and modeled after this course, two additional programs for junior- and mid-level professionals.

- *Capable teams in place to tackle utilities' operational inefficiencies.* WWSS focused on cost reduction and efficiency improvement activities in three areas: leak detection and reduction, energy use rationalization, and chemical use optimization. Beginning with demonstration projects in each region and proceeding through intensive training, equipment procurement, and extensive field-based technical assistance and follow-up, WWSS built local capacity to address these critical issues while achieving demonstrable savings on operational costs.

- *Financial management functions automated and integrated*. Beginning with the selection and installation of an appropriately scaled financial management software program, WWSS assisted nine companies in streamlining financial planning, management, and reporting by integrating the software with their operations, providing training, and ensuring system support after WWSS' closure.

- *Program and project management tools created, tested, and successfully used in the field.* To equip the utilities to manage their own capital investment projects, WWSS developed a series of manuals and tools, implemented a comprehensive training program, and then worked with USAID to provide real-life application opportunities on the Job Creation through Essential Service Delivery (JCESD) program, under which utility engineers planned and managed more than 100 million Egyptian pounds (EGP) of small-scale investments in water and sanitation networks.

USAID 2012 Program Evaluation

In early 2012, USAID evaluated the program as part of a larger effort to assess whether USAID/Egypt's assistance to the water and wastewater sector was meeting its stated objectives and to identify near-term priority areas for possible future programming. During a two-week period in Egypt, the Washington, D.C.-based team visited the WWSS office, the Holding Company, and one of its subsidiary companies and included a summary of accomplishments and weaknesses of the program in its final report. The evaluation was designed as a "yes/no" trigger for execution of the WWSS 5th-year option period and resulted in a recommendation for the option year, with a few suggestions for activity adjustments and additional cooperation with USAID's WPRR Program.

Summary of main findings. The evaluation report concluded that, "Overall the Team found the WWSS has been successful in delivering on the majority of expected results, especially in support of establishing three new subsidiaries. In addition to the achievement of individual results, the Contractor also helped to directly contribute toward 'cost-effective' service delivery improvements through piloting of energy efficiency improvements, chemical optimization, and leak detection."

The report cited WWSS business planning, training, and automated systems activities as significant accomplishments and noted that efficiency improvement activities "appear to have helped" reduce subsidiary operational costs, albeit on a small scale. A critical theme was the lack of quantitative evidence of the impact of WWSS activities on subsidiary-wide performance, due to lack of data. The report concluded with several recommendations, which are listed in the following table, along with subsequent actions taken by the WWSS team.

Exhibit 1. USAID Evaluation – Recommendations for Option Year*

Recommendation	WWSS Action
Priority Areas for Continued Emphasis	
Efficiency improvements (energy and chemical use and maintenance management)	Continued support in Year 5 Work Plan
Business planning	Continued support in Year 5 Work Plan
Development of public outreach with key messages	Not included in Year 5 Work Plan due to lack of funds and reduced level of effort
Targeted training (managers and operators)	Continued support in Year 5 Work Plan
Areas in Need of Increased Emphasis	
Improve quality of performance data reported by subsidiaries	Addressed in Year 5 Work Plan, where business planning activity included first-ever identification of performance indicators and targets
Focused performance-related interventions (possibly limit focus to fewer utilities)	Focus limited to four utilities in Year 5 Work Plan
Areas in Need of Increased Alignment between Contracts	
Public outreach on core messages related to financial sustainability of the sector	Not included in Year 5 Work Plan due to lack of funds
Piloting of licensing/performance agreements	Relates more to WPRR scope of work, although WWSS incorporated performance targets in its Year 5 business planning activity
Areas That Should be De-emphasized	
Capital investment planning and project management support (the Program Management Information System [PRISM])	Phased out in Year 5 Work Plan, after transfer of support responsibility to HCWW

*Taken from Performance Evaluation Report: USAID/Egypt Capacity Building and Policy Support in the Water and Wastewater Sector

Recommendations for the Future

USAID's future in Egypt is uncertain. Even if extensive programming continues, there are no signs that it will include further technical assistance to the water and wastewater sector because, after more than 30 years of technical assistance programs, higher development priorities lie elsewhere in Egypt. This is, at least, how the story of WWSS was supposed to end. However, times have changed significantly since the launch of WWSS, and no one could have predicted the turmoil that would shape the country and the sector beginning in January 2011. The unrest, and social, political, and economic uncertainty that trailed it, have affected the sector in profound ways, including reducing government funds available for subsidy, burdening the utility companies with additional tenured staff and higher salary payments, and halting the momentum for reform. In this context of insecurity, leaders in the sector, along with any cooperating donors, should focus on:

Maintenance, renovation, and rehabilitation. Egypt's water and wastewater networks are vast and capable of delivering a high level of service. This requires proactive and routine maintenance efforts, and maximizing use of the available funds for renovation and rehabilitation. This work alone could expand levels of service and extend the life of existing infrastructure to weather the current period of uncertainty.

Tightening operations, reducing costs, minimizing inefficiencies. This was a primary aim of WWSS, and, during five years, the program team succeeded with a number of utilities at identifying inefficiencies, crafting practical solutions to them, and building teams to carry the work forward. Efforts like these — in energy use rationalization, chemical use optimization, and reducing unaccounted-for water — must continue and expand, and other opportunities to reduce costs should be exploited. To meet the needs of the future, Egyptian utilities must do more with less.

Building skilled technicians and professionals. There are a number of promising initiatives underway to build the sector's human resources (HR), such as degree programs with national universities, in-house technical schools at utilities, the USAID-supported operator certification program, and management training programs launched by WWSS. These efforts must be wholeheartedly supported to maintain a supply of professionals to carry the sector forward.

Expanding wastewater service. While much can be done to increase service levels from existing assets, wastewater service objectives cannot be met without significant capital investments. The rural sanitation strategy must be revived and approved, and used to prioritize and guide coming investments, whether from donors or the Egyptian government.

Strengthening local governance. The 2004 reform and subsequent assistance to the sector went a long way in decentralizing decision-making in the sector; the presence of utility boards of directors and local revenue retention attest to this. Completing this transition requires additional push, especially at a time of uncertainty at the level of national government. To be truly autonomous, the regional WWCs require more local representation on their boards, increased board use of accountability tools such as business plans, and utility consultation with EWRA on regional tariff rates.

SECTION I

DEVELOPMENT OF THE WATER AND WASTEWATER SECTOR

Brief History of the Sector

The WWSS Program's counterpart organization, the Egyptian Holding Company for Water and Wastewater, was established by Presidential Decree 135 of 2004, pursuant to Public Law 203 of 1991. The same decree transformed 14 public utilities, which previously consisted of units of local government, into subsidiaries of the Holding Company. This number has since grown to 25 water and wastewater companies serving all of Egypt's 27 governorates, except for urban districts of the three canal cities governorates of Suez, Port Said, and Ismailia. A complementary presidential decree in 2004 also established the Egyptian Water Regulatory Agency. HCWW and EWRA reported to MHUUD until August 2012, when the Ministry of Water and Wastewater Utilities was formed. This ministry was reintegrated into MHUUD in July 2013. Through its subsidiaries, HCWW is responsible for treatment, desalination, transportation, distribution, and selling of potable water, as well as collection, treatment, and safe disposal of wastewater.

The transition of water companies under the umbrella of HCWW has been fraught with difficulties. Before establishment of HCWW, the local utilities reported to governors and were not accountable for financial performance. The sector suffered from decades of under-investment and poor operations and maintenance. Newly constructed plants and networks were often of sub-standard quality, and local utility managers had little control over capital budget allocations and investment decisions. These critical constraints were compounded at the operational level by fundamental issues affecting sustainability: unaccounted-for water, limited wastewater handling and disposal capacity, and poor cost recovery. Further, the newly established WWCs inherited bloated payrolls of the previous service delivery entities and faced severe organizational and staffing constraints.

On the positive side, the creation of HCWW provided local utilities with more autonomy in financial management and decision-making, including revenue retention for operations and maintenance and other operating expenses, along with more flexibility with staffing and incentive-based compensation. Although major construction is still largely centrally planned and managed by the Cairo and Alexandria Potable Water and Wastewater Organization and the National Organization for Potable Water and Sanitary Drainage, a few initiatives have indicated a shift toward locally planned and managed capital investments; namely, the "crash" capital investment program initiated in 2007 and the subsidiary-led management of projects funded by the European Union, the World Bank, and USAID's fixed amount reimbursement agreement (FARA) mechanism. Additionally, before the onset of the Egyptian revolution in early 2011, HCWW had begun to increase revenue from water, while avoiding the politically sensitive issue of domestic tariffs. Increases in tariffs for commercial and industrial customers and fees, such as the Beheira Water and Wastewater Company's information technology (IT) service charge, have helped enhance revenue. Some subsidiaries

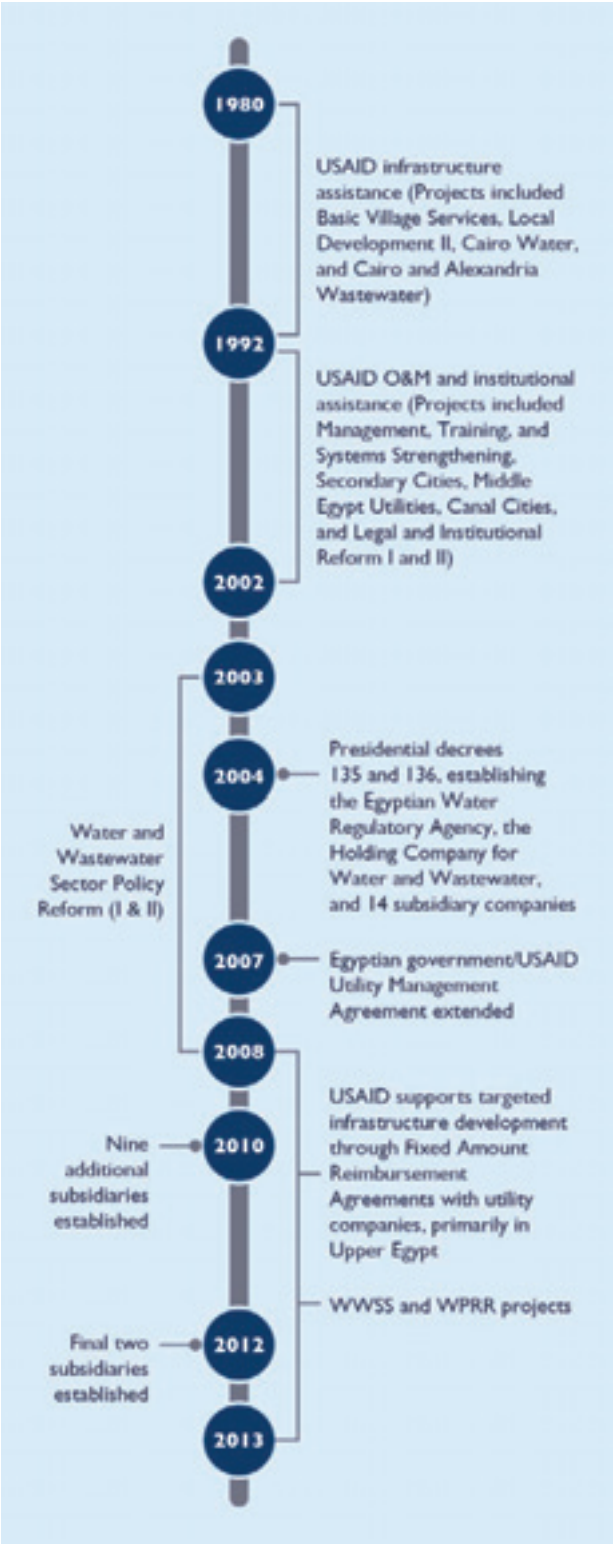
are now charging high-consumption users higher tariffs for all of their water, not just water that exceeds basic allocation "lifeline" limits.

Donor Assistance to the Sector

For more than 30 years preceding the reform, USAID/Egypt was the lead donor in the water and sanitation sector. Its work for most of that time focused on construction of facilities, but later programs addressed operational and institutional needs of utilities and, eventually, sector reform (see Exhibit 2). Since the reform, numerous other donors have signed on to support the sector. The most active are the World Bank, the European Union, *Kreditanstaldt fur Wiederaufbau* (KfW), and *Gesellschaft für Internationale Zusammenarbeit* (GIZ). Efforts that overlapped with WWSS included:

- The European Union provided some €80 million in budgetary support to the Ministry of Water Resources and MHUUD in the early years of WWSS to promote continued reform of the sector. Additionally, its Improved Water and Sanitation Program I, ongoing upon WWSS closure and co-funded by the Egyptian government, KfW, European Investment Bank, and *l'Agence Française de Développement*, works with HCWW and four Delta governorates to upgrade existing infrastructure, construct new sanitation infrastructure, and build management capacity, totaling €300 million in capital investment and €29 million in technical assistance funds. A second phase of the Improved Water and Sanitation Program is planned and will target four Upper Egypt governorates. The European Union also provides technical assistance to the EWRA and launched Phase II of this effort in early 2012.

Exhibit 2. Key Events and USAID Programs in the Water and Wastewater Sector



- GIZ was active in the sector throughout the life of WWSS through its Water and Wastewater Management Program, providing technical advisory services to HCWW on a wide range of issues, including business planning, HR, training, treatment plant management, and laboratory certification. It also provided targeted assistance to the Qena WWC in utility management and to the Kafr el-Sheikh WWC on rural sanitation infrastructure development. Through its InWEnt unit, GIZ also provided HCWW with capacity building and leadership training.

- *Kreditanstaldt fur Wiederaufbau,* the German bank for development, supports infrastructure rehabilitation and related procurement to strengthen the performance of operating subsidiaries and improve cost recovery. KfW is the lead financer of the European Union's Improved Water and Sanitation Program profiled earlier and administers the Qena Water and Wastewater Supply Project, which provides institutional and engineering assistance toward increasing cost recovery and rehabilitating infrastructure. KfW also considered providing soft loans to subsidiaries for purchase of energy-efficient technologies for water treatment, although this initiative has not seen any movement in the past year.

- The Dutch embassy funded the Fayoum Drinking Water and Sanitation Project, which concluded in Year 3 of WWSS after 20 years of assistance to the oasis governorate to improve coverage, quality, operations and maintenance cost recovery, and management capabilities at the Fayoum Water and Wastewater Company. The Dutch embassy also supported an Egypt/Dutch Water Panel and a bilateral think tank for water issues, and in October 2011, launched the Netherlands Initiative for Capacity Building in Higher Education program, aiming to deliver more competent technicians to the sector by strengthening technical high schools and utility training centers in four governorates.

- The World Bank-funded Integrated Sanitation and Sewerage Infrastructure Project, also supported by GIZ and the Swiss embassy, provides financing to the sector for wastewater infrastructure. The project was well underway in three Delta governorates upon WWSS closure. A second phase of this project, targeting four additional governorates, was designed and pending parliamentary approval. The World Bank also provided limited policy support through studies and workshops on a range of issues, including public-private partnerships.

- A Swiss-led component of the Integrated Sanitation and Sewerage Infrastructure Project, Egyptian-Swiss Research on Innovations in Sustainable Sanitation, undertook research and field testing on small-scale sanitation systems in Delta governorates.

- The Japan International Cooperation Agency, under its Improvement of Management Capacity in Operations and Maintenance program in three Delta governorates, supported development of standard operating procedures for water and wastewater treatment plants, and on leak detection and reduction activities.

- In addition, UNICEF supported HCWW and its regional utilities to build capacity in public outreach and communication. It also managed a revolving fund to finance house connections in cooperation with HCWW.

Baseline State of Counterparts

When the WWSS Program began in late 2008, it was a hopeful period for the water and wastewater sector. The Holding Company and its growing portfolio of subsidiaries were still enjoying momentum initiated by the 2004 reforms and were working determinedly to improve management and operational efficiency. With tariffs among the lowest in the world, covering the costs of operations and maintenance was a challenge, but select companies had reached this milestone and were providing an example for others. The Holding Company was focused on supporting the subsidiaries on their path to independence. To do so, it instigated institutional reforms and supplied systems to increase local autonomy and accountability, including, for example: master planning; staff training on operations, maintenance, and water quality testing; invoicing system development; project planning and implementation; and other tasks normally handled at the subsidiary level. Some of these tasks normally performed by the operating subsidiaries were viewed as temporary, in view of the relatively limited experience of the companies in autonomous self-management and the dearth of qualified staff at the operational level. HCWW expects these functions to devolve over time to its subsidiaries in order to concentrate on management of its portfolio of companies. Other important tasks for which unique expertise is found only centrally — matters of policy and compliance and initiatives where economies of scale make it more cost-effective to manage at the central level — are expected to remain within the realm of HCWW.

Sector Developments: 2009 – 2013

Although the progress made after the 2004 reforms is laudable, water and wastewater management remain important national priorities. Entities working in the sector receive significant attention from the public, as well as from the highest levels of political leadership. Improving sanitation service coverage is perhaps the most pressing issue, because coverage lags at about 11 percent in rural areas.[1] HCWW has made strides in this area by directing large-scale donor projects toward meeting sanitation needs and through development of the National Rural Sanitation Strategy. The comprehensive plan, drafted in 2008, estimates about 65 billion EGP of investment will be needed for a minimum of 15 years to reach 100 percent coverage in rural areas. The strategy's centralized approach was adopted by relevant agencies, but has stalled since the January 25 uprising due a sharp decrease in available funds.

In 2009, the government completed a new draft law for the water and sanitation sector, which received the prime minister's approval and was due for presentation to the parliament for adoption before the January 25 demonstrations, but has since been on hold as other issues have taken national priority. Also relevant at the national level have been ongoing developments with upstream neighbors about Nile River water allocation. Frustrated by their inability to receive concessions from Egypt and Sudan, in 2010, upstream countries negotiated their own revised Nile sharing treaty, removing from Egypt its traditional veto powers over upstream development, a treaty which most river basin countries have now signed. The resulting tension dissipated somewhat after January 2011, after which the interim government took a more cooperative and conciliatory approach to the ongoing discussions. No new agreement on allocating the Nile's flow has been reached, and worry is building again as Ethiopia moves forward with development of the Renaissance Dam, the largest hydroelectric power generation facility on the continent. Although these developments

[1] This figure is taken from fiscal year 2010 MHUUD statistics.

primarily affect Egyptian agricultural water use, they lend credence to ongoing water conservation efforts.

Internally, the Holding Company has undergone restructuring during the five years of the WWSS program. In 2010, it agreed on and adopted a new organizational chart, developed in cooperation with GIZ. Among other changes, the new structure raised the profile of HRD in the company. In addition, HCWW's early chairman, Abdel Kawi Khalifa, took a position as governor of Cairo in 2011, and the vice chairman for technical affairs was promoted to the chair position. Dr. Khalifa briefly rejoined the sector as minister of water and wastewater utilities until its dissolution in July 2013. Regionally, new chairmen were named in nearly every subsidiary in the country, sometimes two or three times, including each of the 13 governorates targeted by the WWSS program.

In an effort to improve the capital investment planning (CIP) process, HCWW developed master plans for water and wastewater in each governorate, which were combined into to a National Strategic Master Plan providing the basis for identifying investment priorities for the next 30 years. The master plan was intended to provide HCWW with data required to select, plan, and implement new investments to rehabilitate and expand infrastructure, and establish a sector-wide financing plan. The governorate-level master plans address urban and rural needs, with particular emphasis on rural sanitation. Since its development in 2009, the National Strategic Master Plan has been the Holding Company's guiding document for prioritizing infrastructure projects and has served as a common source of information for the utility companies and Egypt's National Organization for Potable Water and Sanitary Drainage, which still leads most capital investment efforts nationwide.

Impact of the January 25 Uprising

Although many of the aforementioned developments were significant steps forward for the sector, the mass demonstrations of January 25, 2011, dwarfed in impact everything that had come before. Despite unprecedented turbulence and the dramatic increase in strikes and demonstrations, the actual delivery of water and sanitation services was largely unaffected. The revolutionary events and subsequent rationing of government subsidies, however, have profoundly affected the sector on a variety of levels, particularly revenue collection, cost recovery, and operations and maintenance

In the wake of the protests that ousted former President Hosni Mubarak, there was considerable management turnover in the sector. As mentioned previously, HCWW Chairman Abdel Kawi Khalifa was appointed governor of Cairo in mid-April 2011. Staff at the Holding Company and most of its subsidiaries staged demonstrations and made demands, receiving concessions on most counts related to permanent tenure, incentives and allowances, salaries, and other benefits. HCWW was forced to replace many subsidiary chairmen, and most HCWW staff seconded to subsidiaries returned to Cairo. The situation was exacerbated by a drop in bill collection due to customer reluctance to pay and a fear by collectors of carrying large sums of money, leading to a reduction in revenues. Because government operating subsidies are also declining, the WWCs face a severe resource shortage, forcing them to decrease spending on maintenance of infrastructure and equipment and postpone new initiatives and reforms contained in their business plans. HCWW is exploring ideas for income-generating activities to bridge the resource gap, including bottling natural water and reuse of wastewater for agricultural purposes. These factors are likely to have a long-term

impact, especially on cost recovery, service pricing, and infrastructure maintenance, at a time of political uncertainty and dwindling fiscal revenues.

Events following January 2011 also slowed progress on a range of sector-wide initiatives. The draft water law is still pending, and the rural sanitation strategy has yet to be finalized. Other initiatives stalled for the immediate post-uprising period, but have since picked up. Operator certification development, for example, is well underway, with operators certified in three of the decreed 14 categories. Desalination efforts, which are lauded as a workable solution to Egypt's water scarcity problem, have seen movement in recent months; tendering is underway for a desalination plant in the Matrouh governorate, and two others (in the Red Sea and South Sinai governorates) are intended to follow. USAID is also planning to support five small-scale desalination plants in North Sinai through its FARA mechanism. Select other state-funded capital investments are progressing. A pipeline supplying Nile water to New Cairo is currently underway, and the upgrade to the Abu Rawash wastewater treatment plant in Giza, using a public-private partnership mechanism, is still being discussed, with seven firms already shortlisted and a ready request for proposals. The other public-private partnership investments planned before the 2011 uprising are on hold indefinitely. A number of infrastructure development efforts funded by the European Union and the World Bank are underway in the Delta, with both programs set to expand to Upper Egypt in their second phase.

SECTION II

OBJECTIVES AND APPROACH

Program Purpose and Objectives

The WWSS Program strengthened the capacity of national and regional water and wastewater companies to deliver high-quality services in a cost-effective fashion. By providing technical support in utility management, the program team assisted WWCs to implement recent Egyptian government reforms aimed at improving operational efficiency and financial performance. To achieve these goals, the program had four key objectives, taken from the task order scope of work:

- Increase financial and commercial viability of existing WWCs
- Help establish new regional water and wastewater subsidiaries
- Develop and implement a capital investment planning and program/project monitoring and management mechanism
- Build the capacity of staff, increase managerial, technical and operational efficiency, improve the quality of services, and expand access to water and sanitation

To reach the 13 subsidiaries (see Exhibit 3) in the program's scope of work, beginning in early 2010, staff refined the technical assistance approach to focus on high-impact/high-return activities, suspending unpromising and/or unsustainable initiatives.[2] As noted in the WWSS Board of Directors meeting on January 11, 2010, staff refocused program activities to concentrate on HCWW and subsidiary priorities in the following key areas.

- Business planning
- Human resource management and development
- Financial administration
- Capital investment planning and program management
- Unaccounted for water
- Operations and maintenance
- Communications and public outreach

The Chemonics strategy to achieve these objectives was built on the following four pillars:

Business planning as a central management and accountability tool. From the beginning of the program, business planning was used as a tool to focus the new WWCs on performance improvements and to guide their activities throughout WWSS years and beyond. The WWSS-targeted utilities were among the newest to form as companies, consolidated from the previous amalgam of units of local government, which had no financial independence or accountability. The transformed companies, despite inheriting the personnel and challenges of the previous era, were now held to rigorous corporate performance standards and expected to steadily progress on the path to cost recovery and self-sufficiency. To guide them, the

[2] The original WWSS contract scope of work included 12 subsidiaries: Assiut, Aswan, Beni Suef, Cairo, Daqahliya, Giza, Luxor, Matrouh, Menufiya, Minya, Qena, and Sohag. The 13th subsidiary, the North and South Sinai Water and Wastewater Company, was added through a contract amendment in November 2010.

WWSS program facilitated completion of the first-ever business plans by its targeted companies, for use as roadmaps and accountability tools, and subsequently referred to those business plans in cooperation with the local working groups (LWGs) to guide and prioritize interventions. (See Business Planning in Section III.)

Exhibit 3. Regions of WWSS Activity

Elevating human resource development and organizational change to strategic levels. The Egyptian government and USAID have made significant investments in sector infrastructure in the past, and the WWSS scope of work reflected the acknowledgement that equal investments must be made in human resources to manage and preserve those investments. With establishment of HCWW's first Human Resources Division in early 2010, along with HR divisions at each subsidiary company, HCWW elevated the human resource management and development function to a strategic level in the organization. WWSS supported this initiative by developing first-ever HR management and development strategies for the Holding Company and its subsidiaries and by providing technical assistance in human resources catered to each company's needs. WWSS also aimed to develop a new generation of managers capable of guiding the utilities forward as commercially oriented, financially accountable service providers. These efforts included management and leadership programs

for entry-, mid-, and senior-level utility professionals. By sowing seeds of change in motivated personnel at all levels of the company, WWSS contributed to an ongoing culture change in the sector, from a governmental culture to a customer-oriented, financially accountable company. (See HR Management and Development and Leadership Development in Section III.)

Flexibility and prioritization of interventions: customer-driven, flexible, and responsive ability to address urgent priorities as the sector evolves. With 14 companies as partners, each in a different stage of development, WWSS aimed to maximize impact by catering its activities to the particular needs of each company, while also limiting its "menu of options" to a discrete number (see bulleted list on page 11). The uptake of program approaches was not always consistent across the companies, and to the maximum possible extent, WWSS directed its resources toward those activities that were most promising in each location, while not compromising the overall attention devoted to each partner. Finally, following the January 25 demonstrations, flexibility was paramount, as the WWSS team coped with work interruptions and strikes at its partner utilities, as well as train service disruptions and road blockages. The program updated travel schedules on at least a weekly basis and redirected efforts to the most hospitable venues.

Leveraging partners' expertise and the resources of other technical assistance providers. Egypt's water and wastewater sector benefits from support of international donors, some of whose scopes of work tie closely with that of WWSS. To avoid redundancy and maximize use of resources, WWSS was proactive in coordinating with relevant programs, including those of GIZ, the Dutch embassy, UNICEF, the Swiss Fund, Japan International Cooperation Agency, and the World Bank. WWSS played a lead role in bringing together donor projects across the sector and hosted meetings with multiple donor programs to discuss areas of collaboration.

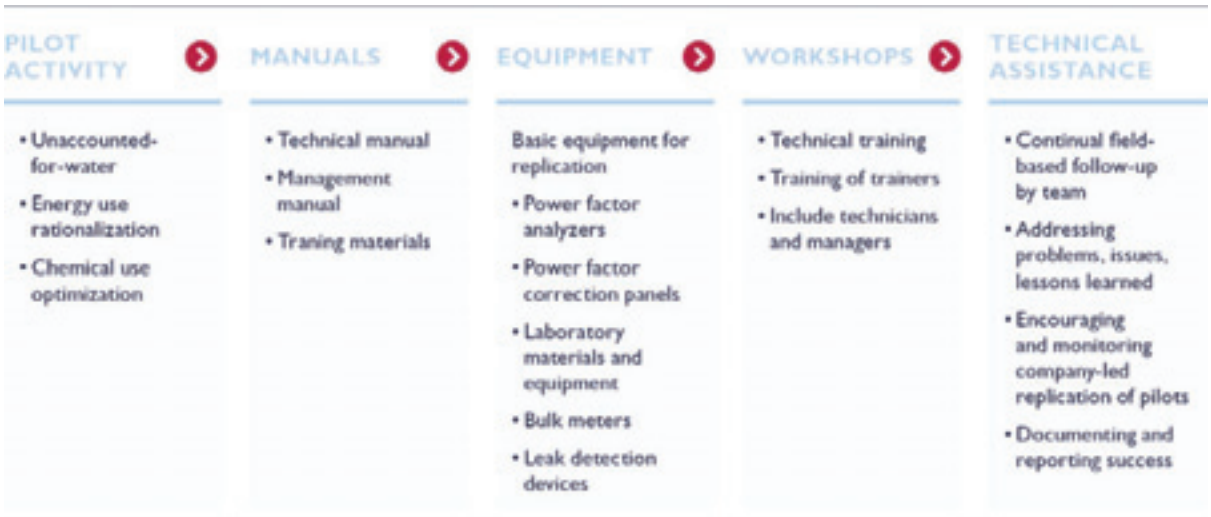
Approach to Technical Assistance

As the last in a long line of USAID institutional strengthening programs in the water and wastewater sector, the WWSS Program focused on sustainability from Day 1. Arguably viewed as the mission's exit strategy from the sector after more than 30 years of assistance, WWSS focused early and intensely on sustaining program interventions — and USAID's investment from previous projects — after the program's close.

Beginning in Year 2, the WWSS team adopted a capacity building approach that coupled technical improvements with financial gains and, most importantly, ensured the companies' ability to sustain the improvements. The program began by identifying and testing a package of critical, high-impact interventions and then developed mechanisms to sustain those interventions in the future. The approach typically started with a pilot activity, during which a problem was diagnosed and a solution tailored. Drawing on the lessons learned from the pilot, results and techniques were documented in technical reports, how-to manuals, and other training materials to facilitate training and future reference. The program complemented this with classroom sessions, training-of-trainers, and/or on-the-job training to ensure that concepts were well understood and eventually re-applied in a consistent fashion. In the case of planning, finance, and HR administration activities, the emphasis was on introducing new management concepts, while ensuring compliance with HCWW procedures and Egyptian government rules and regulations. This was done through periodic on-site technical assistance, including on-the-job training, and formal classroom learning, complemented with

manuals and software programs. In the case of technical activities, the emphasis was on improving efficiency and reducing costs, and related equipment was provided for the companies to carry the activity forward. This approach is summarized in Exhibit 4.

Exhibit 4. Technical Assistance Approach



Use of joint working groups. As WWSS moved into Year 3, with a number of successful pilots concluded, the program focused on formation of local working groups to facilitate the company-led replication of the pilots. The LWGs, which consisted of senior utility executives, WWSS Program staff, and HCWW counterparts, were responsible for joint planning, implementation, and monitoring and evaluation of WWSS-sponsored activities. They also served as the seeds of sustainability, where WWSS cultivated champions of the business plans and in-house expertise at the companies with the skills to carry activities forward. The role of the LWGs is discussed further in Section III.

Emphasis on efficiency improvement. The Egyptian water and wastewater sector operates under restrictive pricing policies, where tariffs are considerably less than the cost of operations, maintenance, and capital investments. Consequently, service providers depend on public subsidy, which itself decreased over the life of the WWSS Program. In this environment, WWSS identified a package of activities to reduce company costs and improve financial viability. Following successful pilots in energy use rationalization, chemical use optimization, and reduction of UFW, WWSS developed robust programs in these areas, along with user-friendly maintenance management software to improve plant operations. Following the technical assistance approach outlined above in Exhibit 4, program staff combined intensive training with equipment purchases and ongoing technical assistance through the end of the program, when many of the targeted companies were sustaining these efforts on their own.

SECTION III

SUMMARY OF ACTIVITIES

Business Planning

Background. For generations, Egypt's water and wastewater utilities were an amalgam of units of local government, with no financial autonomy and minimal accountability. This changed with the 2004 sector reform, which established a national Holding Company and consolidated regional utilities into its subsidiaries, some established as recently as 2012. The transformed companies, despite inheriting challenges of the previous era, are held to rigorous corporate performance standards and expected to steadily progress on the path to cost recovery and self-sufficiency. To guide them, the WWSS Program facilitated completion of the first-ever business plans by 11 of the water and sanitation companies.

> ***"The business planning process was an excellent opportunity to get away from our daily work, which focuses on putting out fires, to plan for the future of our Company. It's been a privelege to gather with leaders from across the Company with WWSS support to analyze our situation. Under the current circumstances in Egypt, our strategy is focused primarily on achieving financial balance."***
>
> ***— Engineer Mahmoud Nafea, chairman, Sohag Water and Wastewater Company***

Summary of WWSS activities. To the WWSS team, the process of developing the plans, summarized by the milestones in Exhibit 5 below, was as important as the resulting plan documents. The approach was participatory, involving company managers and decision-makers each step of the way and insisting that they themselves put pen to paper to draft plan sections and pull together data and other inputs. Introductory sessions, led by the WWSS business planning team and targeting senior utility executives, covered the importance of the business plan, establishing the company's vision and mission and conducting an analysis of their strengths, weaknesses, opportunities, and threats. The subsequent workshops involved middle- and upper-level managers and drilled down further to outline priorities and activities at the level of each organizational unit. WWSS advisors then provided technical assistance through periodic field visits. As outlined in Exhibit 5, five plans were initiated in Year 1, three in Year 2, and three in Year 3. Most of the plans were completed by the end of Year 2.

Once the plans were complete, WWSS continued to promote updates and use of the plans for ongoing planning and monitoring of activities, primarily through formation of local working groups (see box on the next page) and annual action plans at each participating company. The team monitored progress against the plans through quarterly subsidiary assessments and assisted with plan updates when possible. In Year 5, staff worked with WWCs in Sinai and Sohag to complete a second version of their business plans, using a streamlined format and adjusting the plans' goals and objectives, considering the increased resource constraints facing the sector.

Exhibit 5. Utility Business Planning – Key Milestones

Business Planning Milestone	Company/Governorate										
	Menufiya	Assiut	Giza	Luxor	Sohag	Qena	Aswan	Beni Suef	Minya	Matrouh	Sinai
Planning Workshop	Jun 09	Jun 09	Jun 09	Jun 09	Jul 09	Feb 10	Jul 10	Sep 10	Nov 10	Jun 10	Dec 10
Technical Assistance	Dec 09	Dec 09	Feb 10	Feb 10	Mar 10	Apr 10	Aug 10	Sep 10	Nov 10	Sep 10	Aug 11
First Draft Completed	Dec 09	Dec 09	Mar 10	Mar 10	May 10	May 10	Sep 10	Sep 10	Nov 10	Oct 10	Sep 11
Review/Buy-In Workshop	Jan 10	Jan 10	Feb 10	Mar 10	May 10	Jun 10	Sep 10	Sep 10	Nov 10	Jan 11	Nov 11
Final Draft Completed	May 10	May 10	May 10	May 10	Jun 10	Jun 10	Sep 10	Oct 10	Nov 10	Jan 11	Nov 11

Note: 09 stands for 2009, 10 stands for 2010, and 11 stands for 2011.

Results, lessons learned, and recommendations. The results of the business planning activity were twofold. First, 11 companies were left with thorough plans to use as roadmaps for their future. Second, thanks to the participatory processes used for planning and monitoring activities, company leaders were proud of the plans, understood the programs and priorities outlined therein, and were more likely to use them as accountability tools.

For most of the targeted companies, the WWSS-supported business plans represented a first-ever company-wide planning exercise. Utilities in Minya and Beni Suef had participated in donor-supported strategic planning activities, but the resulting plans were not used for management or subsequently updated. The participatory nature of the WWSS-supported activity improved on this experience, by involving a cross-section of company leaders in the process and ensuring buy-in each step of the way. Further, WWSS promoted ongoing use of the plans by using them as a basis for its own work plan and monitoring their implementation through the local working groups.

The WWSS-sponsored business planning workshops were the first time multiple departments got together to define long-term strategic goals and shorter-term objectives, taking into account demographic and economic trends and other considerations. This approach took significant time and level of effort, but resulted in plans that enjoyed wide support and were subsequently used as guidelines and monitoring tools. However, the initial plans often suffered from undue optimism with respect to resources at the disposal of their utilities and were ambitious in setting their medium-term targets and the programs to achieve them.

Local Working Groups – A Tool for Capacity Building and Sustainability

The WWSS regional team leaders facilitated formation of local working groups in each participating region, made up of senior utility managers and WWSS staff. The purpose was to create a joint WWSS-company team for planning, implementing, and monitoring shared activities. Because WWSS work plans were drawn from utility business plans to the maximum possible extent, LWG members were also often highly involved in developing and monitoring their companies' business plans.

The LWGs proved to be a key tool for sustainability of WWSS activities. By involving members of beneficiary companies in planning and implementing activities, WWSS built their technical capacity and ensured their buy-in on critical efficiency improvement activities. By the end of the program, a number of LWGs were meeting without any WWSS presence or intervention and continuing to track their companies' progress against established business plans.

To address these shortfalls, the program stressed simplicity and realism in its second-round business planning effort with select companies in Year 5. The resulting documents, completed for utilities in Sinai and Sohag, were short and to the point, clearly acknowledging strengths and shortcomings of the authoring institutions, and given the severe shortage of resources, succinct in the number of priority programs. The revised plans also included an enhanced performance indicators section, complete with quantitative baselines and targets for improved monitoring and accountability.

The second-generation business plans for the Sinai and Sohag WWCs can be used as models for other companies in the sector and as monitoring tools for utility and Holding Company management. Business plans should be emphasized as the sector develops, especially considering the severe resource constraints, because they provide a mechanism for prioritizing critical activities, stressing efficiency and performance measures, and enabling boards of directors to hold company leadership accountable.

HR Management and Development and Leadership Development

Background. Discussions of HRD in the Egyptian water and wastewater sector are rife with what appear to be contradictions. If you listen closely, you will hear refrains of "overstaffing" in the same breath as "lack of staff" and "burden of tenured employees" spliced with "difficult to retain employees." Still more, the utilities describe their "aging workforce" while lamenting "young and inexperienced staff." In fact, all of these notions contain some truth. The HCWW subsidiaries have too many employees, but too few skilled technicians and professionals. They have a disproportionately large elder generation soon to retire and a new generation in need of mentors, with a deficit of mid-level professionals.

> ***"It was an amazing course. As a non-technical person, I learned so much and particularly appreciated the opportunity to learn about the technical operations of my company. I was able to apply what I learned by participating in the company's business planning process."***
>
> ***— Tamav Boushra Sedki, head of the Planning Department, North and South Sinai Water and Wastewater Company, and Professional Development Program course participant***

Many of these conditions date back to the pre-reform era, when university graduates were guaranteed jobs in public institutions. This continued until the mid-1980s, resulting in government entities, including utilities, with bloated payrolls and staff with skills mismatched to the task at hand. A hiring freeze followed. Then, under the sector reform of 2004, the utilities were consolidated into autonomous companies, inheriting the employees and challenges from the old system. After the uprising of January 25, 2011, strikes and sit-ins touched nearly every company and were often resolved in favor of the employees, with concessions on increased salaries and allowances, tenured positions, and other benefits. The next decade will also see large numbers of retirements — up to 60 percent of staff in some cases — and junior-level staff lack mentors and professional development opportunities. It remains difficult to attract and retain highly qualified professionals, and many prefer lucrative opportunities in the private sector or abroad. All the while, water and wastewater infrastructure has expanded, and demand for service has increased, further underscoring the need for professional technicians and managers.

HCWW recognized the need to invest in the sector's human resources when, in early 2010, it established its first Human Resources Division, along with HR and training divisions at each subsidiary company. Whereas HR functions were previously limited to payroll and benefits processing, the 2010 reorganization brought expectations of a more robust HRD function to attract, develop, retain, and efficiently manage the sector's growing workforce.

Summary of activities. WWSS supported this initiative on two general fronts: 1) building the capacity of the new utility HR divisions and 2) developing and implementing leadership development and other training programs for promising sector personnel.

Capacity building of company HR divisions. WWSS activity in this area focused primarily on the subsidiary companies, as GIZ's Water and Wastewater Management Program team worked intensively with the Holding Company's HR Division. GIZ's dedicated team of consultants, co-located at HCWW's offices, focused on capacity building of HR staff as well as development of company- and sector-wide policies and procedures for a wide range of HR issues, including recruitment management, career path development and promotion, and management training. In close coordination with HCWW and GIZ, the WWSS team assisted at the national level only on targeted activities where the GIZ team was not working, including supporting multiple HCWW HR team members to obtain HR diplomas from the American University in Cairo. Also, in 2010, the WWSS team worked with the new Holding Company HR Division to develop its first-ever HR strategy. The process helped it structure its new division, clarify its role vis-à-vis the subsidiary companies, and outline medium-term and annual goals in the functional areas of organizational design, training and capacity building, recruitment management, performance management and evaluation, HR policies and procedures, HR information systems, HR planning and budgeting, and employee morale and welfare. The strategy identified the need for additional work in the area of employee performance management and evaluation, so, at the request of HCWW, WWSS also stepped in to assist with development of an employee performance monitoring and evaluation system. The comprehensive system, developed by WWSS in 2011, linked employee performance with compensation, bonus incentives, and annual salary increases, and consisted of three elements: 1) a performance agreement between the employee and his or her supervisor, (2) an internal evaluation form to be completed by the employee and the supervisor, and (3) a performance and development plan. WWSS also assisted with outlining the accompanying incentive and bonus scheme and developed an action plan for how to test and apply all elements of the new system. The HCWW quickly took ownership of the system and piloted it in 2012 with its HR Division staff.

At the subsidiary level, WWSS developed a more comprehensive approach to launching the new HR divisions, beginning with a series of HR training and planning workshops. Conducted for each of the 12 targeted companies, the series began with an

Assistance in Organizational Design

The Sinai Water and Wastewater Company, added to the WWSS scope of work in Year 3, is unique in that it covers two governorates (North and South Sinai), both of which consist of vast, rugged terrain and a widely dispersed population. Accordingly, its offices and personnel are scattered across great distances, making centralized management by the utility headquarters problematic. This theme was prominent in the business planning process with the company and became central to WWSS' HR-related technical assistance.

With WWSS support, the Sinai Water and Wastewater Company developed and fully implemented a decentralized organizational structure — a first in Egypt, where centralized management is still the cultural norm. WWSS facilitated a series of meetings with the company's geographic and administrative divisions to develop the structure and then supported development of clear lines of authority and mandates for the units. Since its implementation, the company chairman has progressively delegated more authority to the three geographically oriented divisions.

overview of HR concepts, focusing on a holistic approach to HR management from recruitment to career path planning to performance appraisal and incentives and promotions. Subsequent sessions focused on structuring HR divisions, and developing associated documentation, such as departmental organizational charts, mandates, and job descriptions, samples of which can be found in the Organizational Guide for HR Divisions in Egypt's Water and Wastewater Sector (See Annex E, Serial No. 93). The working sessions with each company culminated in development of their first-ever HR plans, each of which included 1) an assessment of the company's current HR practices using a standardized format, 2) a clear link to the company's business plan, and 3) an actionable plan, including tasks, responsibilities, timelines, and estimated budgets. This planning process was staggered for the utilities, with the earliest beginning in December 2009 (Year 2), and all 12 plans completed by the end of Year 3.

Following completion of the plans, the WWSS team customized assistance to each company's needs, identifying priorities from their plans in cooperation with company and HR division leadership. The package of assistance included support with company- and department-level organizational charts, mandates for organizational units, employee position descriptions, staffing analysis and planning, training planning and monitoring tools, and installation and operation of HR information systems. In two regions, the program coupled this technical assistance with establishment of on-site training facilities, along with procurement of equipment and furniture. Exhibit 6 below shows which of the activities in this HR technical assistance portfolio was implemented in each company in the scope of work. The automated HR information system, provided to the nine WWSS-targeted companies that did not have one, enables streamlined management of all employee data and links to the company's financial management system through its payroll module. WWSS assistance began with installation of the system and continued through a three-phased technical assistance approach, including intensive training for users and administrators and ongoing support via the local software vendor. Additional discussion of the suite of linked automated management systems provided by WWSS to the companies can be found in Financial and Commercial Management below.

A participant in the Junior Professional Development Program presents her group's work. The program provided nearly 60 promising water sector professionals with career counseling and professional development.

To the maximum possible extent, WWSS consolidated its experience with utilities into general manuals for distribution and use nationwide. For example, after conducting staffing planning exercises with utilities in Giza, Assiut, and Menufiya using a variety of approaches, WWSS HR advisors documented the most effective approach in the Guidelines for Developing Utility Staffing Plans (See Annex E, Serial No. 162). The Organizational Guide for HR Divisions, mentioned above, is another example and was distributed to all 12 WWSS-targeted companies. In Sohag and Sinai, where WWSS established and equipped three training facilities, program advisors supported launch of the facilities by assisting with development of training plans, training databases, monitoring and evaluation tools, and a stock of training materials, drawing on WWSS training resources.

Exhibit 6. WWSS Technical Assistance in HR, by Regional Water Company

	Assiut	Aswan	Beni Suef	Cairo	Giza	Luxor	Matrouh	Menufiya	Minya	Qena	Sohag	Sinai
HR Plan Development	x	x	x	x	x	x	x	x	x	x	x	x
Staffing Planning*	x	x			x			x			x	
Organizational Design (Organizational Charts, Mandates, Job Descriptions)	x	x									x	x
HR Information System	x	x		x	x	x	x			x	x	x
Establish Training Facility											x	x

*As part of the WWSS-supported business planning activity (see Business Planning above), the 11 targeted companies conducted basic analysis and planning of staffing levels. The five companies noted here went beyond this and engaged in in-depth exercises to analyze past, current, and future staffing levels at each organizational unit.

Leadership development and other training programs. The water and wastewater companies targeted by WWSS are new entities, all formed within the last decade. As commercially oriented companies, they require a new generation of managers who understand all aspects of the water and wastewater business and their companies' vision of a customer-oriented, financially accountable service provider. WWSS supported this culture change through three parallel training programs for promising sector personnel (see Exhibit 7 below). First, a certificate program, developed in cooperation with the American University in Cairo, was initiated in Year 2 and began graduating utility professionals in July 2011 (Year 3). A total of 27 managers from Egypt's utilities graduated with WWSS support. Based on the success of this program, and the demand for leadership development at other layers of utility management, the program developed similar courses for junior- and mid-level professionals in Years 4 and 5, respectively. These programs aimed to nurture and retain promising professionals at the companies. The intensive, interdisciplinary courses, which were part education and part professional mentoring, consisted of modules covering all aspects of utility operations, as well as field visits and team-based assignments. By sowing seeds of change within motivated personnel at all levels of the companies, WWSS contributed to a shift in the sector, toward management of utilities as independent businesses, accountable to their leaders and to the public.

WWSS undertook a myriad of other training activities, linked to the technical activities in the following sections. In line with the WWSS technical approach (see Exhibit 3), training was generally linked to a technical assistance activity and was part of a longer continuum of assistance linked to practical application. A case in point is the training-of-trainers (TOT) program, which was the major thrust of the Year 3 work plan and embodied the program's approach to institutionalize WWSS technical interventions in targeted utilities. The intensive program covered three areas, deemed of potential high impact/high return: leak detection and reduction, energy use rationalization, and chemical use optimization. The two-phase TOT consisted of a technical component to refresh the subject matter knowledge of prospective trainers, followed by "soft skills" training on design, delivery, and monitoring of training programs for trainers, selected from the pool of technical trainees. Additional information on the TOT program is included below in Efficiency Improvement.

Exhibit 7. Leadership and Professional Development Programs Developed by WWSS

Course Name	USAID-AUC Certificate Program for Water and Sanitation Utility Executives		Professional Development Program for Mid-level Utility Personnel		Professional Development Program for Junior-level Utility Personnel	
Target Audience	Senior managers and decision-makers		Mid-level managers of teams, units, or departments		Newly hired junior-level utility personnel	
Number of One-Week Modules	Nine		Five		Five	
Module Numbers and Contents	1	Legal and Regulatory Framework	1	Technical, Regulatory, and Legal Framework of the Sector	1	Program Orientation and Sector Legal, Regulatory, and Institutional Framework
	2	Strategy Development and Corporate Planning	2	Comprehensive System for Water and Wastewater Treatment	2	Technical and Engineering Aspects of Water and Wastewater Treatment
	3	Organizational Development and HR Management	3	Project Planning and Financial and Information Management	3	Quality Control System of Water and Wastewater Treatment
	4	Project and Construction Management	4	Business Planning and HR Management	4	Planning, Financial Affairs, IT, and Human Resources
	5	Information Systems and Technology	5	Communication Skills, Customer Service, and Program Wrap-Up	5	Communication Skills, Customer Service, and Program Wrap-Up
	6	Operations and Maintenance	Each of the above modules contained management skill-building sessions.			
	7	Capital Investing, Contracting, and Outsourcing				
	8	Customer Service and Public Outreach				
	9	Financial Management and Business Analysis				
Number of Graduates	27		34		59	

A summary of all WWSS training courses implemented can be found in Annex H, along with descriptive statistics of the types of course by region and by sex of participants.

Other HR development activities. The original WWSS task order scope of work included as deliverables a series of international study tours and attendance at international conferences. We began this effort in Year 1 with a six-day tour to Jordan on July 25-30, 2009, focused on best practices in utility management and business planning. The tour's seven participants were drawn from the Holding Company and five of its subsidiaries, focusing on chairmen and other senior leaders. The delegation visited the Amman Water Company (Miyahuna), considered one of the best-managed and -operated utilities in the region, for a detailed look at its business planning process and related activities.

In February 2010, HCWW Chairman Khalifa and Deputy Chairman Raslan attended the American Water Works Association/Water Environment Federation Utility Management Conference in San Francisco, California with support from WWSS and combined this trip with an observational study tour of relevant U.S. institutions, including USAID and the U.S.

Environmental Protection Agency in Washington, D.C., and the Denver Water Company and American Water Works Association headquarters in Denver, Colorado. The two participants reported that they benefitted from all of the visits, particularly those at the Denver Water Company, where they learned of the company's techniques in financial management, managing UFW, and HR management and development.

The third and final WWSS observational study tour spanned September and October 2010 for a group of senior leaders from the Holding Company and the Cairo Water Company, led by HCWW Deputy Chairman General Sayed Nasr. The trip concentrated on technical and engineering aspects of utility operations and included visits to relevant organizations in New England, including the Massachusetts Water Resources Authority, New England Water Works Association, Narragansett Bay Commission and Providence Water Supply Board in Rhode Island, and Boston Water and Sewer Commission.

Subsequent study tours and travel to conferences were postponed at the request of HCWW and with the concurrence of USAID following the events of January 2011, while program funds were directed to more urgent tasks, including the Job Creation through Essential Service Delivery activity, described below in Capital Investment Planning and Program Management. The related contract deliverables were formally removed from the task order scope of work through modification five, signed in September 2011, and modification eight, signed in April 2012.

Results, lessons learned, and recommendations. At a time when the concept of human resource management was changing in Egypt's water and wastewater sector, the WWSS team provided critical assistance to nascent companies on launching HR functions. Thanks in part to WWSS support, the divisions' structure and mandates are clear, and staff have the tools they need to build robust human resource management and development functions at their companies. This significant organizational change, however, takes time and was not concluded at the close of WWSS. The organizational tools developed by WWSS must be pushed out to all organizational and geographical units of the companies so that each employee, whether in a pumping station in a rural area or in the company headquarters, knows his or her role and how it fits into his or her unit and into the company's structure and strategy. The two-plus years of ongoing revolution have dealt a blow to these efforts. Just as the new companies were beginning to shed their public sector legacy of tenured staff and oversized payrolls, the popular uprising and its aftermath saddled them with even more "permanent" staff, and managers steered away from any reforms that could draw the ire of the feisty public or of employees. Ongoing leadership and support from the Holding Company is also critical, and the continuation of GIZ's assistance in this area is a good sign.

With its leadership development and training activities, WWSS put in place a solid foundation for attracting and nurturing high-caliber staff to the water and wastewater sector. These courses and others should be continually offered and complemented by strong recruitment and professional development programs. Again, many of HCWW's activities are encouraging. For example, it supports a tailored degree program at Cairo University and four technical secondary schools across the country, and is collaborating with GIZ to develop clear career paths in the sector linked to training programs and professional development opportunities.

Efficiency Improvement

In the Egyptian water and wastewater sector, service tariffs are decreed by the central government and have barely changed in decades. They are extremely politically sensitive, and there is widespread resistance by governmental officials to tackle the issue. Current tariff levels are significantly lower than the cost of operations and capital investments, and this gap grew during the WWSS Program, especially after the uprising of January 2011, as costs increased and public subsidy decreased. To support the water and wastewater companies in coping with this growing challenge, WWSS focused on cost-reduction and efficiency-improvement activities in the targeted companies in three areas: leak detection and reduction, energy use rationalization, and chemical use optimization. In Year 2, the team initiated pilots for all three activities in 10 companies, most of which were completed by year's end with the exception of the leak detection work, for which the pilots continued into Years 3 and 4. In most cases, the low-cost pilots demonstrated significant potential savings from the work. For example:

Engineer Ensaf Abdel Raheem and her colleagues at the Sohag utility were active in WWSS-supported programs in energy use rationalization, chemical use optimization, and leak detection and reduction. Under the latter program, company engineers replicated the WWSS pilot approach in five additional areas, saving nearly 300,000 EGP in just two months. Company-led work was ongoing in additional areas upon WWSS closure. Similarly, after the WWSS energy use rationalization pilot in its Needa water treatment plant, the company installed similar corrective equipment in two additional plants and reported savings in the subsequent year of more than 18,000 EGP.

"The WWSS Program gave us the perfect opportunity to re-examine our practices related to efficient operations and maintenance. We worked with them on a range of experiments that saved us money without harming the quality of water produced, and, based on their success, have repeated the activities in numerous sites and incorporated them into our 2013 – 2017 business plan to ensure that they continue."

— Engineer Ensaf Abdel Raheem, head of the Planning Division, Sohag Water and Wastewater Company

- In the area of **energy use rationalization**, the mere installation of corrective equipment in treatment plants led to significant reduction in electricity bills, covering the cost of the corrective equipment in less than one year on average.

- A single **leak detection** pilot program in the city of Luxor reduced water losses from 50 percent to 18 percent of produced water in the designated area, and similar outcomes were achieved in pilots conducted in five additional governorates.

- **Chemical use optimization** studies in 10 treatment plants projected water quality improvements in nine of the 10 plants by adjusting chemical doses used in treatment, with up to 1.8 million EGP in annual savings per plant.

The successful demonstration projects were followed by technical training for more than 600 individuals and training of instructors for 179 of the top trainees. The WWSS-trained instructors then rolled out their own courses, which numbered more than 130 training sessions at last count. WWSS also provided necessary technical equipment and supported

utility-led replications of pilot projects, which have yielded positive results. A single replication of the chemical use optimization program, for example, maintained water quality in line with Egyptian standards while saving more than 75,000 EGP on chemicals per month. Complete details on pilot results, training and equipment provided, and results of utility-led replication activities can be found in Annex D.

Engineers from the Aswan Water and Wastewater Company practice using leak detection equipment. WWSS provided such equipment as part of a robust training and technical assistance program to reduce water leakage at the assisted companies.

Results, lessons learned, and recommendations. The selection of specific efficiency-improvement and cost-reduction activities late in Year 1 proved to be a turning point in the WWSS life cycle, leading to positive results for the beneficiary companies. With an extremely broad scope of work and 13 enormous institutions to support, this package of activities directed the program's efforts in a concentrated fashion to areas where tangible improvements were made in the short and medium terms. As expected, the demonstrable improvements were replicated by the companies in additional locations and continue without WWSS support in many of the targeted companies.

However, replication of the activities was inconsistent across the companies, leading to uneven results. As noted in USAID's Performance Evaluation Report of February 2012, "Through flexible and responsive technical support, the Contractor has helped to directly contribute toward cost-effective service delivery improvements through energy efficiency improvement pilots, chemical optimization, and leak detection. However, there are important weaknesses in WWSS implementation to date: Firstly, a lack of clear documentation of the impact of WWSS efforts on subsidiary-wide performance improvements…."

Widespread replication of the activities suffered from two primary constraints: lack of resources and the absence of incentives and accountability mechanisms. In the first case, availability of funds for associated equipment was the main hurdle, because all the companies are facing extreme financial distress. For example, in energy use rationalization, the utilities continually used the WWSS-provided analyzers to monitor their power use, and WWSS-trained instructors conducted extensive in-house training after the TOT program. The next step, to purchase corrective equipment to adjust power usage at key facilities, was undertaken by some, but not all companies, and the latter group cited a lack of funds as the reason. Management buy-in and incentives also played a role. In Minya, for example, the sudden termination of a modest incentive program resulted in the halting of an otherwise successful leak detection and repair program. Simple, inexpensive defective parts are often difficult to replace due to a combination of lack of funds and cumbersome procurement procedures.

These challenges merely underscore the importance of the efficiency improvement activities, however, as the sector moves forward. With tariff constraints, limited subsidies, and increasing demand, the utilities will have to do more with even less. Programs like these that pay for themselves should be commonplace, and WWSS training materials and equipment

are available for use in spreading them further. Incentives linked to savings and performance should be instituted to spur the programs further and indicate management buy-in.

Facility Operations and Maintenance

Background. Treatment plant operations are arguably the core function of a water and wastewater utility company. The plants and their auxiliary facilities (pumping stations, intake infrastructure, major distribution and collection lines, etc.) are home to the production of potable water or the disinfection of wastewater, which are the essential services provided to customers. Egypt's water and wastewater infrastructure is vast, reflecting billions in investment by the national government, with support from international donors. Although the extent of this infrastructure and the resulting high levels of service across the country are impressive, Egyptian water and wastewater companies must maintain this equipment and continually improve operational efficiency to meet the demands of a growing population while controlling costs and protecting their precious Nile River resource.

Summary of WWSS activities. During its five years of implementation, the WWSS Program developed a series of tools to improve operations and maintenance of water and wastewater treatment facilities, from company-wide planning and budgeting of O&M activities to plant-level instructions and automated maintenance task management. The suite of WWSS tools includes:

- An Arabic-language, user-friendly computerized maintenance management system, branded as the Maintenance through Systematic Tracking & Equipment Repair (MASTER) Program to help utilities plan and monitor maintenance tasks. This low-cost, lightweight software generates and tracks work orders for routine maintenance tasks, emphasizing preventive maintenance to reduce equipment downtime. It also tracks labor deployments and spare parts usage, and its reporting functions are used at the plant and headquarters levels to plan those and other resource allocations. WWSS collaborated with the Dutch-funded Fayoum Drinking Water and Sanitation Project team, who were looking for such a system for their counterparts in the Fayoum Governorate and thus agreed to serve as a test case for MASTER, adding significant value as the system was refined. WWSS advisors installed the system in 17 pilot plants in 12 companies, while providing training, user and administrator manuals, and ongoing technical assistance. Utility staff subsequently rolled out the system to an additional 102 known facilities. To sustain the system, comprehensive user and administrator manuals were developed (see Annex E, Serial Nos. 119 and 120), and extensive training and assistance was provided to an HCWW team designated to support the application going forward.

- Detailed standard operating procedures (SOPs) manuals for 10 plants (seven water, three wastewater). SOPs served as a comprehensive training tool and reference for plant personnel on proper operation of all plant equipment.

- Illustrated, laminated poster-size operating instructions for 30 plants in eight governorates, along with an easy MS Office-based tool for company staff to replicate them in additional plants.

- Thorough, bottom-up company-wide O&M plans and budgets for three companies.

- Comprehensive assessments of 35 plants (12 water, 13 wastewater) in the four companies targeted by the Year 5 work plan. This activity was added in the final year of the program to provide practical, immediately actionable recommendations as the companies faced a worsening financial situation and were forced to do more with less, often cutting expenses on maintenance and rehabilitation. The purpose of the assessments was to document the general state of the largest treatment plants in each governorate, identify maintenance and rehabilitation needs, and propose low-cost priority interventions. Each report included a thorough presentation of the plant's physical assets and treatment process, including the laboratory and the electrical system, and detailed assessments of the technical functions, occupational health and safety practices, HRD needs, and gaps in the plant's documentation and record keeping practices. A brief follow-on recommendations report for each plant outlined recommended actions, and all findings and recommendations were presented and discussed with appropriate staff at HCWW and the participating subsidiaries.

- Guidance on contracting mechanisms for outsourcing O&M work, particularly for wastewater treatment facilities (See Annex E, Serial No. 81). This manual was requested by the Holding Company to provide their subsidiaries with tools and templates to outsource O&M services for their most sophisticated treatment plants. It was distributed to all participating utilities on various occasions, presented to and discussed with utility chairmen and O&M staff, and incorporated into the 18-month Capital Investment Planning and Program Management training program along with all WWSS guidance on contracting (see Capital Investment Planning and Program Management below).

Rollout of the above tools was accompanied by training, and all such training activities are summarized in Annex H. Worth particular mention are two robust courses offered on water and wastewater treatment plant operations and maintenance, in conjunction with the plant assessments mentioned above. The five-day courses — one for water, one for wastewater — were designed and delivered at the request of a number of subsidiary chairmen to address the gaps identified in the plant assessments. A combination of classroom training and facility visits covered all technologies and processes involved in treatment. The course targeted plant managers and their assistants, plant laboratory supervisors, and company headquarters O&M division staff. The rich training material was also converted into two reference manuals and distributed to all targeted governorates (see Annex E, Serial Nos. 129 and 132).

Operator and Lab Analyst Certification Training Program Materials Developed by WWSS

Water Treatment Plant Operators
- ✓ Level D
- ✓ Level C
- ✓ Level B
- ✓ Level A

Wastewater Treatment Plant Operators
- ✓ Level D
- ✓ Level C
- ✓ Level B
- ✓ Level A

Water Laboratory Analysts
- ✓ Level C
- ✓ Level B
- ✓ Level A

Wastewater Laboratory Analysts
- ✓ Level C
- ✓ Level B
- ✓ Level A

Recognizing the need for formal training across the sector, MHUUD, with support from USAID, decreed in April 2010 the establishment of a certification program for the sector's operators, to be implemented jointly by HCWW and the EWRA. The ministerial decrees outlined roles for agencies under its umbrella: EWRA was to provide oversight, HCWW was

to oversee training, and the Housing and Building National Research Center was responsible for administering certification exams. The certification program clearly defines standard operations and maintenance procedures, matches training to job requirements, and identifies competent staff through a regulated testing and certification process. The USAID WPRR Program supported MHUUD and EWRA in the early stages of program development, including solidifying the program policies and institutional framework, systematically classifying all of Egypt's treatment plants, establishing the core competences for operators of each class of plant, and finally, developing test questions for all certification exams. After this work was finished, in April 2012, the WWSS task order contract was modified to include development of training course materials for all 14 courses in the program's four curricula (see box on previous page). Accordingly, the WWSS team worked intensively on this task in Years 4 and 5, completing materials — including trainee guides, trainer guides, visual aids, and review questions — for each course (see box) and handed them over to the Holding Company. By the end of the program, three of the courses had been piloted by the Holding Company, in conjunction with the initial tests, administered by the Housing and Building National Research Center.

Results, lessons learned, and recommendations. The WWSS O&M interventions reached far and wide in Egypt's water and wastewater sector, active in hundreds of treatment plants with thousands of trainees. While Holding Company personnel were attracted to trendy tools drawn from abroad, such as supervisory control and data acquisition or expensive English-language maintenance management software, WWSS discovered early on a significant gap between the national-level discussion and ground-level realities. Many sophisticated tools had been provided to utilities, but the benefit

Abdel Kader Mohamed and his team worked with WWSS advisors on a number of activities, including standard operating procedures and laminated work instructions, an automated maintenance management system, and the chemical use optimization program. A former treatment plant chemist, Mr. Kader is also one of the WWSS-trained company instructors, who collectively have trained nearly 50 of their colleagues in an effort to spread good practices to additional plants.

"We took full advantage of the project, and my team really learned a lot. We applied the standard operating procedures developed with WWSS support, which gave us a truly integrated method of plant management. We also trained our staff on preventive maintenance and managed those daily tasks using the MASTER automated system. And the chemical use optimization program promoted by the project has paid off significantly for us, saving us money on chemicals and improving the precision of our dosing practices based on the season and quality of the water at intake."

— Abdel Kader Mohamed, manager of the Kedwan Water Treatment Plant, Minya Governorate

from them was often negligible, as the expertise and/or resources required to maintain the systems was hard to come by. In regions where WWSS worked, early assessments revealed a dearth of skilled technicians and a lack of basic knowledge and tools for proper O&M of existing equipment. The resulting emphasis on straightforward approaches was well received at the plant level, and the simplest of the WWSS tools — the MASTER maintenance management software and illustrated operating instructions — were in high demand and spread quickly.

At the close of WWSS, as budgets were increasingly tight, and resources for maintenance were dwindling; such tools and training remain practical and relevant. The utilities' (and any supporting donors') emphasis should be on getting "back to the basics," and optimizing the output and lifespan of existing equipment with proper operations and maintenance. Despite numerous efforts of donors and utilities, significant inefficiencies remain, and if addressed, could improve efficiency and productivity, adding capacity without building more infrastructure.

Financial and Commercial Management

Background. Utilities cannot manage their finances without the ability to compile financial data and generate accurate financial reports in a timely fashion. At the start of WWSS, Egypt's utilities had financial management systems of uneven quality, and the companies targeted by WWSS were among those most lagging in performance. Financial statements were not generated with any regularity or consistency in format, making utility and HCWW oversight difficult. Furthermore, collections of service billings were uneven, with pre-WWSS annual baselines ranging from 26 percent (in Assiut) to 88 percent (in Beni Suef), with an average of 52 percent in WWSS-targeted utilities. Large portions of the billed amounts were often estimates, and in some cases, overdue amounts were not reflected on subsequent consumption statements and were thus easily forgotten and frequently unpaid.

Professional staff at work at the Assiut Water and Wastewater Company, where WWSS launched automated and integrated systems for financial, HR, and inventory management.

Summary of WWSS activities. WWSS assistance in this area centered on an automated financial management system provided to the nine targeted utilities that did not have one. The program chose a local software developer, ADVAC Systems Ltd., because its system was already installed and running in select utilities and was right-sized for their needs. Other, more expensive, Oracle-based systems had failed at Egyptian utilities due to high maintenance fees and overly sophisticated programming requirements, and ADVAC offered an Arabic-language, locally supported, lower-cost option. The system features separate modules for accounting, HR/personnel, inventory management, and cost accounting, all of which are integrated with the utilities' general ledger. For each assisted company, WWSS advisors teamed up with ADVAC representatives to implement a three-phased installation and training program, summarized in Exhibit 8.

Exhibit 8. ADVAC Automated Financial Management System Installation and Training in Targeted Companies

Company	Modules Provided				Phased Technical Assistance		
	Financial	HR	Inventory	Cost Accounting	Installation	Data Collection/ Entry	Integration Training
Aswan		√			Sep 2011	Nov 2011	Dec 2011
Luxor	√	√			Apr 2010	May 2010	Jun 2010
Qena		√			Nov 2010	Aug 2011	Sep 2011
Sohag	√	√	√		Jun 2010	Jul 2010	Aug 2010
Assiut	√	√	√	√	Apr 2010	May 2010	Jun 2010
Giza	√	√			Apr 2010	May 2010	Jun 2010
Cairo		√			Oct 2010	Apr 2011	Sep 2011
Matrouh	√	√	√		Apr 2010	May 2010	Jun 2010
Sinai	√	√	√		Jan 2011	Apr 2011	Jun 2011

WWSS assistance did not stop after the installation and system training, however, and technical assistance was continually provided jointly with ADVAC through the end of the program, albeit at decreasing levels of effort in the final year of the program. From the beginning, WWSS involved HCWW team members to ensure they had the skills and information they needed to support the system going forward. Designated HCWW representatives accompanied WWSS advisors on installation and training trips and led parallel installations in other, non-WWSS utilities. By Year 5, HCWW was liaising directly with ADVAC and the subsidiaries, without WWSS intervention. Intensive training and manuals were also provided to each company on the Unified Accounting System, the Egyptian government's standardized accounting format that underpins the utilities' automated systems. In all cases, the companies are now generating regular financial statements for periodic review and reporting. In a related activity, WWSS developed, presented, and disseminated a Guide for Reading and Interpreting Financial Statements, intended for use by company chairmen or other non-financial managers (See Annex E, Serial No. 94).

Building on this success, in Year 5, WWSS installed a time-tested billing system for the Assiut and Sohag utilities. The system, which has been operational in four other companies for more than a decade, is low-cost in comparison with other systems on the market, customized to the companies' needs, and maintained locally by an Egyptian software developer. The Sohag installation was quickly

Hassan Naguib worked with the WWSS team on installation and integration of automated systems for financial, HR, and inventory management. Company staff now enter financial data daily, produce financial and HR reports, and generate monthly payroll using the system. They also managed to eliminate some of their manual books and rely exclusively on the automated system.

"As a new company, the Sinai Water and Wastewater Company lacked the expertise and tools to manage the company's financial system. The ADVAC system provided by WWSS converts our financial data to an automated system, improving the accuracy and ease of extracting everything from employee salaries to reports and budgets, which we now prepare in an efficient, timely manner."

— Hassan Naguib, director of the Finance Division, North and South Sinai Water and Wastewater Company

successful; when the old system unexpectedly crashed halfway through bill printing, the new USAID-financed system completed its first billing cycle without a glitch. The system featured new modules for managing large customers and provided additional reports to help track sales and accounts receivable. The new system also produced cumulative bills, reflecting arrears and current usage.

In addition to the automation and related technical assistance, WWSS worked with 11 companies to prepare five-year financial plans as part of their business plans in Years 1-3. At the request of the Holding Company, WWSS advisors developed budgeting guidelines for use across the sector, to standardize subsidiaries' annual budget submissions. The manual was completed early in Year 3 (see Annex E, Serial No. 97), rolled out to all participating subsidiaries through a series of workshops, and reflected in subsequent budget submissions by select subsidiaries, including the Sohag Water and Wastewater Company's 2011/2012 budget.

Results, lessons learned, and recommendations. WWSS assistance to the Holding Company's newest subsidiaries significantly improved the availability and quality of financial information available to decision-makers in the sector. Again, the program's emphasis on straightforward, Arabic-language automation tools proved appropriate, because the learning curve for utility accountants was surmountable, and the software maintenance costs were feasible. Because utility resources remain constrained, such practical, locally supported tools should be used as examples for other companies.

The five-year financial plans completed in the WWSS-supported business plans were used in an in-depth tariff study by the EWRA, with support of the USAID Water Policy and Regulatory Reform project. The improved financial reports resulting from WWSS support will and should continue to prove useful in similar future planning efforts.

At the Sohag Water and Wastewater Company, collections rarely exceeded 60 percent of billed amounts. *Entisar* Metwally and her team welcomed the WWSS-provided billing system in Year 5 and quickly began to see results.

"Preliminary bill collection data show a reduction in outstanding arrears after installing the USAID-funded billing system. This system allows us to precisely tabulate arrears, and we can now determine the value of one branch's bills within one minute, compared to 1.5 hours with the previous system. This system has also helped the customer service center manage customer accounts and complaints with accurate consumption data. Our customers deserve and appreciate this, and our collections are increasing as a result."

— Entisar Metwally, manager of the billing center, Sohag Water and Wastewater Company

Capital Investment Planning and Program Management

Background. The prevailing vision among Holding Company leaders for the water and wastewater sector is for the subsidiaries of HCWW to take over responsibility for their capital

investments, which are currently managed by a separate, national-level agency. As mentioned previously, most major construction efforts are still centrally planned and managed by the Cairo and Alexandria Potable Water and Wastewater Organization in the two main cities and the National Organization for Potable Water and Sanitary Drainage in the rest of Egypt. However, a few initiatives have indicated a shift toward locally planned and managed capital investments; namely, the "crash capital investment program" initiated in 2007 and the subsidiary-led management of projects funded by the European Union, World Bank, and USAID's FARA mechanism.

Summary of WWSS activities. This WWSS component, intended to prepare Egypt's utilities for this transition, was implemented in cooperation with the WPRR Program, which included a similar component in its scope of work, albeit targeting MHUUD. WWSS' approach unfolded in three phases. First, as stipulated in the contract scope of work, WWSS and WPRR focused intensively on development of tools for use by the water and wastewater utilities in planning and managing capital investments. A series of manuals (see Exhibit 9) was completed, laying out a set of guidelines for executing infrastructure activities, drawing on industry best practices, international standards, and local procurement laws. On submission of these volumes to the ministry, HCWW, and USAID, the two projects jointly delivered training to users from MHUUD agencies, HCWW, and subsidiary companies on contracting procedures and use of standard documents available in these volumes. WPRR and WWSS staff also conducted six related workshops for utility senior management: Fundamentals of Construction Management, Project Chartering and Contracting, Project Management Information System (PRISM2), Risk Management and Project Planning, Standard Contracting Documents, and Program Management Task Accomplishments.

Laborers dig for a new water distribution pipe in Beni Suef. USAID funded more than 100 million EGP of job-creating, small-scale water and wastewater projects after the 2011 Egyptian uprising, and WWSS supported the utilities in supervising the works.

Additionally, WWSS collaborated with WPRR to support field installations of PRISM, an automated software program developed under a previous USAID contract. PRISM contains project details and progress indicators on all active water and wastewater infrastructure projects across the sector. WWSS advisors supported the rollout of PRISM, version 2, to all WWSS-supported subsidiaries in Year 3, providing technical assistance through periodic field visits and on-the-job training.

With these tools in hand, the WWSS team focused in Years 3 and 4 on an intensive 18-month training program covering each step in the program life cycle from capital investment prioritization and planning, hydraulic analysis, and geographic information systems (GISs), to project planning, scheduling, contracting, and supervision. The training courses, summarized in Exhibit 10 below, drew on the manuals mentioned previously and were

followed by field visits to assist in hands-on applications of tools such as Water Computer-Aided Design (CAD) and Microsoft Project.

Exhibit 9. Standards for Construction Contracting in the Egyptian Water and Wastewater Sector

Standard Contracting Documents – Table of Contents			Other Related Manuals
Volume I Contracting Documents *(Annex E, Serial No. 76)* • Procedures for prequalification of consultants and contractors • Procedures for writing bid documents for selection of consultants • Standard consultant agreement form • Procedures for writing bid documents for selection of consultants • Standard construction contractor agreement form • Guidelines for general and special conditions of contract • Types of contracts and when to use each • Writing specifications for procurement and for construction work • Elements of construction contract documents	Volume I Contracting Policies and Procedures *(Annex E, Serial No. 77)* • Elements of project charter and example • Procurement ethics • Tendering policies and procedures • Claims management and establishments of dispute review boards • Construction indicators • Outline of O&M manuals	Volume III Construction Management *(Annex E, Serial No. 78)* • Project execution plans • Contractor's submittals • Document control and archiving • Time and cost control • Dealing with change orders • Quality control and Inspection • Construction tests • Safety measures • Commissioning tests and procedures • Preliminary handing over and punch lists • Final handing over and final payment certificate • Reporting progress, meetings, and communications	Capital Investment Planning Manual Guidelines for Indefinite Quantity Contracting Guidelines for O&M Contracting *(Annex E, Serial Nos. 79-81)*

Exhibit 10. WWSS Capital Investment Planning and Program Management Training Program, Years 3-4 Number of Trainees by Course and Company

Region	Two-Day CIP Workshop	Five-Day Basic Hydraulics Workshop	Five-Day Hydraulic Modeling Workshop	Two-Day Hydraulic Modeling Practical Training (field visit)	Three-Day Standard Contracts Workshop	Five-Day MS Project Workshop	Two-Day Project Management Technical Assistance (field visit)
Assiut	5	5	4	4	6	4	4
Aswan	5	-	-	-	5	3	2
Beni Suef	5	5	5	12	5	4	4
Cairo	5	-	-	-	5	-	-
Daqahliya	5	5	4	-	5	4	4
Giza	5	-	-	-	5	4	7
Luxor	5	4	4	12	5	4	4
Matrouh	4	5	4	4	5	6	6
Menufiya	5	-	-	-	5	4	6
Minya	5	7	5	6	5	4	3
Qena	5	5	5	4	5	4	2
Sinai	5	5	4	6	5	4	4
Sohag	6	-	-	-	5	9	6
HCWW	3	2	-	-	6	4	-
Total	**68**	**43**	**35**	**48**	**72**	**58**	**52**

Following the development of tools and the related training, the third phase of WWSS' CIP/Program Management component was to support the utilities as they applied their new skills on real-life projects. As mentioned previously, because most projects were planned and executed centrally by the National Organization for Potable Water and Sanitary Drainage, opportunities for application were limited to donor-funded or annual renovation and rehabilitation projects, which were typically managed by the utilities themselves. After the uprising of January 2011, USAID launched a robust program of small-scale water and wastewater infrastructure projects through its JCESD program (see box on next page). Because a condition of assistance was that the utilities themselves implement the projects, this program provided a fortuitous opportunity for WWSS beneficiaries to practice planning and managing the works, with guidance and support from WWSS engineers. So, from mid-2011 through contract closure, WWSS engineers worked with utility project managers at every stage — from project identification, screening, and selection, to tendering, contracting, site delivery, monitoring and reporting, and site handover — assisting as needed to ensure adequate supervision and building the capacity of utility planners and engineers. WWSS facilitated periodic meetings at each company to discuss progress and share useful tools, as well as a national-level workshop midway through the JCESD program to collect and disseminate lessons learned.

Amal Elhamy (center) was a star student in all the WWSS CIP/program management and leadership development training programs, attending 70 training days. She led the JCESD program at her company, securing USAID funding for nearly 14 million EGP in small-scale service improvements in the region.

"From the beginning of the JCESD program, we insisted on applying all that we had learned from the WWSS project about project management, beginning with selecting the highest priority project, and including the tendering, awarding, monitoring, and documentation phases."

— Amal Elhamy, who led the project management team at the Assiut Water and Wastewater Company

In parallel, WWSS also helped launch JCESD in 2011 with a public outreach campaign in the first two governorates of Sohag and Beni Suef. Working with the utilities and local organizations in the villages and communities slated for infrastructure improvements, the campaign emphasized several core messages including the importance of expanding service, improving public health and hygiene, water conservation, job creation and economic growth, and the partnership between USAID and the local utility.

Strategic Assistance to HCWW

Background. As mentioned previously, the primary counterpart for the WWSS Program was the Holding Company for Water and Wastewater, whose mission is to oversee its subsidiaries

in the provision of high-quality service to Egyptians in an efficient and sustainable manner. Because many of its subsidiaries are still relatively new entities, HCWW plays a robust role vis-à-vis the service providers, providing technical assistance and standardizing systems, in addition to its more traditional role of financial and policy oversight and compliance. This role places HCWW as a primary point of entry for all donors active in the sector, managing relationships with USAID, the World Bank, the European Union, KfW, UNICEF, and many others. Most, if not all donor-funded projects (see Section I) contain technical assistance funds or activities targeting the Holding Company itself.

Summary of WWSS activities. Because of the plethora of donor-funded project teams working with the Holding Company and in accordance with the program scope of work, WWSS targeted the majority of its resources toward the operating subsidiaries, confining assistance to the Holding Company to demand-driven initiatives to strengthen its position as a proponent of sector-wide policies and strategies. The program's other main focus at HCWW was to build teams to support WWSS field-based activities, for sustainability of newly introduced systems and practices. Activities included:

- *IT master plan.* At the request of the Holding Company, WWSS completed a comprehensive IT master plan for the water and wastewater sector, with the aim of aligning IT systems and decisions under a unified strategy to increase efficiency and functionality. The process began in Year 2 with an assessment of the 23 subsidiaries, resulting in an IT due diligence and needs assessment report (see Annex E, Serial Nos. 87-88), which detailed the status of IT systems across the sector, noting generally good levels of automation, adequate systems and staff skills, but challenges with integrating systems and uneven IT preparedness. The final version of the assessment reflected feedback from HCWW and the subsidiaries, gathered through a series of presentations of the draft findings. The master plan itself (see Annex E, Serial No. 124) flowed from the assessment, identifying the main activities, their links to HCWW's strategic goals, the required resources, and a cost-benefit analysis. Finally, WWSS developed detailed implementation plans for each company, specifying the necessary activities with estimated costs, indicators for evaluation, and timelines covering 2013 to 2017 (see Annex E, Serial No. 171). These plans were incorporated into WWSS Year 5 business planning activities in Sohag and Sinai.

Feature: USAID's JCESD Program

Unemployment was a key factor leading up to Egypt's revolution of January 25, 2011. An economic slowdown post-revolution only exacerbated the situation. Day laborers in particular struggled to find work. Upper Egypt, which already suffered from a poverty rate of 40 percent, was most severely hit. Minimizing further job losses and maintaining household income levels are critical to stabilizing Egypt's economy. To these ends, USAID initiated a new activity in the summer of 2011 aimed at generating immediate temporary employment opportunities where water and sanitation infrastructure was badly needed. Building on its existing investments in water and wastewater infrastructure around the country (the FARA program), and in consultation with the Holding Company for Water and Wastewater, it initiated a series of priority projects to create employment opportunities and extend water and wastewater service to poor households. These projects, collectively called the JCESD program, were selected based on being labor-intensive, small-scale, straightforward to implement, and in impoverished governorates. Projects included replacing pipelines; fixing and installing valves, new lines, and house connections; and upgrading old networks. Many projects enabled households to connect to utility networks for the first time.

Eight water and sanitation companies signed agreements with USAID under the program, and six of those were later successful in securing a second round of funding. The program was still ongoing upon WWSS closure; more than 26,000 house connections had been repaired or installed, more than 625 km of pipes laid, and 320,000 person-days of labor generated, for a total of 71 million EGP in reimbursements out of the total collective value of the contracts of more than 100 million EGP.

- *HCWW corporate communication strategy and implementation guidelines.* In Year 2, at the request of the Holding Company, WWSS worked with its public awareness and communications team to update its corporate communications approach. The strategy development process involved a cross-section of HCWW employees and a series of workshops to identify the company's communications challenges, key stakeholders, messages, and channels, and to complete a detailed action plan for the first year of implementation (See Annex E, Serial No. 31). The strategy benefitted from the involvement of UNICEF representatives, who had recently published a Market Research Report on Water, Sanitation, and Hygiene in Egypt. Once the strategy was approved, WWSS worked with HCWW communications staff to produce communications guidelines for the subsidiary companies. The practical toolkit, complete with worksheets and examples, produced in Arabic and English, was designed to assist utility public awareness departments to develop communications products and activities in four areas: strategy and planning, publications, community outreach and events, and monitoring/reporting (See Annex E, Serial No. 95). The strategy and guidelines were presented to the subsidiary companies before their completion to incorporate their feedback into the final version.

- *Upgrade and handover of the monitoring, analysis, and reporting system (MARS).* Under a previous project, USAID developed MARS as a tool for performance management of the subsidiary companies, using a standard set of quantitative indicators. Tasked with carrying on this activity, WWSS' approach was to support and upgrade this system in the early years of the program and then to ensure an effective handover to HCWW. Beginning in Year 2, WWSS significantly upgraded the software in coordination with HCWW, adding web-based functionality, a new laboratory module, new data elements and indicators, and improved data entry and analysis controls. WWSS IT staff led training and installation in all targeted utilities in Year 3, along with the handover of all program documentation and backstopping responsibilities to HCWW. The program continued to support HCWW's backstopping team at decreasing levels of effort through the end of Year 4, ensuring that it could respond to help requests from the field and troubleshooting system issues as necessary. At last count, in the closing months of Year 4, all WWSS-targeted subsidiaries were using all five modules of the system, inputting key performance data at least quarterly.

Section IV

LOOKING FORWARD

Times have changed. The WWSS Program began at a time of optimism and rapid change in the sector, as the Holding Company was expanding its portfolio and instituting operational reforms to tighten management of its service-providing subsidiaries. WWSS, as the last in a long line of USAID assistance programs to the sector, was well positioned to bolster the operating subsidiaries as they got on their feet and to work with HCWW to generate ideas, plans, and policies to improve performance throughout the sector. And bolster WWSS did. For five years, the team focused intensively on assisting the targeted companies in improving the way they did their work. Facing a long list of potential activities and 13 companies at different stages of development, WWSS' Board of Directors agreed early on to focus on efforts that would improve efficiency and that were appropriate to the local context. And the impact already shows. Tangible savings were achieved on utility operational costs. Operational and management processes were streamlined. Extensive management and technical skills were developed in company personnel, and HR management was elevated in importance and vision. As noted by USAID evaluators in 2012, the team delivered the requested tasks and deliverables in its scope of work, and many of the expected results were achieved.

However, halfway through the program, the operating environment underwent a tectonic shift beginning with the uprising of January 25, 2011. The social, political, and economic upheaval that followed had a potent impact on the sector, increasing operational costs, decreasing budgets available for subsidy, and stalling reform initiatives. The sector reflected the unfolding crisis in Egypt, in which the booming population was finding a new voice and demanding ever more services, while the government was increasingly resource constrained in meeting those demands. But the need for sector support remained; arguably, it deepened, as companies were forced to do more with less while facing expanding expectations from customers and employees alike. So, the WWSS scope of work remained relevant, and with few exceptions, the program's approach did not change following the uprising. But, the sector's momentum was halted, and WWSS' and similar efforts across the sector were swimming against a strong current.

Treatment plant chemists perform routine tasks in Beni Suef. WWSS worked extensively with plant laboratories to improve water quality and reduce inefficiencies.

Back to the basics. The good news is, Egypt still has high-quality and extensive water and wastewater infrastructure and enjoys generally high levels of service coverage. Because the infrastructure is aging, some of it is falling into disrepair or operating below its design capacity, particularly in wastewater. Yet, annual funds for rehabilitation and renovation are not always spent, due at least in part to the problem of applying time-consuming procurement procedures to time-sensitive "use-it-or-lose-it" funding streams. Preventive maintenance is

the exception, not the rule. A significant proportion of produced water remains unaccounted for, presenting an enormous opportunity for meeting growing demand.

Future technical assistance initiatives should recognize this reality and focus on increasing the impact of annual rehabilitation and renovation programs and instituting effective maintenance of equipment through training plant and network personnel and a renewed emphasis on maintenance management. Large-scale investments will still be necessary, especially in wastewater, but equal emphasis should also be placed on building qualified technicians and engineers and on extending the life of existing equipment. Infrastructure funds should be directed toward improving wastewater management, without neglecting the need to get existing plants operating at capacity.

Stay the course. Capacity building and institutional change take time. USAID greatly affected the sector through its decades of assistance, in particular through its support of the 2004 sector reform. The shift to more autonomous service providers has proven a positive one, and there is still widespread consensus on this approach and optimism that it will bring additional efficiency improvements down the road. But this change takes time. Egypt's utilities have a long history, and each has thousands of employees often scattered over far-reaching terrain. Unifying the disparate parts under the banner of one company, with a shared vision and plan of action, requires new ways of doing things: systems, tools, and organization. And it also requires a culture change: from top-down bureaucratic decision-making to bottom-up planning and a participatory enterprise mentality. WWSS put in place a number of appropriate systems, tools, and organizational approaches that have proven useful and sowed the seeds for the culture change through its emphasis on business planning, leadership development, and locally driven planning and accountability mechanisms. Future assistance programs should continue along these lines, reinforcing the progress to date, further empowering boards of directors and incrementally introducing new tools, skills, and technologies without deviating from the course.

ANNEX A. FINANCIAL REPORT

WWSS Task Order Budget (Shown in accordance with task order Modification 09 – 263-MAARD-A-54-270.04-08053 A10)	Base Period	Option Period	Total Budget	Forecast Life-of-Project Expenditures*
Direct Labor (including Fringe)	$3,794,871	$598,993	$4,684,328	$4,632,449
Other Direct Costs	$7,425,598	$1,505,749	$8,668,195	$8,679,687
Procurement of Equipment and Special Studies	$2,547,140	$110,534	$2,657,674	$2,651,683
Indirect Costs (includes Overhead, G&A, and MHO)	$2,627,074	$609,386	$3,236,460	$3,181,982
Subtotal	**$16,394,683**	**$2,851,975**	**$19,246,658**	**$19,145,801**
Fixed Fee	$1,077,494	$119,672	$1,197,166	$1,197,166
Cost Plus Fixed-Fee Ceiling Price	**$17,472,177**	**$2,971,647**	**$20,443,824**	**$20,342,967**
Total Price (EGP)	1,178,700 EGP	250,000 EGP	1,428,700 EGP	724,987 EGP

*through October 2013.

Direct Labor (including Fringe) – $4,632,449

The WWSS Program supported direct labor for 38 long-term staff and 60 short-term staff throughout the five-year project, which excludes level of effort for subcontractor staff. For a full list of Chemonics' project employees, please see Annex I.

Other Direct Costs – $8,679,687

The majority of Other Direct Cost expenditures were Subcontractors ($5,066,014) and Training ($1,028,896). The main subcontracting partners were CH2M Hill, Chemonics Egypt, and Arabic Software Engineering Co. These valuable partners contributed to the successful implementation of the capital investment planning and program management activities, curriculum development (including trainer and trainee materials and visual aids) for the O&M certification program, a reference handbook for HCWW subsidiary chairmen and senior executives, construction management activities completed through the Job Creation through Essential Service Delivery program, development of the IT master plan, installation and training on an automated billing system, and automation of financial management and other utility management functions.

The program's training and workshops included the USAID-AUC Certificate Program for Water and Wastewater Utility Executives, Professional Development Program for Mid-level Utility Personnel, Professional Development Program for Junior-level Utility Personnel, 18-month Capital Investment Planning and Program Management Training Program, and TOT program, which embodied the program's approach to institutionalize WWSS technical interventions in targeted utilities.

Procurement of Equipment and Special Studies - $2,651,683

The WWSS task order contract budget included a line item for Procurement of Equipment and Special Studies. The WWSS approach was to procure, ship, and distribute equipment for the targeted utilities when such equipment supported the technical assistance activities. The equipment procured included laptops and accessories, measuring wheels (metric), IT equipment, listening sticks, pressure loggers, water meter test benches, test tanks, portable

flow meters, noise detection correlators, power analyzers, technical reference books and manuals, software, meters, laboratory equipment, and other spare parts. For a complete list of equipment procured, please see Annex F.

Indirect Costs - $3,181,982

Fixed Fee - $1,197,166

ANNEX B. CONTRACT SCOPE OF WORK TRACKER

Note: The coded references in columns 3-6 below (e.g., HC 12, CC 2) refer to activities included in WWSS annual work plans and quarterly reports. Generally: HC = activities targeting the Holding Company for Water and Wastewater; CC = crosscutting activities targeting multiple subsidiary companies at the same time; and SS = subsidiary-specific activities tailored to an individual subsidiary company's needs.

	Year 1	Year 2	Year 3	Year 4	Year 5
	Nov 2008 - Oct 2009	Nov 2009 - Oct 2010	Oct 2010 - Sep 2011	Oct 2011 - Sep 2013	Jul 2012 - Sep 2013
Component 1: Institutional Support to the Holding Company and Selected Subsidiaries					
9 Subsidiaries: Cairo Water, Beni Suef, Minya, Aswan, Qena, Menufiya, Giza, Matrouh, Luxor, Sinai					
Long-term training plans and training of HCWW and subsidiaries' senior and middle managers		HC 12, CC 2, CC 3, CC 5, Beyond 3	CC 1, CC 8	CC 2, CC 4, SS 6	CC 1, CC 2, CC 3, CC 4
A performance-based incentive system based on the individual's performance and continual education efforts			HC 9	HC 2	
Draft business plans for subsidiaries		CC 1, Beyond 1	SS 1		SS 3
Public awareness plans for subsidiaries	√	HC 3, HC 4, CC 6	CC 4, Beyond 2	SS 10	
Service disconnection policy developed and approved	√				
Human resource development plans		HC 6, CC 5, AST 3, GIZ 2, MEN 3, Beyond 3	SS 10, SS 11	SS 4	
A study of outsourcing options and recommendations		Beyond Y2 WP 10			
Introduce improved systems including financial management; budgeting and planning; accounting; metering, billing, and collections; assets valuation and management; staffing; and MIS		HC 5, CC 7, CC 8, CC 11, CC 12, CC 13	HC 6, HC 7, HC 8, CC 2, CC 3, SS 6, SS 8, SS 12	HC 1, SS 5	HC 1, SS 8, SS 10
Develop measures for cost reduction, such as chemical and electricity rationalization, and identify redundant administrative costs		GIZ 5, MEN 8, MIN 3, Beyond 7, Beyond 8	SS 2, SS 3, SS 4	SS 2, SS 3	SS 4, SS 5, SS 6

	Year 1	Year 2	Year 3	Year 4	Year 5
	Nov 2008 - Oct 2009	Nov 2009 - Oct 2010	Oct 2010 - Sep 2011	Oct 2011 - Sep 2013	Jul 2012 - Sep 2013
Provide training in technical and financial management for HCWW and subsidiary company staff, including GIS, MIS, supervisory control and data acquisition software, leak detection, mapping, and asset management.		CC 2, CC 11, CC 12, LUX 1, SOH 9, AST 9, LUX 6, GIZ 8, MEN 7, SOH 10, AST 13, LUX 8, GIZ 10, MAT 3, Beyond 4	HC 6, CC 1, CC 3, CC 8, SS 4, SS 6	HC 1, CC 1, CC 2, CC 3, SS 2, SS 5	HC 1, CC 1, CC 2, SS 6, SS 8
Component 2: Establishment of New Subsidiaries in Selected Governorates					
3 Subsidiaries: Sohag, Assiut, Luxor					
Assessment of existing conditions report covering all institutional areas of water and wastewater systems	√				
Human resource development plan and training plan tied to actual needs		CC 5, AST 3, Beyond 3	SS 10, SS 11	SS 4, SS 6	
Performance-based incentive systems			HC 9	HC 2	
O&M procedures and long-term preventative maintenance procedures		AST 11, MIN 4, Beyond 5	SS 5, SS 8	HC 1, SS 11	HC 1, SS 7
Assist HCWW to negotiate with governorate officials to enable HCWW to rationalize staff of the new subsidiaries based on actual requirements					
Develop modern systems and procedures for operation of the new companies including planning, financial, organizational and management, MIS, GIS, supervisory control and data acquisition software, leak detection, asset valuation and management, storage and inventory control, procurement, CIP, program/project management, technical, performance monitoring, and evaluation. Build on existing systems, including those funded by USAID.		HC 5, CC 7, CC 11, CC 13, CC 14, LUX 1, SOH 9, AST 9, LUX 6, SOH 10, AST 13, LUX 8, GIZ 10, MAT 3	HC 6, HC 7, HC 8, HC 9, CC 2, CC 3, CC 6, SS 6, SS 8, SS 12	HC 1, CC 1, SS 2, SS 3, SS 5	HC 1, SS 6, SS 9, SS 10
Component 3: Capital Investment Planning and Program/Project Management					
12 Subsidiaries: Cairo Water, Daqahliya, Beni Suef, Minya, Aswan, Qena, Menufiya, Giza, Matrouh, Sohag, Assiut, Luxor					
Task 1: Capital Investment Planning					
Recommendations for finalizing the master planning process and ensuring regular updates	√				
Training of HCWW and subsidiaries' staff on master planning and capital investment planning and budgeting		CC 2, CC 18, SOH 10, AST 13, LUX 8, GIZ 10, MAT 3	CC 7, CC 8	CC 1	

	Year 1 Nov 2008 - Oct 2009	Year 2 Nov 2009 - Oct 2010	Year 3 Oct 2010 - Sep 2011	Year 4 Oct 2011 - Sep 2013	Year 5 Jul 2012 - Sep 2013
Capital investment planning and budgeting manuals		CC 15	CC 7	CC 1	
Task 2: Program and Project Management					
Resource plans identifying potential suppliers of equipment and services; medium- and long-term equipment and service needs; and contractors, consultants, and suppliers database					
Hands-on technical assistance in preparation of plans and execution of the FARA-funded projects (added per Mod 5, Sep. 2011)	N/A		SS 9	SS 9	SS 9
Training in project preparation and supervision			SS 9	SS 9	CC 5, SS 9
Reports on the quality and timeliness of the projects executed			CC 6, SS 9	SS 9	SS 9
Operations and maintenance planning methodology		CC 8	CC 3		SS 7
Contractors prequalification and selection guidelines and procedures		CC 16	CC 5	CC 1	
Procedures for establishing dispute resolution boards and operation guidelines		CC 16	CC 5	CC 1	
Site identification and acquisition planning procedures					
Standardized key documents for all steps of procurement, implementation, and evaluation developed and adopted by HCWW and subsidiaries		CC 16	CC 5	CC 1	
Training of HCWW and subsidiaries staff on all aspects of planning and program, project, and construction management		HC 10, CC 2, CC 14, CC 16, CC 18	CC 5, CC 6, CC 8	CC 1, CC 2, CC 3	CC 1, CC 2, CC 5
Component 4: Staff Development/Professionalization					
11 Subsidiaries: Cairo Water, Beni Suef, Minya, Aswan, Qena, Menufiya, Giza, Matrouh, Sohag, Assiut, Luxor					
Human resource development plan for HCWW and select subsidiaries		HC 6, CC 5, AST 3, GIZ 2, MEN 3, Beyond 3	SS 10, SS 11	SS 4	
One HCWW training facility upgraded, equipped, and properly managed to meet world-class standards			SS 13	SS 6	
Three study tours to world-class water and wastewater facilities in the United States conducted (one per year for six people)		CC 4	N/A		
Participation in two international conferences, workshops, or exhibitions in the United States (one event per year for four people)		CC 4			
Plans for continuing participation in study tours and international events developed, required funding identified, and plan adopted					

ANNEX C. ACTIVITIES BY LOCATION

WWSS Activities	HCWW Regional Subsidiaries												
	Assiut	Aswan	Beni Suef	Cairo	Daqahliya	Giza	Luxor	Matrouh	Menufiya	Minya	Qena	Sohag	Sinai
Local Working Group	x	x	x			x	x	x	x	x	x	x	x
Training of Trainers	x	x	x			x	x	x	x	x	x	x	x
Development and Use of Business Plans	x	x	x			x	x	x	x	x	x	x	x
Quality Circles	x									x		x	x
MARS	x	x	x	x		x	x	x	x	x	x	x	x
Human Resource Management/ Development													
Human Resources Plan Development and Implementation	x	x	x	x		x	x	x	x	x	x	x	x
Staffing and Organizational Development	x	x				x			x			x	x
Automated HR Management System (ADVAC HR)	x	x		x		x	x	x			x	x	x
Establish Training Facility												x	x
American University in Cairo Seminar Series	x		x	x		x	x	x	x	x	x	x	
Junior Professional Development Program	x		x					x		x		x	x
Mid-level Professional Development Program	x									x		x	x
Capital Investment Planning and Program Management													
Project Management Unit Assistance	x					x	x	x	x			x	
PRISM On-the-Job Training and Training	x	x	x	x	x	x	x	x	x	x	x	x	x
Introduction to ArcGIS	x					x	x		x			x	
Hydraulics Training (Overview and Water CAD)	x		x		x	x	x	x	x	x	x	x	x
Standard Contracting Documents and Related Technical Assistance	x	x	x	x	x	x	x	x	x	x	x	x	x
Capital Investment Planning Manual and Related Technical Assistance	x	x	x	x	x	x	x	x	x	x	x	x	x
Planning, Scheduling, and MS Project	x	x	x	x	x	x	x	x	x	x	x	x	x
Project Management of FARA Projects	x	x	x				x			x	x	x	x

WWSS Activities	HCWW Regional Subsidiaries												
	Assiut	Aswan	Beni Suef	Cairo	Daqahliya	Giza	Luxor	Matrouh	Menufiya	Minya	Qena	Sohag	Sinai
Public Awareness and Communications													
Subsidiary Communications Guidelines	x	x	x	x		x	x	x	x	x	x	x	x
Public Outreach Campaign for FARA Projects			x									x	
Financial Management													
Unified Accounting System Training	x					x	x	x	x	x		x	
Automated Financial Management System (ADVAC Finance)	x					x	x	x				x	x
Automated Inventory Management System (ADVAC Inventory)	x							x				x	x
Automated Cost Accounting System (ADVAC Cost Accounting)	x												
Automated Billing System	x											x	
Standardized Budget Submission Tools	x	x	x	x		x	x	x	x	x	x	x	x
Operations and Maintenance													
Operations and Maintenance Planning and Budgeting	x	x				x	x		x			x	
Energy Use Rationalization (including Technical Training)	x	x	x			x	x	x	x	x	x	x	x
Chemical Use Rationalization (including Technical Training)	x	x	x			x	x	x	x	x	x	x	x
Standard Operating Procedures and Operating Instructions	x	x	x			x	x	x	x	x	x	x	x
Leak Detection and Reduction (including Technical Training)	x	x	x			x	x	x	x	x	x	x	x
MASTER Computerized Maintenance Management System	x	x	x	x		x	x	x	x	x	x	x	x
Treatment Plant Assessments and Recommendations	x									x		x	x
Laboratory Training and Technical Assistance			x			x				x		x	x

ANNEX D. ACTIVITY SUMMARIES

Leak Detection Activity Summary Table

Company	TOT Program			Equipment Delivered			Field Work						Comments on Additional Company-Led Replication Work
	Tech Trainees	Training Skills Trainees	Courses Delivered/ No. of Trainees	Correlator	Ground Microphone/ Listening Stick	Flow Meter	Work Area	Reduction in Losses *(% of produced water entering the area)*	Physical Losses Addressed?	Commercial Losses Addressed?	Water Saved *(m^3)*/No. of months	Estimated Savings (EGP)	
Aswan	21	5	1/8	1	1	2	el-Hassaya (WWSS pilot)	47% to 23%	√	√	64,488/4	72,227	The company's WWSS-trained leak-detection team reported detection of leaks in an additional area, el-Nasseriya, in the final WWSS monitoring assessment.
							el-Ahmadiya	62% to 38%	√	√	Not available	Not available	
Luxor**	20	5		1	1	1	A portion of Luxor City (WWSS pilot)	50% to 18%	√	√	1,415,000/12	1,117,850	The company reported leak-detection activities in two additional areas. In Bayadia, it fixed 137 leaks and saved 138,931 m^3, or 3.1% of production. In el-Tod, it fixed 17 leaks and saved 40,586 m^3, or 2% of production. At the time of the last assessment, work was underway in Esna and al-Zeeneya areas.
Qena**	18	5	1/10		1	1	–	–					WWSS assistance with this company was limited to training activities and equipment procurement, to complement ongoing KfW assistance in this area.
Sohag	22	6	2/32	2	1	1	el-Ezba and el-Arab (WWSS pilot)	38% to 29%	√	√	27,000/3	29,160	At last assessment, the company had formed new leak-detection teams for Gerga and Tahta areas, and initiated work in two additional areas (Bendar and Bani Ammar).
							Select villages inside Akhmeem District	35% to 25%	√	√	360,000/6	388,800	
							Tunis, West Karamta, & Shandaweel Island	42% to 32%	√	√	114,000/2	120,840	
							Edfa	40% to 32%	√		9,000/2	9,540	
							Shandaweel el-Balad	24% to 19%	√		10,800/2	11,448	
							Salamouny Village in Akhmeem District	28% to 20%	√		18,840/2	19,970	
Assiut	21	5	2/21	1	1	2	El Sadat	Not available	√		60,078/3	40,853	At last assessment, the company reported additional work in the village of Matmar, finding multiple leaks and illegal connections, and in Rifa in Assiut District.
							Nazlet Abdellah	29% to 17%	√	√	23,844/3	16,214	
Minya	22	8	2/24	2	2	1	Sultana	61% to 32%	√	√	60,087/3	59,486	The company also detected and fixed leaks in 20 houses in three different districts (Talah village, Raihana village in Abu Qorqas, and Samalout el-Balad), saving an estimated 200 m^3 of water over three months. At last assessment, work was ongoing in two additional areas: Zawiat el-Gezamy in the Maragha District and el-Dewelah area.
							New Minya	69% to 32%	√	√	477,929/2	449,253	
							Damarees	49% to 21%	√	√	24,190/2	22,739	
							el-Mahras	33% to 22%	√	√	12,573/2	11,819	
							Behdal	44% to 24%	√		11,494/2	10,804	
Beni Suef	23	9	1/12	1	1	1	Bayad El Arab and El Sheikh Ali	41% to 23%	√		170,801/2	290,362	
							Bani Soliman	54% to 22%	√		13,199/2	22,438	
Giza**	18	5	1/17	1	1	1	–	–					WWSS-trained personnel fixed leaks in el-Warak, Imbaba, Bashtil, Sakeyt Mekky, and Giza City areas. Although the savings from all leaks are not easily measured, they were able to measure change in Bermbel and al-Kadaya villages and estimate a savings of 6,000 m^3 of produced water per day.
Menufiya**	20	5	1/3	1	1	–	–	–					The company detected more than 100 leaks in the pilot area of Taha Shoubra in the Quesna district, and installed measurement valves there. WWSS did not provide technical assistance beyond the TOT program, because the company

Company	TOT Program			Equipment Delivered			Field Work						Comments on Additional Company-Led Replication Work
	Tech Trainees	Training Skills Trainees	Courses Delivered/ No. of Trainees	Correlator	Ground Microphone/ Listening Stick	Flow Meter	Work Area	Reduction in Losses *(% of produced water entering the area)*	Physical Losses Addressed?	Commercial Losses Addressed?	Water Saved *(m^3)*/No. of months	Estimated Savings (EGP)	
													was receiving support from the Japan International Cooperation Agency in this area.
Sinai	18	4	4/28	1	1	2	–	–					The local team held internal training events and developed leak-detection plans, but was not able to fully implement due to the security situation. They detected and fixed leaks on the transmission line from Qantara Sharq to Bir el-Abed, saving 3,000 m^3 of water per day. Additionally, they inspected the line from Ras Melab to Abu Erdis, found three major illegal connections, and cut them off.
Matrouh	18	5		–	–	2	–	–					

*NOTE on Number of Trainees: The numbers presented do not indicate the number of *people* who took the training. Some people took technical training and TOT and are counted twice.
**Beginning in program Year 4 (October 2011), WWSS assistance in this governorate was limited to monitoring utility-led, follow-on training and field work conducted by program training/TOT recipients.

Energy Use Rationalization Summary Table

Region	WWSS Pilot				Cost of Panel (EGP)	Pay-back (months)	Analyzer Delivered	Panel Installed*	Technical Trainees	TOT Trainees	Courses Delivered/ No. of Trainees	Comments on Impact and Replication
	Pilot Plant	Power Factor Before	Expected Power Factor	Est. Annual Savings (EGP)								
Assiut	Nazlet Abdalla WTP	0.85	0.92	44,149	34,225	9	√	2	15	4	4/49	Company technicians repaired two additional panels, for the el-Bedary and Abu Tig plants, and all penalties have been removed from their electric bills since the installation. Savings from the pilot plant total at least 50,000 EGP, and the panel continues to maintain the power factor in the non-penalty range. Using an analyzer to study additional plants, and prepared specifications and estimates for tendering additional panels, but have not yet procured due to a lack of funds.
		0.82	0.92	22,300	40,850	22						
Aswan	Ferial WTP	0.56	0.92	73,000	40,850	7	√	1	19	4	5/52	Switch is broken at el-Nasariya, so WWSS-purchased panel is not in use. Used analyzer to study additional plants and contest electric bills, but analyzer currently needs repair. Assembled power factor correction panel for compact plants, currently under testing.
Beni Suef	Beni Suef WTP	0.74	0.92	40,600	34,225	10	√	1	17	4	3/34	Uses analyzer regularly at 30+ facilities, and pilot plant has received no penalties this year. Purchased panel with company funds for Tazment WW treatment plant and inventoried all broken panels and are preparing tender for spare parts to repair them.
Giza	Giza WTP	0.72	0.92	256,000	**500,000	23	√	--	23	3	8/119	Plan to study all plants in North and South Giza and 6th of October. Used analyzer, but it needs repair.
Luxor	Luxor WTP	0.85	0.92	36,000	49,400	16	√	1	14	4	3/41	Savings as of January 2012 from pilot plant totaled at least 47,000 EGP. Analyzed all plants, and tendering is underway for additional panels.
Matrouh	Al Serko WTP	0.86	0.90	9,000	35,000	46	√	--	12	5	3/34	Rollout plan includes monitoring and negotiating electric bills (refund of 86,000 EGP expected), fixing defunct panels, and tendering additional panels. Repaired six panels at South Alamein plant and is operating them manually, improving power factor from 0.79 to 0.92.
Menufiya	Ashmoun WTP	0.80	0.92	39,130	34,225	10	√	1	25	5	1/9	Savings in Ashmoun plant were 55,000 EGP for one year. Analyzed all plants and designed specs for five additional panels.
Minya	Kedwan WTP	0.77	0.92	46,300	49,400	13	√	1	25	4	4/40	WWSS-supplied panel at Kedwan has saved 52,600 EGP during 2.5 years. A second panel at Kedwan, repaired and installed by the company, has saved 29,633 EGP during 1.5 years. It procured spare parts through a competitive tender and has repaired and installed four panels, at the Nile intake, Shaheen wastewater pumping station, Southern water treatment plant at Obour el-Nour, and Helmeya il-Gedida water treatment plant, although it is too early to measure the savings. Negotiations with the electric company to reduce bills are ongoing.
Qena	Salheya WTP	0.85	0.90	17,000	34,225	24	√	1	16	4	3/30	Purchased additional panel for Quos plant. Used analyzer to study additional plants.
Sinai							√	--	9	7	5/39	Monitoring plants using analyzer and negotiating with electric company to recoup more than 380,000 EGP in over-billed energy use.
Sohag	Needa WTP	0.70	0.92	70,500	33,725	6	√	Old board repaired	19	5	4/58	Installed two additional panels, at Gerga water treatment plant and at Wastewater Plant #5, which together have resulted in 18,495 EGP in savings each year. Purchased four additional analyzers and regularly monitor all plants. Additional purchase of panels planned.

Chemical Use Optimization Activity Summary

Region	Pilot Plant	Pilot Results			Technical TOT Trainees	Training Delivery TOT Trainees	Courses Delivered/ No. of Trainees	Notes on Replication
		Reduction in Alum	Reduction in Chlorine	Estimated Annual Savings (EGP)				
Assiut	Nazlet Abdellah	(505) kg/day	No reduction	258,279	19	7	5/73	Most recently, reduced alum use further at Nazlet Abdella by fine-tuning doses and adjusting filter washing schedules. Replicated practices in plants including New Assiut, Abu Tig, and Czech, and reported small reductions in the amounts of chemicals used. At el-Tawabia plant, company technicians devised a way to measure the efficiency of alum pumps to assist in further optimizing the amount of alum used.
Aswan	Gebel Toquq	NA	(65.7) tons/year	98,550	15	5	3/36	Replicated at Kom Ombo, Gabal Toukok, and Fetera plants. Reduced chlorine use from 240 kg to 204 kg/day, without affecting water quality, on top of earlier reduction of alum use. Also increased efficiency of treatment through filter management.
Beni Suef	el-Fransawy	(115.9) tons/year	(6.62) tons/year	415,564	18	7	5/56	Optimized chemical dosages in five plants and adjusted alum injection and filter washing techniques. At Ma'asaret Na'asan WTP, average turbidity fell from 0.5 to 0.3 turbidity units during a four-month period, compared to the same period the previous year, through adjustments to filter washing, sludge removal, and doses.
Giza	al-Ayatt	(123) tons/year	(6.06) tons/year	87,406	17	8	27/342	Applying optimization techniques in Imbaba, el-Ayat, Sheikh Zayed, and Mensha'a el-Kanater plants, which resulted in reduced chemical use and consistent water quality. Conducted on-site training in at least 10 plants.
Luxor	Luxor	No reduction	No reduction	NA	23	8	6/90	Replicated program at el-Toud and Luxor plants and at the company's compact plants. At el-Toud, optimized doses resulted in 15,000 EGP savings/month. At Luxor WTP, chlorine dose fell from 4 to 3.5 milligrams/liter. In the compact units, alum and chlorine doses were reduced by 25%.
Matrouh	el-Alamein	(180) tons/month	(72) tons/year	1,806,000	15	4	4/32	Applying optimization techniques at Alamein WTP, where improved sampling and testing of influent water revealed wide fluctuations in water quality, making accurate dosing more difficult.
Menufiya	Shebeen	(181) tons/year	(10.95) tons/year	246,816	17	5	2/20	Replicated in el-Sadat and Gezai WTPs, adjusting chlorine and alum doses. At the former, alum use was reduced from 30 to 10 tons and chlorine use dropped from 17 to 13 cylinders, while water quality improved from a turbidity rating of 0.6-0.7 to 0.3-0.4 NTU. Also reduced water used to clean the filters.
Minya	Kedwan	(104) tons/year	(8.8) tons/year	130,145	19	6	4/46	Replication activities at Kedwan, Arab el-Zeina, New Beni Mazar, Samalout, Ard Sultan — Behariya, and Ard Sultan — Kebleya plants. Estimated savings on alum at the latter two plants is 8,000 EGP per month. At New Beni Mazar, adjustments to alum injection techniques improved water quality. Reduced chlorine dose at Arab el-Zeina and Samalout plants.
Qena	al-Salheya	Dose reduced from 17.7 to 14 mg/l	No reduction		10	6	2/27	Applied training at Salheya, Deshna, Nagaa Hamady, Quos, and Qeft. In Salheya, saved 26,000 EGP in one month by optimizing alum dose.
Sinai					15	6	4/39	Ongoing replication activities at Sinai filtration and Gharb el-Nafaq plants, where reduced doses have resulted in more than 75,000 EGP of savings per month, while maintaining the quality of water according to Egyptian standards. At the Sinai filtration plant alone, water losses from filter washing were reduced along with the chemical doses, resulting in a savings of 43 tons of alum per month (valued at 24,000 EGP) and 2.1 tons of chlorine per month (valued at 3,400 EGP).
Sohag	Needa	(69.12) kg/day	No reduction	35,320	20	4	11/165	Alum doses were reduced at the West Sohag plant, for a savings of 25 kg of alum per day or about 1,000 EGP monthly. The el-Maragha plant saved 2.5 tons of alum and 800 kg of chlorine in December, 2012, compared with December, 2010. At el-Balyana, technicians saved 1.3 tons of alum and 750 kg of chlorine, and the el-Monsha'a plant staff saved 1.2 tons of alum and 500 kg of chlorine during the same period. Also applied at Gerga and Needa.

ANNEX E. DELIVERABLES WITH ABSTRACTS

Serial No.	Document Title	Date	Description
1	Year 1 Work Plan - English	Dec 2008	WWSS' Year 1 Work Plan lays out the program's strategy and approach for the first year of operations. In particular, it lays out the four main program objectives: 1) increase economic viability of utilities, 2) assist newly launched utilities, 3) support capital investment planning and project monitoring, and 4) build capacity of staff. The work plan lays out the tasks to be undertaken for the year, split into four component areas: 1) utility operations and performance management, 2) utility management, 3) program management, and 4) human resource development. The work plan includes a summary of program staff members, work plan, and monitoring and evaluation plan. (English)
2	WWSS First Quarterly Progress Report - November 2008-March 2009	Apr 2009	This quarterly report summarizes program activities during November 2008 through March 2009. (English)
3	WWSS Second Quarterly Progress Report - April-June 2009	Jul 2009	This quarterly report summarizes program activities during April through June 2009. (English)
4	WWSS Third Quarterly Progress Report - May-September 2009	Oct 2009	This quarterly report summarizes program activities during May through September 2009. (English)
5	Development of O&M Plan and Budget	Dec 2009	This set of training materials provides an overview of the objectives, conditions, definitions, and benefits of O&M planning and budgeting, as well as steps to be undertaken in developing the plan. It contains chapters on strategic planning, O&M management, principles for developing a plan, and budgetary considerations. The report also includes a range of forms and templates to be used during the planning and budgeting process. (Arabic)
6	Year 2 Work Plan - English	Dec 2009	WWSS' Year 2 Work Plan lays out the program's strategy and approach for the second year of operations. The document summarizes Year 1 activities and looks ahead to Year 2 activities. The Year 2 Work Plan calls for program activities in four areas: 1) central activities (with HCWW), 2) crosscutting activities (involving multiple subsidiaries), 3) subsidiary-specific activities (involving particular subsidiaries), and 4) program development and coordination activities. It includes a summary of program staff members, a work plan, and a monitoring and evaluation plan. (English)
7	Rationalizing Energy Use Consumption at Kedwan Water Treatment Plant, Minya	May 2010	This report summarizes the WWSS study on rationalizing energy consumption at the Kedwan water treatment plant in the Minya Governorate. The study entailed a workshop with local officials, measurements of the plant's electric system, analysis of the data, and theoretical and practical training for plant engineers. At this plant, after installing capacitors, the power factor would be increased to more than 90%, and as a result, the plant would avoid paying significant penalty charges to the electric utility. These changes would result in an estimated annual savings of 47,000 EGP, and the utility would pay off the cost of the capacitors (estimated at less than 70,000 EGP),in less than two years. (Arabic, with English executive summary)
8	WWSS Fourth Quarterly Progress Report - October-December 2009	Jan 2010	This quarterly report summarizes program activities from October through December 2009. (English)

Serial No.	Document Title	Date	Description
9	Training Guide on Project Planning and Scheduling for Utilities	Feb 2010	This is a training guide on project planning and scheduling for utilities, for a five-day training program. It includes sections on planning projects, scheduling one-time and repeated projects, techniques for earned-value analysis, and developing project timelines. It also includes a manual for managing projects using Microsoft Project. (Arabic)
10	Public Awareness Plan for Giza WWC	Jul 2009	This report consists of a one-year strategic plan for the Public Awareness department of the Giza utility. It provides an overview of the vision, mission, goals/objectives, target audience, channels, and messages for three distinct groups, including internal staff, customers, and members of the Public Awareness unit. (Arabic)
11	Public Awareness Plan for Sohag WWC	Jul 2009	This report consists of a one-year strategic plan for the Public Awareness department of the Sohag utility. It provides an overview of the vision, mission, goals/objectives, target audience, channels, and messages for three distinct groups, including internal staff, customers, and members of the Public Awareness unit. (Arabic)
12	Public Awareness Plan for Assiut WWC	Jul 2009	This report consists of a one-year strategic plan for the Public Awareness department of the Assiut utility. It provides an overview of the vision, mission, goals/objectives, target audience, channels, and messages for three distinct groups, including internal staff, customers, and members of the Public Awareness unit. (Arabic)
13	Public Awareness Plan for Luxor WWC	Jul 2009	This report consists of a one-year strategic plan for the Public Awareness department of the Luxor utility. It provides an overview of the vision, mission, goals/objectives, target audience, channels, and messages for three distinct groups, including internal staff, customers, and members of the Public Awareness unit. (Arabic)
14	Public Awareness Plan for Menufiya WWC	Jul 2009	This report consists of a one-year strategic plan for the Public Awareness department of the Menufiya utility. It provides an overview of the vision, mission, goals/objectives, target audience, channels, and messages for three distinct groups, including internal staff, customers, and members of the Public Awareness unit. (Arabic)
15	Rationalizing Energy Consumption at Ashmoun Water Treatment Plant, Menufiya	May 2010	This report summarizes the WWSS study on rationalizing energy consumption at the Ashmoun water treatment plant in Menufiya Governorate. The study entailed a workshop with local officials, measurements of the plant's electric system, analysis of the data, and theoretical and practical training for plant engineers. At this plant, after installing capacitors, the power factor would be increased to more than 90%, and as a result, the plant would avoid paying significant penalty charges to the electric utility. These changes would result in an estimated annual savings of 39,000 EGP, and the utility would pay off the cost of the capacitors (estimated at less than 70,000 EGP in less than two years. (Arabic, with English executive summary)
16a	Unified Accounting System - Level (1)	Mar 2009	This training syllabus addresses the utility unified accounting system (UAS). It provides an overview of the objectives, conditions, definitions, and benefits of UAS, as well as the components of the system. The training program contains modules on the basic features of UAS, a classification system for wages, inventory and procurement, systems related to fixed assets, terms of UAS, application problems, and case studies. The report also includes a range of forms and examples to be used during the process. (Arabic)
16b	Unified Accounting System - Level (1) - Presentation	Dec 2009	This report is a teacher presentation related to No. 16a above. (Arabic)
17	Unified Accounting System - Level (2)	Dec 2009	This training syllabus is a continuation of 16 above, and includes modules on inventory of expenses and revenue, fixed-asset, marketable and liability inventory, and classification systems. (Arabic)
18a	Lab - Phytoplankton Training Materials	Jan 2010	This publication consists of a training syllabus concerning phytoplankton laboratory analysis. It includes a methodological section, detailing objectives of the training program, the target group, teaching aids required, lesson plans, and a training guide. Subsequently, in the technical section, it deals with issues related to factors affecting algae growth, algae as an indicator of water quality, and problems created by algae, among others. (Arabic)
18b	Lab - Phytoplankton Training Presentation	Jan 2010	This deliverable consists of six teacher presentations related to No. 18a above. (Arabic)

Serial No.	Document Title	Date	Description
19	Project Planning and Scheduling	Feb 2010	This publication consists of a training syllabus concerning planning and scheduling projects for utilities using the earned value system. The training program is intended to last five days. It includes sections on the steps for planning projects, frequently implemented projects, planning using Microsoft Project, updating and analyzing projects, using PRISM to link to project scheduling. The program includes a pre- and post-knowledge assessment, and practical examples and exercises. (Arabic)
20	GIS Course - July 2009	Jul 2010	This publication consists of a training syllabus on an Introduction to GIS. This five-day course includes modules on GIS functionality (including types of data, overview of the layer system, elements and capturing data, data analysis and queries, GIS applications and their importance, and some output examples), operating ARC Map, and layer management. (Arabic)
20	GIS Course - July 2009 - Presentation	Jul 2010	This includes a teacher presentation related to No. 20a above. (Arabic)
21a	Water Treatment - Chlorination	May 2009	This is a guide for a five-day training program on using chlorine for water treatment. It provides an overview of water purification by adding chlorine, elements of chlorination, protection and safety systems, and the components of and equipment required for a chlorination system. (Arabic)
21b	Water Treatment - Chlorination - Presentation	May 2009	This report is a teacher presentation related to No. 21a above. (Arabic)
22	O&M Planning and Budgeting	Dec 2009	This training guide was developed for a three-day training program in developing an O&M plan and budget, targeting O&M managers at utilities. It consists of modules addressing planning, managing O&M tasks, principles of developing and O&M plan, forms of O&M plans, and budgetary considerations. The syllabus also includes training aids and a training manual. (Arabic)
22	O&M Planning and Budgeting - Presentation	Dec 2009	This report is a teacher presentation related to No. 22a above. (Arabic)
23	Participatory Rapid Assessment for Assiut WWC	Summer 2009	The overall objectives of the participatory rapid assessment of the Assiut WWC were to examine the main utility functions to identify deficiencies, assess potential risk areas, and recommend improvements. The assessment identified utility systems that have performance deficiencies within the O&M, financial, commercial, administration, program management, and HR sectors, and outlined remedial actions necessary to address such deficiencies to enhance efficiency operations of the utility. (English)
24	Participatory Rapid Assessment for Luxor WWC	Summer 2009	The overall objectives of the participatory rapid assessment of the Luxor WWC were to examine the main utility functions to identify deficiencies, assess potential risk areas, and recommend improvements. The assessment identified utility systems that have performance deficiencies within the O&M, financial, commercial, administration, program management, and HR sectors, and outlined remedial actions necessary to address such deficiencies to enhance efficiency operations of the utility. (English)
25	Participatory Rapid Assessment for Sohag WWC	Summer 2009	The overall objectives of the Participatory Rapid Assessment of the Sohag WWC were to examine the main utility functions to identify deficiencies, assess potential risk areas, and recommend improvements. The assessment identified utility systems that have performance deficiencies within the O&M, financial, commercial, administration, program management, and HR sectors, and outlined remedial actions necessary to address such deficiencies to enhance efficiency operations of the utility. (English)

Serial No.	Document Title	Date	Description
26	Chemical Use Optimization Program-Kedwan Water Treatment Plant, Minya	Apr 2010	This report summarizes the WWSS study on optimizing chemical use at the Kedwan water treatment plant in Minya. By analyzing chemical use, as well as related equipment use and maintenance, the study recommended adjustments to levels of chemical dosage at the plant, primarily chlorine and alum, to improve the quality and consistency of produced water. In many cases, chemical dosage was decreased. The WWSS recommended dosage levels would save the plant an estimated 130,000 EGP annually. (Arabic, with English executive summary)
27	WWSS Fifth Quarterly Progress Report - January-March 2010	Apr 2010	This quarterly report summarizes program activities from January through March 2010. (English)
28	WWSS and WPRR Programs: Performance Monitoring Plan	May 2010	This report lays out the program's performance monitoring plan, which outlines expected combined results of the WWSS and WPRR programs, as well as the mechanisms selected to monitor progress and results over the life of the projects. The report lays out 37 indicators, to be regularly tracked, which monitor the projects' progress toward fulfilling three project intermediate results (financial and commercial viability of utilities, capital investment planning, and the legal/policy framework for utilities) and one crosscutting key result area, (staff capacity) toward the overall goal of improving the quality of and access to sustainable water and wastewater services nationally. (English)
29	Business Plan, Assiut	May 2010	The Assiut Water and Wastewater Company's draft business plan charts the utility's strategy for 2010 to 2015. It begins with an introduction to the governorate, the company, and its stakeholder groups. Seven subsequent sections deal with 1) an environmental analysis of the company, including its objectives, vision, and mission, 2) action plan, activities and timeline; 3) financial strategy, including budget and tariff considerations; 4) organizational structure and staffing; 5) general and investment plan; 6) IT strategy; and 7) performance indicators and monitoring. (Arabic)
30	Business Plan, Giza	May 2010	The Giza Water and Wastewater Company's draft business plan charts the utility's strategy for 2010 to 2015. It begins with an introduction to the governorate, the company, and its stakeholder groups. Seven subsequent sections deal with 1) an environmental analysis of the company, including its objectives, vision, and mission; 2) action plan, activities and timeline; 3) financial strategy, including budget and tariff considerations; 4) organizational structure and staffing; 5) general and investment plan; 6) IT strategy; and 7) performance indicators and monitoring. (Arabic)
31a	HCWW Communications Strategy - English	Jun 2010	This report lays out the communications strategy for the sector's public awareness and public relations units, and a long-term vision for sector communications activities, developed in consultation with senior HCWW and sector officials. It summarizes key communications challenges faced by the sector, lays out objectives of the sector's communications activities, and identifies key messages, audiences, and channels/activities most beneficial to achieving the sector's communications goals. The strategy also lays out a Year 1 Action Plan, focusing on communications activities to be undertaken by HCWW during the coming year. (English)
31b	HCWW Communications Strategy - Arabic	Jun 2010	As for No. 31a, in Arabic.
32	SOPs for Nazlet Abdella Water Treatment Plant in Assiut	Jun 2010	This report outlines SOPs for the Nazlet Abdella water treatment plant in Assiut. The objective of developing the SOPs is the introduction of standard steps to improve the plant's operations. It includes an assessment of the plant, a summary of the process through which the SOPs were developed, and detailed step-by-step procedures. As part of the process, the steps in the SOPs were summarized in laminated posters, which are included in the manual. (Arabic)
33	Draft Disconnection Policy	Jun 2010	This report formulates a draft disconnection policy for Egypt, taking into consideration: 1) best international standards and practices implemented in current disconnection polices outside of Egypt, including those of the City Calgary Water Services, Minnesota Rural Water Association, and Office of Water Services (OFWAT) in the UK; and 2) the situation in Egypt (currently under Laws No. 27 of 1978 and No. 93 of 1962 concerning the water/wastewater sector regulation, and soon to be under a new law covering water/wastewater regulation to be approved by the Egyptian Assembly). It

Serial No.	Document Title	Date	Description
			also includes an analysis of the judicial implications of the policy. (Arabic)
34	Business Plan, Qena	Jun 2010	The Qena Water and Wastewater Company's draft business plan charts the utility's strategy for 2010 to 2015. It begins with an introduction to the governorate, the company, and its stakeholder groups. Seven subsequent sections deal with 1) an environmental analysis of the company, including its objectives, vision, and mission; 2) action plan, activities and timeline; 3) financial strategy, including budget and tariff considerations; 4) organizational structure and staffing; 5) general and investment plan; 6) IT strategy; and 7) performance indicators and monitoring. (Arabic)
35	Business Plan, Sohag	Jun 2010	The Sohag Water and Wastewater Company's draft business plan charts the utility's strategy for 2010 to 2015. It begins with an introduction to the governorate, the company, and its stakeholder groups. Seven subsequent sections deal with 1) an environmental analysis of the company, including its objectives, vision, and mission; 2) action plan, activities and timeline; 3) financial strategy, including budget and tariff considerations; 4) organizational structure and staffing; 5) general and investment plan; 6) IT strategy; and 7) performance indicators and monitoring. (Arabic)
36a	Basic Hydraulics/Water Sewer CAD Training, Part 1	May 2010	This report consists of a training program for using Water and Sewer CAD in hydraulic analysis. It consists of an overview of basic principles, a summary of flow in pressured pipes, pump analysis, and flow considerations in open channels.
36b	Basic Hydraulics/Water Sewer CAD Training, Part 2	Jul 2010	This report consists of a continuation of the training program for using Water and Sewer CAD in hydraulic analysis described above. It consists of an overview of basic principles, a summary of system elements, an overview of hydraulic analysis using Water and Sewer CAD, and applications for the system.
37	WWSS Sixth Quarterly Progress Report - April-June 2010	Jul 2010	This quarterly report summarizes program activities from April through June 2010. (English)
38	Pilot Program for Unaccounted for Water, Luxor	Aug 2010	This report summarizes the WWSS pilot program addressing UFW in a portion of the city of Luxor. UFW in many Egyptian utilities accounts for more than 40% of all water produced. The WWSS methodology piloted in Luxor involves a range of activities, including measuring water flow, leak detection, installing and fixing meters, reducing illegal connections, and increasing billing and collections. WWSS activities related to technical/physical losses resulted in a reduction of UFW by 32%, and activities related to commercial losses further reduced UFW by 4.5%. As a result of this experience, future rollout of the WWSS methodology emphasizes activities to reduce technical/physical losses. (Arabic, with English executive summary)
39	Chemical Use Optimization Program, Sohag	Aug 2010	This report summarizes the WWSS study on optimizing chemical use at the Needa water treatment plant in Sohag. By analyzing chemical use, as well as related equipment use and maintenance, the study recommended adjustments to levels of chemical dosage at the plant, primarily chlorine and alum, to improve the quality and consistency of produced water. In many cases, chemical dosage was decreased. The WWSS recommended dosage levels would save the plant an estimated 35,000 EGP annually. (Arabic, with English executive summary)
40	Chemical Use Optimization Program, Assiut	Aug 2010	This report summarizes the WWSS study on optimizing chemical use at the Nazlet Abdulla water treatment plant in Assiut. By analyzing chemical use, as well as related equipment use and maintenance, the study recommended adjustments to levels of chemical dosage at the plant, primarily chlorine and alum, to improve the quality and consistency of produced water. In many cases, chemical dosage was decreased. The WWSS recommended dosage levels would save the plant an estimated 250,000 EGP annually. (Arabic, with English executive summary)

Serial No.	Document Title	Date	Description
41	Chemical Use Optimization Program, Giza	Aug 2010	This report summarizes the WWSS study on optimizing chemical use at the El-Aiat water treatment plant in Giza. By analyzing chemical use, as well as related equipment use and maintenance, the study recommended adjustments to levels of chemical dosage at the plant, primarily chlorine and alum, to improve the quality and consistency of produced water. In many cases, chemical dosage was decreased. The WWSS recommended dosage levels would save the plant an estimated 87,000 EGP annually. (Arabic, with English executive summary)
42	Chemical Use Optimization Program, Menufiya	Aug 2010	This report summarizes the WWSS study on optimizing chemical use at the Shebeen El-Kom water treatment plant in Menufiya. By analyzing chemical use, as well as related equipment use and maintenance, the study recommended adjustments to levels of chemical dosage at the plant, primarily chlorine and alum, to improve the quality and consistency of produced water. In many cases, chemical dosage was decreased. The WWSS recommended dosage levels would save the plant an estimated 250,000 EGP annually. (Arabic, with English executive summary)
43	Rationalizing Energy Consumption in Aswan	Aug 2010	This report summarizes the WWSS study on rationalizing energy consumption at the Ferial water treatment plant in Aswan. The study entailed a workshop with local officials, measurements of the plant's electric system, analysis of the data, and theoretical and practical training for plant engineers. At this plant, after installing capacitors, the power factor would be increased to more than 90%, and as a result, the plant would avoid paying significant penalty charges to the electric utility. These changes would result in an estimated annual savings of 73,000 EGP, and the utility would pay off the cost of the capacitors (estimated at 40,000 EGP) in less than one year. (Arabic, with English executive summary)
44	Rationalizing Energy Consumption in Assiut	Aug 2010	This report summarizes the WWSS study on rationalizing energy consumption at the Nazlet Abdulla water treatment plant in Assiut. The study entailed a workshop with local officials, measurements of the plant's electric system, analysis of the data, and theoretical and practical training for plant engineers. At this plant, after installing capacitors, the power factor would be increased to more than 90%, and as a result, the plant would avoid paying significant penalty charges to the electric utility. These changes would result in an estimated annual savings of 44,000 EGP, and the utility would pay off the cost of the capacitors (estimated at 80,000 EGP) in less than two years. (Arabic, with English executive summary)
45	Rationalizing Energy Consumption in Giza	Aug 2010	This report summarizes the WWSS study on rationalizing energy consumption at the Giza water treatment plant in Giza Governorate. The study entailed a workshop with local officials, measurements of the plant's electric system, analysis of the data, and theoretical and practical training for plant engineers. At this plant, after installing capacitors, the power factor would be increased to more than 90%, and as a result, the plant would avoid paying significant penalty charges to the electric utility. These changes would result in an estimated annual savings of 256,000 EGP, and the utility would pay off the cost of the capacitors (estimated at 500,000 EGP) in less than two years. (Arabic, with English executive summary)
46	Rationalizing Energy Consumption in Matrouh	Aug 2010	This report summarizes the WWSS study on rationalizing energy consumption at the Al Serko water treatment plant in Matrouh. The study entailed a workshop with local officials, measurements of the plant's electric system, analysis of the data, and theoretical and practical training for plant engineers. At this plant, after installing capacitors, the power factor would be increased to more than 90%, and as a result, the plant would avoid paying significant penalty charges to the electric utility. These changes would result in significant annual savings, defraying the one-time investment cost of purchasing the corrective equipment. (Arabic, with English executive summary)

Serial No.	Document Title	Date	Description
47	Rationalizing Energy Consumption in Beni Suef	Aug 2010	This report summarizes the WWSS study on rationalizing energy consumption at the Chiki water treatment plant in Beni Suef. The study entailed a workshop with local officials, measurements of the plant's electric system, analysis of the data, and theoretical and practical training for plant engineers. At this plant, after installing capacitors, the power factor would be increased to more than 90%, and as a result, the plant would avoid paying significant penalty charges to the electric utility. These changes would result in an estimated annual savings of 40,000 EGP, and the utility would pay off the cost of the capacitors (estimated at 70,000 EGP) in less than two years. (Arabic, with English executive summary)
48	Rationalizing Energy Consumption in Sohag	Aug 2010	This report summarizes the WWSS study on rationalizing energy consumption at the Needa water treatment plant in Sohag. The study entailed a workshop with local officials, measurements of the plant's electric system, analysis of the data, and theoretical and practical training for plant engineers. At this plant, after installing capacitors, the power factor would be increased to more than 90%, and as a result, the plant would avoid paying significant penalty charges to the electric utility. These changes would result in significant annual savings, defraying the one-time investment cost of purchasing the corrective equipment. (Arabic, with English executive summary)
49	Business Plan, Menufiya	Aug 2010	The Menufiya Water and Wastewater Company's draft business plan charts the water and wastewater company's strategy for 2010 to 2015. It begins with an introduction to the governorate, the company, and its stakeholder groups. Seven subsequent sections deal with 1) an environmental analysis of the company, including its objectives, vision and mission; 2) action plan, activities, and timeline; 3) financial strategy, including budget and tariff considerations; 4) organizational structure and staffing; 5) general and investment plan; 6) IT strategy; and 7) performance indicators and monitoring. (Arabic)
50	Business Plan, Luxor	Aug 2010	The Luxor Water and Wastewater Company's draft business plan charts the water and wastewater company's strategy for 2010 to 2015. It begins with an introduction to the governorate, the company, and its stakeholder groups. Seven subsequent sections deal with 1) an environmental analysis of the company, including its objectives, vision and mission, 2) action plan, activities, and timeline; 3) financial strategy, including budget and tariff considerations; 4) organizational structure and staffing; 5) general and investment plan; 6) IT strategy; and 7) performance indicators and monitoring. (Arabic)
51	SOPs for the Kedwan Water Treatment Plant in Minya	Sep 2010	This report outlines SOPs for the Kedwan water treatment plant in Minya. The overall objective of developing the SOPs is the introduction of standard steps to improve the plant's operations. It includes an assessment of the plant, a summary of the process through which the SOPs were developed, and detailed step-by-step procedures for each stage of the water treatment process. As part of the process, the steps in the SOPs were summarized in laminated posters, which are included in the manual. (Arabic)
52	Giza Staffing Plan, 2009-2014	Oct 2010	This report lays out a five-year staffing plan for the Giza Water and Wastewater Company from 2009 to 2014. It includes an analysis of the current labor force, projections of additional staffing requirements based on water and wastewater projects planned for the period, and total staffing requirements based on this analysis. (Arabic)
53	Training Guide for Managing Quality and Water and Wastewater Labs	Oct 2010	This training guide contains instructional material on managing and ensuring quality at water and wastewater labs. It includes modules on ISO requirements related to laboratory analysis, quality assurance/quality control procedures, including assurance and validation, records and documentation requirements, Egyptian water quality specifications, and methods used in analyzing potable water. It also includes a training plan for delivering the course. (Arabic).

Serial No.	Document Title	Date	Description
54	Hydraulic Study for the New Cairo Raw Water Pipeline	Oct 2010	This report summarizes an evaluation conducted by WWSS subcontractor CH2M Hill of certain operational aspects of the New Cairo Raw Water System, currently under construction, which will connect New Cairo to the Nile. The study focused on a hydraulic and surge modeling evaluation of the entire system. The report came to three primary conclusions: 1) the overall infrastructure is adequate for its objectives, 2) additional surge capacity needs to be developed, 3) the system is sensitive to changes in flow rates, as a result of normal and emergency operations, and has insufficient forebay storage capacity. The report proposes a solution addressing the surge and forebay issues involving installation of storage tanks on each major pipeline segment upstream from pumping stations. (English)
55	SOPs for the Assiut University Water Treatment Plant in Assiut	Oct 2010	This report outlines SOPs for the Assiut University water treatment plant in Assiut. The objective of developing the SOPs is the introduction of standard steps to improve the plant's operations. It includes an assessment of the plant, a summary of the process through which the SOPs were developed, and detailed step-by-step procedures for each stage of the water treatment process. As part of the process, the steps in the SOPs were summarized in laminated posters, which are included in the manual. (Arabic)
56	SOPs for the Hawatka Water Treatment Plant in Assiut	Oct 2010	This report outlines SOPs for the Hawatka water treatment plant in Assiut. The overall objective of developing the SOPs is the introduction of standard steps to improve the plant's operations. It includes an assessment of the plant, a summary of the process through which the SOPs were developed, and detailed step-by-step procedures for each stage of the water treatment process. As part of the process, the steps in the SOPs were summarized in laminated posters, which are included in the manual. (Arabic)
57	SOPs for the Sultana Water Treatment Plant in Minya	Oct 2010	This report outlines SOPs for the Sultana water treatment plant in Minya. The overall objective of developing the SOPs is the introduction of standard steps to improve the plant's operations. It includes an assessment of the plant, a summary of the process through which the SOPs were developed, and the detailed step-by-step procedures for each stage of the water treatment process. As part of the process, the steps of the SOPs were summarized in laminated posters, which are included in the manual. (Arabic)
58a	Year 3 Work Plan - English	Oct 2010	WWSS' Year 3 Work Plan lays out the program's strategy and approach for the third year of operations. The document summarizes Year 2 activities, looks ahead to Year 3 activities, and summarizes the WWSS technical assistance approach (pilot activity to manuals to workshops to on-site assistance) and the subsidiary-specific implementation approach, drawing on the services of LWGs. The Year 3 Work Plan calls for program activities in four areas: 1) central activities (with HCWW), 2) crosscutting activities (involving multiple subsidiaries), 3) subsidiary-specific activities (involving particular subsidiaries), and 4) program development and coordination activities. The work plan includes a summary of program staff members, planned activities (along with timing and team roles), and monitoring and evaluation plan. In its appendices, it summarizes, among other things, activities undertaken to date by governorates and results of the annual assessment exercise. (English)
58b	Year 3 Work Plan - Arabic	Oct 2010	As for No. 58a, in Arabic.
59	WWSS Seventh Quarterly Progress Report - July-September 2010	Oct 2010	This quarterly report summarizes program activities during July through September 2010. (English)
60	Business Plan, Aswan	Oct 2010	The Aswan Water and Wastewater Company's draft business plan charts the water and wastewater company's strategy from 2010 to 2015. It begins with an introduction to the governorate, the company, and its stakeholder groups. Seven subsequent sections deal with 1) an environmental analysis of the company, including its objectives, vision, and mission; 2) action plan, activities and timeline; 3) financial strategy, including budget and tariff considerations; 4) organizational structure and staffing; 5) general and investment plan; 6) IT strategy; and 7)

Serial No.	Document Title	Date	Description
			performance indicators and monitoring. (Arabic)
61	PRISM Training Manual	Oct 2010	This manual targets utility program management staff with instructional material on using and updating the USAID-supported PRISM. It includes an overview of using PRISM, including the steps for data updating and entry. The report includes forms and codes to be used for PRISM data entry. (Arabic)
62	Chemical Use Optimization Program, Matrouh	Nov 2010	This report summarizes the WWSS study on optimizing chemical use at the Alamein South water treatment plant in Matrouh. By analyzing chemical use, as well as related equipment use and maintenance, the study recommended adjustments to levels of chemical dosage at the plant, primarily chlorine and alum, to improve the quality and consistency of produced water. Reductions in chlorine and alum doses were recommended, along with improved equipment maintenance (scraping of sludge on filters, pump calibration, etc.), to maintain the lower doses over time. (Arabic, with English executive summary)
63a	Analysis of Self-Financing Capability Case Study: The Cairo Water Company	Nov 2010	This report assesses the financing capabilities of the Cairo Water Company, considers strategies by which the company's credit rating can be improved, and reviews the company's options for raising funds commercially. The report reviews long-term financing options available to the company and projects' credit-worthiness options for the company based on various projected tariff scenarios. (English, with Arabic executive summary)
63b	Analysis of Self-Financing Capability Case Study: The Cairo Water Company. Arabic Executive Summary.	Nov 2010	Executive summary of No. 63a, in Arabic.
64	Chemical Use Optimization Program, Beni Suef	Nov 2010	This report summarizes the WWSS study on optimizing chemical use at the Al Fransawy water treatment plant in Beni Suef. By analyzing chemical use, as well as related equipment use and maintenance, the study recommended adjustments to levels of chemical dosage at the plant, primarily chlorine and alum, to improve the quality and consistency of produced water. Reductions in chlorine and alum doses were recommended, along with improved equipment maintenance (scraping of sludge on filters, pump calibration, etc.), to maintain the lower doses over time. (Arabic, with English executive summary)
65	O&M Plan and Budget for the Menufiya WWC	Nov 2010	This report consists of an O&M plan and budget for the Menufiya Water and Wastewater Company. It includes a methodology used in developing the plan and a plan and budget for the O&M department at the utility, as well as for each water and wastewater plant. The report includes operational guidelines for the utility's O&M department, as well as training materials for developing O&M budgets and plans. (Arabic)
66	O&M Plan and Budget for the Giza WWC	Nov 2010	This report consists of an O&M plan and budget for the Giza Water and Wastewater Company. It includes a methodology used in developing the plan and a plan and budget for the O&M department at the utility, as well as for each water and wastewater plant. The report includes operational guidelines for the utility's O&M department, as well as training materials for developing O&M budgets and plans. (Arabic)
67	Chemical Use Optimization in Aswan, English	Nov 2010	This report summarizes the WWSS study on optimizing chemical use at the Tokook water treatment plant in Aswan. By analyzing chemical use, as well as related equipment use and maintenance, the study recommended adjustments to levels of chemical dosage at the plant, primarily chlorine and alum, to improve the quality and consistency of produced water. The study recommended a reduction in chlorine dosing, along with improved equipment maintenance (pump calibration, sludge drainage, etc.), to maintain the lower dose over time. (Arabic, with English executive

Serial No.	Document Title	Date	Description
			summary)
68	Chemical Use Optimization in Luxor, English	Dec 2010	This report summarizes the WWSS study on optimizing chemical use at the Luxor water treatment plant in Luxor. By analyzing chemical use, as well as related equipment use and maintenance, the study considered adjustments to levels of chemical dosage at the plant, primarily chlorine and alum, to improve the quality and consistency of produced water. The study found that the doses used were appropriate and recommended improved equipment maintenance (scraping of sludge on filters, pump calibration, etc.), to maintain appropriate doses over time. (Arabic, with English executive summary)
69	Chemical Use Optimization in Qena, English	Dec 2010	This report summarizes the WWSS study on optimizing chemical use at the Al Salehia water treatment plant in Qena. By analyzing chemical use, as well as related equipment use and maintenance, the study found that the doses of chlorine were appropriate, but recommended adjustments to level of alum to improve the quality and consistency of produced water. WWSS also recommended improved equipment maintenance (scraping of sludge on filters, pump calibration, etc.) to maintain appropriate doses over time. (Arabic, with English executive summary)
70	O&M Plan and Budget for the Sohag WWC	Dec 2010	This report consists of an O&M plan and budget for the Sohag Water and Wastewater Company. It includes a methodology used in developing the plan and a plan and budget for the O&M department at the utility, as well as for each water and wastewater plant. The report includes operational guidelines for the utility's O&M department, as well as training materials for developing O&M budgets and plans. (Arabic)
71	Rationalizing Energy Consumption in Qena	Dec 2010	This report summarizes the WWSS study on rationalizing energy consumption at the Al Salehia water treatment plant in Qena. The study entailed a workshop with local officials, measurements of the plant's electric system, analysis of the data, and theoretical and practical training for plant engineers. At this plant, after installing capacitors, the power factor would be increased to more than 90%, and as a result, the plant would avoid paying significant penalty charges to the electric utility. These changes would result in an estimated annual savings of 17,000 EGP, and the utility would pay off the cost of the capacitors (estimated at 70,000 EGP) in about four years. (Arabic, with English executive summary)
72	Rationalizing Energy Consumption in Luxor	Dec 2010	This report summarizes the WWSS study on rationalizing energy consumption at the Luxor water treatment plant in Luxor The study entailed a workshop with local officials, measurements of the plant's electric system, analysis of the data, and theoretical and practical training for plant engineers. At this plant, after installing capacitors, the power factor would be increased to more than 90%, and as a result, the plant would avoid paying significant penalty charges to the electric utility. These changes would result in an estimated annual savings of 36,000 EGP, and the utility would pay off the cost of the capacitors (estimated at 80,000 EGP) in about two years. (Arabic, with English executive summary)
73	Staffing Plan for the Menufiya WWC	Dec 2010	This report lays out a five-year staffing plan for the Menufiya Water and Wastewater Company, from 2009 to 2014. It includes an analysis of the current labor force, projections of new staffing requirements based on water and wastewater projects planned for the period, and total staffing requirements based on this analysis. (Arabic)
74	Business Plan, Beni Suef	Dec 2010	The Beni Suef Water and Wastewater Company's draft business plan charts the water and wastewater company's strategy from 2010 to 2015. It begins with an introduction to the governorate, the company, and its stakeholder groups. Seven subsequent sections deal with 1) an environmental analysis of the company, including its objectives, vision and mission, 2) action plan, activities and timeline; 3) financial strategy, including budget and tariff considerations; 4) organizational structure and staffing; 5) general and investment plan; 6) IT strategy; and 7) performance indicators and monitoring. (Arabic)

Serial No.	Document Title	Date	Description
75	Subsidiary Human Resources Management Plans: Beni Suef, Menufiya, Qena, Sohag, and Matrouh	Dec 2010	This report includes the HR development plans for water and wastewater utilities in Beni Suef, Menufiya, Qena, Sohag, and Matrouh. These plans were developed WWSS assistance, during a process that included an assessment of HR divisions at subsidiaries, linking HR plans to the business plan, HR workshops, and assistance in forming the plans. The plans include a statement of objectives of the HR division, the organization of relevant departments and sections, and HR jobs and job descriptions for each of the division's employees. (Arabic)
76	Standard Documents for Construction Contracting - Volume I	Dec 2010	This series of three manuals lays out a set of standard documents for use by water and wastewater utilities in developing and managing contracts for infrastructure activities. The guidance materials were developed based on industry best practices, international standards bodies' recommendations, and local procurement laws covering the entire procurement life cycle activities. The deliverables are organized as three volumes. Volume I, Contracting Documents, includes templates and examples of procurement documents for use in contracting design, studies, construction, and construction management services. The documents include an advertising template, a pre-qualification document, invitation for bid documents, general and special conditions, evaluation tables and an agreement form. (Arabic)
77	Standard Documents for Construction Contracting - Volume II	Dec 2010	This series of three manuals lays out a set of standard documents for use by water and wastewater utilities in developing and managing contracts for infrastructure activities. The guidance materials were developed based on industry best practices, international standards bodies' recommendations, and local procurement laws covering the entire procurement life cycle activities. The deliverables are organized as three volumes. Volume II, Contracting Policies and Procedures Manual, covers general definitions, project chartering, contracting methods, an evaluation process, dispute resolution procedures, an O&M manual template and construction management indicators. (Arabic)
78	Standard Documents for Construction Contracting - Volume III	Dec 2010	This series of three manuals lays out a set of standard documents for use by water and wastewater utilities in developing and managing contracts for infrastructure activities. The guidance materials were developed based on industry best practices, international standards bodies' recommendations, and local procurement laws covering the entire procurement life cycle activities. The deliverables are organized as three volumes. Volume III, Construction Management Manual, covers the construction management process and includes responsibilities of construction management services and forms and tools for use during the construction management activity. (Arabic)
79	Capital Investment Planning Manual	Dec 2010	This manual contains practical guidance for developing a capital investment plan for utilities. It includes sections on identifying priorities for new projects and for rehabilitation and replacement projects, emphasizing data accuracy and accurate cost estimates. It covers GIS and hydraulic analysis and their use in supporting decision-making, and includes a practical case study drawn from the experience in Sohag. (Arabic)
80	Guidelines for Indefinite Quantity Contracting	Jan 2011	This manual consists of guidelines for developing and using contracting procedures for procurement related to annual rehabilitation and renovation work. It includes an overview on procurement procedures and guidance for using indefinite quantity contracts to reduce the time spent in the contracting process. Other sections cover topics related to purchasing, annual replacement, long-term procurement arrangements, dealing with fraud, claims, and enforcement of contracts. It includes a section on prequalification for procurement works, and sample requests for proposals for suppliers, consultants and subcontracts, and prequalification procedures. It also includes templates and forms. (Arabic)
81	Guidelines for O&M Contracting	Jan 2011	This report consists of a manual for developing contracts for the provision of O&M services. It includes sections related to instructions for bidders, general conditions for scopes of work, and bills of quantity. Annexes include a range of useful information and guidance including methods for evaluating bids, copies of relevant governmental decrees, and forms related to recordkeeping and contracts. (Arabic)

Serial No.	Document Title	Date	Description
82	WWSS Eighth Quarterly Progress Report - October-December 2010	Jan 2011	This quarterly report summarizes program activities from October through December 2010. (English)
83	Financial Manual: Applying the Unified Accounting System	Mar 2011	This manual provides practical guidance on using the UASs at water and wastewater utilities, covering basic accounting principles, accounting policies, and financial statements. It includes sections on an introduction to UASs, an overview of accounting policies for asset accounts, equities, liabilities, costs and expenses, and revenues. It also includes a section on developing financial reports. (Arabic)
84	Energy Use Rationalization TOT Materials	Feb 2011	This document provides a training syllabus for a technical training program related to energy use rationalization at utilities. It includes modules on power factor improvement, use of condensers, and safety and precautionary procedures. Training includes a practical case study and a user manual. Delivery of this technical training course was complemented by a raining skills course, allowing trainees to spread the course as trainers. (Arabic)
85	Training Guide for UFW/Leak Detection	Feb 2011	This document provides a training syllabus for a technical training program related to UFW/leak detection. Its sections cover UFW definitions, GIS usage and applications, equipment used in leak detection, examples of leak detection initiatives, and measuring system pressure. Delivery of this technical training course was complemented by training skills course, allowing trainees to spread the course as trainers. (Arabic)
86	Business Plan, Minya	Feb 2011	The Minya Water and Wastewater Company's draft business plan charts the water and wastewater company's strategy from 2010 to 2015. It begins with an introduction to the governorate, the company, and its stakeholder groups. Seven subsequent sections deal with 1) an environmental analysis of the company, including its objectives, vision, and mission; 2) action plan, activities, and timeline; 3) financial strategy, including budget and tariff considerations; 4) organizational structure and staffing; 5) general and investment plan; 6) IT strategy; and 7) performance indicators and monitoring. (Arabic)
87	Information Technology Due Diligence and Needs Assessment Report - Volume I	Feb 2011	This report analyzes the status of IT systems within HCWW and its subsidiaries and provides recommendations for the preparation of the subsequent IT master plan. The report finds good levels of automation within the sector and adequate systems and staff skills related to IT, but challenges related to integration between applications, and uneven IT preparedness across the sector. Overall, the report finds that 55% of the IT components of HCWW's five-year vision have been accomplished; the subsequent IT master plan will aim to address remaining items. (English and Arabic)
88	Information Technology Due Diligence and Needs Assessment Report - Volume II	Mar 2011	This second volume of the IT assessment details the IT preparedness of HCWW and subsidiaries, including a survey of the IT department, IT systems and applications, and the organizational structure of the department. The report examines the IT systems of HCWW, Cairo Water, Cairo Wastewater, Alex Water, and Alex Wastewater, as well as water/wastewater utilities of Daqahliya, Sharqiya, Gharbiya, Kafr Sheikh, Damietta, Beheira, Fayoum, Beni Suef, Minya, Aswan, Qena, Menufiya, Giza, Matrouh, Luxor, Assiut, Sohag, Red Sea, and N. and S. Sinai. (Arabic)
89	Unaccounted-for-Water Pilot Program in Sohag	Mar 2011	This report summarizes activities and results of the WWSS UFW activity in a pilot area of the Sohag Governorate. It includes a summary of implementation steps undertaken, the results of the program, and a series of recommendations and conclusions. WWSS interventions aimed to reduce commercial and technical losses by measuring water flow, detecting and repairing leaks, installing and fixing meters, reducing illegal connections, and increasing billing and collections. These activities resulted in an increase of 14% in the volume of sold water in the pilot area, largely due to an increase in the accuracy of meter readers, and a reduction of 12.5% in the volume of consumed water in the pilot area as a result of leak detection and repair efforts. (Arabic, with English executive summary)

Serial No.	Document Title	Date	Description
90	Chemical Use Optimization Training Curriculum	Mar 2011	This document provides a training syllabus for a technical training program related to chemical use optimization. It includes sections on water purification using chlorine, the coagulation process, and use of filters. Annexes to the report include a summary of operational factors and constraints, and Egyptian standards for chemical usage. Delivery of this technical training course was complemented by training skills course, allowing trainees to further spread the course as trainers. (Arabic)
91	Business Plan, Matrouh	Mar 2011	The Matrouh Water and Wastewater Company's draft business plan chart's the water and wastewater company's strategy from 2010 to 2015. It begins with an introduction to the governorate, the company, and its stakeholder groups. Seven subsequent sections deal with 1) an environmental analysis of the company, including its objectives, vision, and mission; 2) action plan, activities, and timeline; 3) financial strategy, including budget and tariff considerations; 4) organizational structure and staffing; 5) general and investment plan; 6) IT strategy; and 7) performance indicators and monitoring. (Arabic)
92	Training-of-Trainers Course Materials	Mar 2011	This set of course materials is for a training-of-trainers course, which was delivered to all WWSS-targeted companies in conjunction with technical training in energy rationalization, chemical use optimization, and leak detection and reduction. Designed to equip subsidiary technicians with the skills to train their colleagues on these subjects, it contains modules on identifying training needs, designing training programs, developing lesson plans, tests, assessments, and evaluation, and developing teaching aids. (Arabic)
93	Organizational Guide for HR Divisions in Egypt's Water and Wastewater Sector	Mar 2011	This manual includes practical guidance for water and wastewater utilities on building their organizations' human resource management and development function. It provides guidelines for the HR divisions, describes the division's tasks, responsibilities and departments, and provides a list of jobs and position descriptions for each. (Arabic)
94	Guide for Reading Financial Statements for Non-financial Audience	Apr 2011	This manual targets non-financial members of the water and wastewater sector and provides them with guidance on reading financial statements, aiming to increase financial literacy in a sector that's held increasingly responsible for its financial performance. It includes an overview of the contents and objectives of financial statements, a summary of an auditor’s report, and an analysis of the components of the financial statement, including objectives, ratios, and leverage. (Arabic)
95	Communications Guidelines for Egyptian Water and Wastewater Companies	Apr 2011	The communications guidelines serve as a toolkit for water and wastewater utilities, assisting current and future members of utility public awareness (PA) departments to plan and implement communications activities. The guidelines provide an overview of the importance of PA activities and a proposed organizational structure for PA departments. It provides a hands-on toolkit for producing PA deliverables, in four areas: strategy and planning, publications, community outreach and events, and monitoring/reporting. Each section includes examples and worksheets to help plan and improve the quality of PA activities. The guidelines will be updated by the HCWW PA team and will serve as a sustainable resource in upgrading the skill set of utility PA departments. (Arabic)
96	WWSS Ninth Quarterly Progress Report - January-March 2011	Apr 2011	This quarterly report summarizes program activities from January through March 2011. (English)
97	Manual for Developing O&M Plans and Budgets	Jun 2011	This manual provides guidance for developing water and wastewater utility budgets, including O&M plans and budgets. It includes sections on planning and budgeting, including subsections on definitions, objectives, functions, steps, phases, and categories. It also includes a section on guidelines for developing budgets, including subsections on estimating revenue, expenses and wages, accounting for remuneration, salaries and allowances, and factoring in investments, loans and depreciation. (Arabic)

Serial No.	Document Title	Date	Description
98	HR Management and Development Strategy for the Holding Company for Water and Wastewater	Sep 2010	This report consists of the HR development and management strategy for HCWW. It will serve as a strategic guide for HR operations of HCWW and its interaction with HR departments in subsidiaries. It was developed in coordination with HCWW HR division staff. It includes sections on planning; strategy, including developing organizational vision, mission and goals; and implementation, including developing an organizational structure, measuring performance, training and capacity building, policies and information systems, and benefits. It includes an evaluation system and an action plan for Year 1 of the strategy. It also includes proposed job descriptions for HR division staff. (Arabic and English)
99	Training Guide for Reducing Unaccounted-for-Water	Jun 2011	This report consists of a practical guide for utilities to use in reducing UFW. It includes sections on measuring and tracking water flow, using meters, accounting for official and unofficial losses, tracking water loss volume, and analyzing results. It includes practical tips for installing and fixing pipes and meters, as well as a recommended program for best practices in reducing losses. It also includes a section of references. (Arabic)
100	Training Course for WTP Operators (Level D) - Trainee Guide Part 1	Jun 2011	These training materials are for use in preparing water treatment plant operators for Level D certification in accordance with the Operator and Lab Analyst Certification Program, decreed by the minister of housing. Part 1 of this course includes sections on plant operations overview, differing conditions of water sources, distribution networks, settlement tanks, sedimentation, filtration, chemical additives, wells, mobile water treatment units, best practices in plan operations, maintenance, safety, and administrative procedures. It includes a summary of daily recommended tasks and operations. (Arabic)
101	Training Course for WTP Operators (Level D) - Trainee Guide Part 2	Jun 2011	This report is a continuation of the training course material for operators of Level D water plants for certification (see No. 100) and supplements it with a discussion of laboratory analysis for quality control of water production. It summarizes types of water treatment and methods for evaluating and controlling water quality. (Arabic)
102	Guidelines for using GIS in hydraulic analysis	Jun 2011	This report consists of a training curriculum for using GIS in hydraulic analysis. It includes sections on GIS definitions, applications for GIS in hydraulics, steps required for using GIS in hydraulic analysis, the components of GIS analysis including GIS layers, and geographic analysis using GIS. The curriculum was initially delivered by WWSS staff and is intended for utilities to use in disseminating this training program to their own staff. (Arabic)
103	Training Course on Designing Water Networks, Volume I	Jun 2011	This report consists of a training curriculum on designing water supply networks. It includes sections covering the principles of designing water networks, data required for effective designs, planning distribution networks, hydraulic design for networks, pumping station considerations, and properties of storage tanks. The curriculum was initially delivered by WWSS staff and is intended for utilities to use in disseminating this training program to their own staff. (Arabic)
104	Energy Rationalization Manual in Water and Wastewater Plants	Jun 2011	This document provides a technical manual related to energy use rationalization at utilities. It includes modules on power factor improvement, the use of condensers, measurement tools to monitor the power factor, formulas and relevant calculations, and quality control and error management. It also includes a practical case study. (Arabic)
105	Business Plan, Sinai	Jul 2011	The Sinai Water and Wastewater Company's draft business plan charts the water and wastewater company's strategy from 2010 to 2015. It begins with an introduction to the governorate, the company, and its stakeholder groups. Seven subsequent sections deal with 1) an environmental analysis of the company, including its objectives, vision, and mission; 2) action plan, activities, and timeline; 3) financial strategy, including budget and tariff considerations; 4) organizational structure and staffing; 5) general and investment plan; 6) IT strategy; and 7) performance indicators and monitoring. (Arabic)

Serial No.	Document Title	Date	Description
106	Human Resources Management and Development Plan for Minya Water & Wastewater Company	Jul 2011	This report includes the HR development plan for Minya Water and Wastewater utility. The plan was developed with WWSS assistance, during a process that included an assessment of HR divisions at subsidiaries, linking HR plans to the business plan, HR workshops, and assistance in forming the plans. The plan include a statement of the objectives of the HR division, the organization of the relevant departments and sections, HR jobs and job descriptions for each of the division's employees, a five-year staffing plan, policies and procedures, policies for recruitment, compensation and benefits, and a career path system. (Arabic)
107	Quarterly Progress Report No. 10, April-June 2011	Jul 2011	This report summarizes program activities from April through June 2011. (English)
108	Manual for SOPs at the Arab al'Madabagh Wastewater Plant in Assiut	Jul 25, 2011 (Draft) Oct 23, 2011 (Final)	This report outlines SOPs for the Arab al'Madabagh wastewater treatment plant in Assiut. The objective of developing the SOPs is the introduction of standard steps to improve the plant's operations. It includes an assessment of the plant, a summary of the process by which the SOPs were developed, detailed step-by-step procedures for each stage of the wastewater treatment process, and an overview of process steps, including straining, sedimentation, filtration, and aeration. (Arabic)
109	Training Course on Designing Water Networks, Volume II	Oct 2011	This report consists of the second volume of a training curriculum on designing water supply networks (see also No. 103). It includes sections covering drawing and data entry, hydraulic analysis, determining scenarios and alternatives, and linking with GIS. The curriculum was initially delivered by WWSS staff and is intended for utilities to use in disseminating this training program to their own staff. (Arabic)
110	Training Course on Standard Documents for Construction Contracting	Sep 2011	This report consists of training materials from a program related to capacity development in the CIP/Program Management domain related to development of standard contracting procedures; see deliverables 76, 77, and 78. (Arabic)
111	Staffing Plan for Assiut WWC	Sep 2011	This report lays out a five-year staffing plan for the Assiut Water and Wastewater Company. It includes an analysis of the current labor force, projections of new staffing requirements based on water and wastewater projects planned for the period, and total staffing requirements based on this analysis. (Arabic)
112	Minya Leak Detection Pilot Summary Report	Sep 2011	This report summarizes WWSS leak detection activities in Minya. It includes a summary of the methodology steps, an orientation for company leadership, selection criteria for the pilot area, GIS and base map processes, customer surveys, and recommendations. Based on the program's application in the Sultana pilot area, rates of leakage were reduced from 61% to 32%. (Arabic)
113	Assessment of Industrial Wastewater Handling in Giza	Oct 2011	This report summarizes the situation related to industrial wastewater in Giza. It assesses the current situation, provides an overview and analysis of available information and reports, and summarizes environmental laws related to disposal of industrial wastewater. It assesses capacity deficiencies at the Giza WWC in dealing with these challenges, assesses technical and institutional requirements, and recommends steps to address the issue. It includes a range of technical annexes. (Arabic)
114	Year 4 Work Plan	Oct 2011	WWSS' Year 4 Work Plan lays out the program's strategy and approach for the fourth year of operations. The document summarizes Year 3 activities, looks ahead to Year 4 activities, and summarizes the WWSS technical assistance approach (pilot activity to manuals to workshops to on-site assistance) and the subsidiary-specific implementation approach, drawing on the services of LWGs. The Year 4 Work Plan calls for program activities in four areas: 1) central activities (with HCWW), 2) crosscutting activities (involving multiple subsidiaries), 3) subsidiary-specific activities (involving particular subsidiaries), and 4) program development and coordination activities. The work plan includes a summary of program staff members, planned activities (along with timing and team roles), and a monitoring and evaluation plan. In its appendices, it summarizes, among other things, activities undertaken to date by

Serial No.	Document Title	Date	Description
			governorates and results of the annual assessment exercise. (English)
115	Quarterly Progress Report No. 11, July-September 2011	Oct 2011	This quarterly report summarizes program activities from July through September 2011. (English)
116	Training Course on Designing Water Networks, Volume II using WaterCad V8i	Oct 2011	This report includes training material of program inputs and outputs, the steps of hydraulic analysis, its options, and how to conduct this analysis. The training material reviews the results of this analysis, the scenarios, and alternatives. The report also includes an introduction on how to create a link with GIS. (Arabic)
117	Trainee's Manual of Designing Water Networks, Volume II using WaterCad V8i	Oct 2011	The trainee's manual of this program includes training course timeline, relevant presentations, and exercises. It also includes an integrated program on how to design feeding network using the WaterCAD V8i. (Arabic)
118	WWSS Performance Monitoring Plan	Oct 2011	This plan includes an overview of the WWSS program and approach and expected results and describes the approach to performance monitoring. It also gives an overview of the indicators, describes data sources, method of data collection, and quality control. Annexes include indicator reference sheets and business planning milestone tracking matrix. (English)
119	MASTER User Manual 1.0.8	Nov 2011	This report provides the definition of maintenance and explains the benefits and different types of maintenance. It also defines the computerized maintenance management systems and the benefits and components of the MASTER program. Annexes include the reports the system can generate and the different statistics it produces. (Arabic)
120	MASTER Admin Manual 1.0.8	Nov 2011	The MASTER administrator’s manual provides a definition of maintenance and explains the method of the program’s installation. It includes the components of the programs and the system of managing the relevant authorization and users. (Arabic)
121	Giza HR Plan	Dec 2011	The HR development plan for Giza WWC was developed through a process that included an assessment of the existing HR division, discussion of the company's business plan, training on the basics of HR management, and a planning exercise. The plan includes a statement of objectives of the HR division, organization of relevant departments and sections, HR jobs and job descriptions for each of the division’s employees, policies and procedures for recruitment, compensation and benefits, and a career path system. (Arabic)
122	Aswan HR Plan	Jan 2012	The HR development plan for Aswan WWC was developed through a process that included an assessment of the existing HR division, discussion of the company's business plan, training on the basics of HR management, and a planning exercise. The plan includes a statement of the objectives of the HR division, organization of relevant departments and sections, HR jobs and job descriptions for each of the division’s employees, policies and procedures for recruitment, compensation and benefits, and a career path system. (Arabic)

Serial No.	Document Title	Date	Description
123	Luxor HR Plan	Jan 2012	The HR development plan for Luxor WWC was developed through a process that included an assessment of the existing HR division, discussion of the company's business plan, training on the basics of HR management, and a planning exercise. The plan includes a statement of objectives of the HR division, organization of relevant departments and sections, HR jobs and job descriptions for each of the division's employees, policies and procedures for recruitment, compensation and benefits, and a career path system. (Arabic)
124	IT Master Plan (English)	Jan 2012	This report describes the methodology used in preparing the IT master plan, gives a summary of the due diligence phase, and identifies the IT components. The report also describes the impact of IT master plan components on achieving strategic goals. It sets out relevant HR requirements, cost-benefit analysis, and expected implementation periods. Appendixes include business continuity planning and indicate the general specifications for application. (English)
125	Planning and Scheduling Capital Investment Projects Using MS Project	Jan 2012	This manual includes training materials for a course on the Microsoft Project software program. The course provides an overview of the discipline of project management, basic elements of project management, the life cycle and stages of a project (from feasibility studies, to planning and design, construction, and project closeout), project scheduling, and the concept and elements of earned value management.. The course then delves into applying these concepts to project planning and scheduling using the software, with practical computer-based exercises. (Arabic)
126	Microsoft Project Program - Trainee's Manual	Jan 2012	This document is a user manual for the MS Project software application, geared for those using the program for planning, scheduling, and monitoring construction projects. (English)
127	Quarterly Progress Report No. 12, October-December 2011	Jan 2012	This report summarizes program activities from October through December 2011. (English)
128	Training Course for WTP Operators (Level D) - Trainer Guide	Feb 2012	This guide is designed for trainers and accompanies the Trainee Guide for the same course (see Nos. 100 and 101 above). Intended as a course for operators of simple, Level D, plants, it includes sections on plant operations overview, differing conditions of water sources, distribution networks, settlement tanks, sedimentation, filtration, chemical additives, wells, mobile water treatment units, best practices in plant operations, maintenance, safety, and administrative procedures. (Arabic)
129	Engineering Management of Water Treatment Plants	Mar 2012	This comprehensive manual covers the basic elements of water treatment in Egypt. It describes available water resources and drinking water needs, explains available technologies for treatment, and provides detailed instructions for operations, maintenance, and quality control (via labs) of water treatment plants and equipment. IT also covers all aspects of managing water treatment operations, including organizational, financial, administrative, health and safety, and asset management aspects. (Arabic)
130	Beni Suef Leak Detection Pilot Summary Report	Mar 2012	This report summarizes WWSS leak detection activities in Beni Suef. It includes a summary of the methodology steps, a description of baseline conditions (customers, water supply, and meters) in the pilot area, a description of the area's UFW (leakage, illegal connections, leaky valves, and metering problems) before and after the pilot activities, and recommendations. (Arabic)
131	Training Materials on SOPs for the Alaky Wastewater Treatment Plant in Aswan	Mar 2012	These training materials accompanied the delivery of an SOPs manual for the al-Alaqi wasatewater treatment plant in Aswan. The hands-on training provided an overview of wastewater infrastructure — including collection networks, pumping stations, and treatment plants — as well as a discussion of maintenance management systems, before presenting the actual plant-specific SOPs. (Arabic)

Serial No.	Document Title	Date	Description
132	Engineering Management of Wastewater Treatment Plants	Mar 2012	This comprehensive manual covers the basic elements of wastewater treatment in Egypt. Part 1 begins with an overview of the process of assessing environmental impacts of potential wastewater treatment facilities and then moves on to cover the technology involved in primary, secondary, and tertiary treatment of sewage. The manual also covers treatment facility site selection and key monitoring and maintenance functions to maintain efficiency of treatment. Part 2 focuses more on administration and management, covering budgeting, recordkeeping, inventory management, and staff training, among other things. Sludge management and wastewater reuse are also covered, along with emergency management and a discussion of mitigating environmental risks. (Arabic)
133	Young Professional Development Program (Module 1)	Mar 2012	These training materials were developed for the first module of a five-module course, the Junior Professional Development Program, designed to orient new professionals joining the water and sanitation on the aspects of utility operations. Module 1 introduced the program and the project and then included a comprehensive overview of the legal and regulatory framework for the water and sanitation sector. An overview of institutions participating in the sector was also included, before a more in-depth look at the Holding Company for Water and Wastewater, its mission and objectives, and its role in managing a portfolio of service providers. (Arabic)
134	Microbiology of Water	Mar 2012	These training materials were used in a training course for the laboratory staff at the South Sinai Water Treatment Plant laboratory on Water Microbiology. The course instructed participants on the biological characteristics of water, tools, and methods for evaluating their concentrations, measuring pollutants, and analyzing and presenting laboratory results. (Arabic)
135	Parasites in Water	Mar 2012	This course, targeting water treatment plant laboratory staff, covered parasitology as it pertains to drinking water. The materials catalog water-borne parasites and then discuss modes of transmission of parasites, identifying infectious parasites using laboratory equipment and analyzing and presenting laboratory results. (Arabic)
136	Quarterly Progress Report No. 13, January - March 2012	Apr 2012	This quarterly report summarizes program activities from January through March 2012. (English)
137	Manual for SOPs at El Alaky Wastewater Plant in Aswan	Jul 2012	This two-part manual outlines 1) SOPs and 2) instructions for maintenance of plant equipment, for the el-Alaqi wastewater treatment plant in Aswan. After an overview of the plant, including aerial photographs and diagrams and pictures of the plant's main components, Part I's subsequent chapters discuss each component of the plant (filters, sedimentation basins, sludge basins, pumping stations, chemical injection systems, etc.) in detail, with clear, step-by-step instructions on their operation. Also included are a sample organizational chart and job descriptions for plant staff. Volume II covers maintenance, including the importance of preventive maintenance; detailed instructions for the mechanical equipment at the plant, including diagrams; and suggestions for use of a computerized maintenance management system. (Arabic)
138	Young Professional Development Program (Module 2)	Apr 2012	These training materials were developed for the second module of a five-module course, the Junior Professional Development Program, designed to orient new professionals joining the water and sanitation on aspects of utility operations. Module 2 covered the Engineering and Technical Aspects of Drinking Water Production and Wastewater Treatment. Designed for non-engineers, the materials outline the sources of drinking water, the technology used in water and wastewater treatment and transmission, Egyptian standards related to water and sanitation, the costs involved, and key aspects of operations, maintenance, and management of treatment plants and infrastructure. (Arabic)

Serial No.	Document Title	Date	Description
139	Summary Report for the Leak Detection and Reduction Program in the al-Hassaya Area of Aswan	May 2012	This report summarizes WWSS leak detection activities in the al-Hassaya pilot area in Aswan. It includes a description of the pilot area, including mapping exercises undertaken as part of the activity. An overview of users/ customers in the area is also provided, before a presentation of an overview of the methodology, a description of the baseline conditions (customers, water supply, and meters) in the pilot area, a description of the area's UFW (leakage, illegal connections, leaky valves, and metering problems) before and after the pilot activities, and recommendations. (Arabic)
140	Manual for SOPs at Kom Ombo water plant in Aswan	May 2012	This manual outlines SOPs for the Kom Ombo water treatment plant, in the Aswan Governorate. After an overview of the plant, its distribution network, and associated baseline data, subsequent chapters discuss each component of the plant in detail, with clear, step-by-step instructions on their operation. Also included are a suggested organizational chart and optimal staffing levels for the plant. (Arabic)
141a	Manual for SOPs at ElKola Wastewater plant in Sohag (SOPs) - Volume 1: Standard Operating Procedures	Jul 2012	Volume I of this manual outlines SOPs for the el-Kola wastewater treatment plant in Sohag, and is accompanied by Volume II (see No. 141b), which covers maintenance of the plant's equipment. Volume I begins with an overview of the plant, including aerial photographs and diagrams and pictures of the plant's main components. Subsequent chapters discuss each component of the plant (filters, sedimentation basins, sludge basins, pumping stations, chemical injection systems, etc.) in detail, with clear, step-by-step instructions on their operation. Also included are a sample organizational chart and job descriptions for plant staff, and simplified, illustrated operating instruction posters to be printed and posted on-site near the equipment. (Arabic)
141b	Manual for SOPs at ElKola Wastewater plant in Sohag - Volume 2: Maintenance of Plant Equipment	Jul 2012	This volume accompanies Volume I (see No. 141a) and provides instructions on maintenance of the el-Kola wastewater treatment plant in Sohag. Following a general discussion on maintenance planning and management, as well as and the importance of preventive maintenance, the guide discusses the plant equipment one-by-one, and provides instructions on proper maintenance. The instructions are supported by detailed diagrams of equipment. The guide includes suggestions for use of a computerized maintenance management system for planning and managing maintenance tasks. (Arabic)
142	Young Professional Development Program (Module 3)	May 2012	These training materials were developed for the third module of a five-module course, the Junior Professional Development Program, designed to orient new professionals joining the water and sanitation sector on the aspects of utility operations. Module 3 covered: 1) the quality control systems for drinking water production and sewage treatment, and 2) capital investment planning and program management. (Arabic)
143	Training Course for WWTP Operators (Level C) - Trainee Guide	May 2012	These training materials are for use in preparing wastewater treatment plant operators for Level C certification in accordance with the Operator and Lab Analyst Certification Program, decreed by the minister of housing. The course opens with an overview of the sources and characteristics of wastewater and includes detailed chapters on the levels and types of treatment (primary, secondary, sedimentation, chemical). Re-use of wastewater and handling of sludge is also covered, as well as the role and functions of the laboratory in testing samples. The closing chapters cover basic operations and maintenance of wastewater treatment equipment, and safety and security measures. (Arabic)
144	Training Course for WTP Operators Part 1 (Level C) - Trainee Guide	Jun 2012	These training materials are for use in preparing water treatment plant operators for Level C certification in accordance with the Operator and Lab Analyst Certification Program, decreed by the minister of housing. Part 1 of this course begins with an overview of plant operators and then covers the differing conditions of water sources, distribution networks, settlement tanks, sedimentation, filtration, chemical additives, wells, mobile water treatment units, best practices in plant operations, maintenance, safety and administrative procedures. It includes a summary of daily recommended tasks and operations. Part 2 covers laboratory functions and is published separately. (Arabic)

Serial No.	Document Title	Date	Description
145	Young Professional Development Program (Module 4)	Jul 2012	These training materials were developed for the fourth module of a five-module course, the Junior Professional Development Program, designed to orient new professionals joining the water and sanitation sector on the aspects of utility operations. Module 4 covered a range of management and administration topics central to utility management, including planning, financial management, HR management and development, and IT. (Arabic)
146	El-Kola Wastewater Plant in Sohag - SOPs Training Manual	Jul 2012	These training materials accompanied delivery of an SOPs manual for the el-Kola wastewater treatment plant in Sohag. The hands-on training provided an overview of wastewater infrastructure — including collection networks, pumping stations, and treatment plants — as well as a discussion of maintenance management systems, before presenting the actual plant-specific SOPs. (Arabic)
147	Training Course for WTP Operators Part 2 (Level C)- Trainee Guide	Jul 2012	These training materials are for use in preparing water treatment plant operators for Level C certification in accordance with the Operator and Lab Analyst Certification Program, decreed by the minister of housing. Part 2 of this course supplements Part I (see No. 144) and covers the laboratory functions critical to water treatment. In-depth instruction is provided on the collection of samples, methods of results analysis and interpretation, and evaluating the properties of water sources. (Arabic)
148	Training Course on Database Concepts	Jul 2012	These training materials cover the basics of databases and were developed and delivered to financial management system administrators in multiple utilities, along with a practical training on SQL databases (see No. 149). (Arabic)
149	Training Course on Using SQL Statements	Jul 2012	These training materials cover the basics functions of SQL databases and were developed and delivered to financial management system administrators in multiple utilities, along with a more general database concepts training (see No. 148). (Arabic)
150	Manual for SOPs at Maragha Water Plant in Sohag	Jul 2012	This manual outlines SOPs for the Maragha water treatment plant in the Sohag Governorate. After an overview of the plant, its distribution network, and associated baseline data, subsequent chapters discuss each component of the plant in detail, with clear, step-by-step instructions on their operation. Also included are a suggested organizational chart and optimal staffing levels for the plant. (Arabic)
151	Quarterly Progress Report No. 14, April-June 2011	Jul 2012	This quarterly report summarizes program activities from April through June 2012. (English)
152	Training Course for WWTP Operators (Level D) - Trainee Guide	Jul 2012	These training materials are for use in preparing wastewater treatment plant operators for Level D certification in accordance with the Operator and Lab Analyst Certification Program, decreed by the minister of housing. The course opens with an overview of the sources and characteristics of wastewater and includes detailed chapters on the levels and types of treatment (primary, secondary, sedimentation, chemical). Re-use of wastewater and handling of sludge is also covered, as well as the role and functions of the laboratory in testing samples. The closing chapters cover basic operations and maintenance of wastewater treatment equipment and safety and security measures. (Arabic)
153	Training Course for WWTP Operators (Level D) - Trainer Guide	Jul 2012	This guide is designed for trainers, and accompanies the Trainee Guide for the same course (see No. 152 above). (Arabic)
154	Training Course for WWTP Operators (Level B) - Trainee Guide Volume 1	Aug 2012	These training materials are Volume 1 of 2 (Chapters 1 - 10) for use in preparing wastewater treatment plant operators for Level B certification in accordance with the Operator and Lab Analyst Certification Program, decreed by the minister of housing. The course opens with an overview of the sources and characteristics of wastewater and includes detailed chapters on the levels and types of treatment (primary, secondary, sedimentation, chemical). Re-use of wastewater and handling of sludge is also covered, as well as the role and functions of the laboratory in testing samples. (Arabic)

Serial No.	Document Title	Date	Description
154	Training Course for WWTP Operators (Level B) - Trainee Guide Volume 2	Aug 2012	These training materials are Volume 2 of 2 (Chapters 11 - 14) for use in preparing wastewater treatment plant operators for Level B certification in accordance with the Operator and Lab Analyst Certification Program, decreed by the minister of housing. Chapters 11 and 12 cover operations and maintenance for each type of equipment used in the treatment process. Chapter 13 covers safety and security of plant operations, and Chapter 14 covers plant management and administration. (Arabic)
155	Training Course for WWTP Operators (Level A) - Trainee Guide Volume 1	Aug 2012	These training materials are Volume 1 of 2 (Chapters 1 - 10) for use in preparing wastewater treatment plant operators for Level A certification in accordance with the Operator and Lab Analyst Certification Program, decreed by the minister of housing. The course opens with an overview of the sources and characteristics of wastewater and includes detailed chapters on the levels and types of treatment (primary, secondary, sedimentation, chemical). Re-use of wastewater and handling of sludge is also covered, as well as the role and functions of the laboratory in testing samples. (Arabic)
155	Training Course for WWTP Operators (Level A) - Trainee Guide Volume 2	Aug 2012	These training materials are Volume 2 of 2 (Chapters 11 - 15) for use in preparing wastewater treatment plant operators for Level A certification in accordance with the Operator and Lab Analyst Certification Program, decreed by the minister of housing. Chapter 11 catalogs the equipment involved in treatment, before Chapters 12 and 13 cover operations and maintenance, respectively, of each type of equipment. Chapter 14 covers safety and security of plant operations, and Chapter 15 covers plant management and administration. (Arabic)
156	Training Course on the Effective Utility Management	Sep 2012	This compiled document includes the training materials from the nine-module certificate course for senior utility executives, developed in cooperation with the American University in Cairo and delivered over roughly one year to rising leaders from water and sanitation utilities, with each module lasting one week. Module 1: Legal and Institutional Framework for the Sector; Module 2: Organizational and Human Resource Development; Module 3: Business Planning for Water and Sanitation Companies; 4: Construction Project Management; 5: Information Technology; 6: Operations and Maintenance Management; 7: Capital Investment Planning and Tendering Procedures; 8: Customer Service and Public Outreach; 9: Principles of Finance and Accounting. (Arabic)
157	Laboratory Organizational Manual of Sinai Co.	Sep 2012	This manual was developed for the plant laboratory at the Gharb el-Nafaq water treatment plant, which serves the South Sinai Governorate and was fully equipped, with USAID/WWSS assistance. The manual, intended for use as a model for other plant laboratories, begins with guidance on the organizational structure and mission of the laboratory and provides guidance on operational procedures for selecting, testing, and recording water samples. Other sections and annexes include templates for recording sampling results, departmental functions for the laboratory's units, and job descriptions for laboratory personnel. (Arabic)
158	Sinai Company Organizational Chart	Sep 2012	This report documents work completed by the WWSS team on development of a new organizational structure for the Sinai Water and Wastewater Company. It includes the former organizational structure, the proposed new organizational structure, the division- and department-level structures that flow from it, and a narrative explanation of and justification for the proposed changes. Subsequent chapters include proposed divisional mandates for each division and a discussion of allocation of expertise across divisions. Unique to this report is the proposal to delegate significant authorities to regional managers, given the great distances between branches in the company's geographic coverage area. (Arabic)
159	Billing System Gap Analysis - Sohag and Assiut	Oct 2012	This report was prepared before development and installation of a new billing system in the Sohag and Assiut water and wastewater companies. Its sections include a description of the document cycle in the existing (former) billing system, characteristics of the proposed new billing system, assumptions behind the design of the new system, advisory notes on improving the companies' billing processes, including a discussion of using cumulative bills, and proposed changes to the billing database. (Arabic)

Serial No.	Document Title	Date	Description
160	Year 5 Work Plan July 2012 - June 2013	Oct 2012	WWSS' Year 5 Work Plan lays out the program's strategy and approach for the fifth and final year of operations. The document summarizes Year 4 activities, looks ahead to Year 5 activities, and summarizes the WWSS technical assistance approach and activities to date. The Year 5 Work Plan calls for program activities in four areas: 1) central activities (with HCWW), 2) crosscutting activities (involving multiple subsidiaries), 3) subsidiary-specific activities (involving particular subsidiaries), and 4) program development and coordination activities, and differs from previous years in that it focuses on only four utilities as the program team and activities scaled down in the last year. The work plan includes a summary of program staff members, and planned activities (along with timing and team roles). In its appendices, it summarizes, among other things, activities undertaken to date by governorate and the results of the annual assessment exercise. (English)
161	Young Professional Development Program (Module 5)	Oct 2012	These training materials were developed for the fifth and final module of the Junior Professional Development Program, designed to orient new professionals joining the water and sanitation sector on the aspects of utility operations. Module 5 covered communications and customer service and included sessions on verbal, written, and non-verbal communications, report writing, presentation skills, and communication and outreach with customers. (Arabic)
162	Guidelines for Developing Utility Staffing Plans	Oct 2012	The purpose of this guide is to consolidate the program's experience conducting staffing analyses and preparing staffing plans in the water and sanitation sector, in the form of guidance to other companies on how to undertake similar activities. After a discussion on HR management and staffing planning, the manual offers step-by-step guidance for staffing analysis and planning activities, beginning with the service provided by the company, the role played by each unit in that service, volume of each unit's activities, determination of the necessary staffing levels and roles, analysis of actual vs. required labor, and a discussion of future planning. (Arabic)
163	Quarterly Progress Report No. 15, July-September 2012	Oct 2012	This report summarizes program activities from July through September 2012. (English)
164	Training Course for WWTP Operators (Level A) - Trainer Guide	Nov 2012	This guide is designed for trainers and accompanies the Trainee Guide for the same course (see No. 155 above). (Arabic)
165	Training Course for WWTP Operators (Level B) - Trainer Guide	Nov 2012	This guide is designed for trainers and accompanies the Trainee Guide for the same course (see Nos. 193-194). (Arabic)
166	Training Course for WWTP Operators (Level C) - Trainer Guide	Nov 2012	This guide is designed for trainers and accompanies the Trainee Guide for the same course (see No. 182). (Arabic)
167	Training Guide for UFW/Leak Detection	Nov 2012	These training materials were used at the final training-of-trainers event with utility employees. The course reviews technical material on leak detection and reduction, including the use of key types of equipment. The material then focuses on requirements for delivery of effective training and guidance for planning and implementing training events. Finally, participants develop their own training plans for rollout of leak detection training in their companies. (Arabic)
168	MARS Technical Documentation	Dec 2012	This manual is a printout of the web-based technical documentation for the USAID-funded MARS, Version 2, which was requested by the Holding Company for Water and Wastewater upon final handover of the system to its IT support team. (English)

Serial No.	Document Title	Date	Description
169a	MARS User Manuals	Dec 2012	This manual is for users of the web-based MARS (see also Nos. 168 and 169). The first in a series of user manuals, this portion focuses on site management. It includes detailed instructions on managing system user accounts. (Arabic)
169b	MARS User Manuals	Dec 2012	This manual is for users of the web-based MARS (see also Nos. 168 and 169) and is one part of a seven-part package of user manuals. This portion targets commercial divisions of subsidiary companies with customized and detailed guidance on relevant data and indicators and data entry, review, and reporting processes. (Arabic)
169c	MARS User Manuals	Dec 2012	This manual is for users of the web-based MARS (see also Nos. 168 and 169) and is one part of a seven-part package of user manuals. This portion targets the customer service and public awareness divisions of the subsidiary companies, with customized and detailed guidance on relevant data and indicators and data entry, review, and reporting processes. (Arabic)
169d	MARS User Manuals	Dec 2012	This manual is for users of the web-based MARS (see also Nos. 168 and 169) and is one part of a seven-part package of user manuals. This portion targets the finance divisions of the subsidiary companies, with customized and detailed guidance on relevant data and indicators and data entry, review, and reporting processes. (Arabic)
170	MARS User Manuals	Dec 2012	This manual is for users of the web-based MARS (see also Nos. 168 and 169) and is one part of a seven-part package of user manuals. This portion targets economic analysis divisions of the HCWW and its subsidiary companies, which oversee the system and are its primary users. Accordingly, the manual provides a comprehensive catalog of the system's performance indicators, data elements, definitions, time periods for data entry and reporting. It also provides details on the interactions of each module of the system with other company information systems, as well as processes for reviewing, saving, and confirming/deleting data. (Arabic)
170	MARS User Manuals	Dec 2012	This manual is for users of the web-based MARS (see also Nos. 168 and 169) and is a single part of a seven-part package of user manuals. This portion targets the laboratory management staff of the subsidiary companies with customized and detailed guidance on relevant data and indicators and the data entry, review, and reporting processes. (Arabic)
170	MARS User Manuals	Dec 2012	This manual is for users of the web-based MARS (see also Nos. 168 and 169) and is a single part of a seven-part package of user manuals. This portion targets operations and maintenance and technical management divisions of the subsidiary companies, with customized, detailed guidance on relevant data and indicators and data entry, review, and reporting processes. (Arabic)
170	IT Master Plan - Implementation Plans for the Subsidiaries for FYs 2012/2013 - 2016/2017	Jan 2000	This detailed action plan represents the third and final chapter of the WWSS Program IT Master Planning effort undertaken in cooperation with the Holding Company for Water and Wastewater (see also deliverables Nos. 87, 88, and 124). Building on the Due Diligence and Needs Assessment Report and the subsequent IT master plan, this actionable timetable lays out for each subsidiary company an action plan for 2013-2017. Each company's section details necessary activities, along with suggested timelines, estimated costs, and indicators for future evaluation. (Arabic)
171	IT Master Plan - Implementation Plans for the Subsidiaries for FYs 2012/2013 - 2016/2017	Dec 2012	This is the English version of No. 170, the company-specific implementation plans for the IT master plan, covering 2013-2017. (English)
172a	Training Course for WTP Operators (Level B) - Trainee Guide Volume 1	Jan 2013	These training materials are for use in preparing water treatment plant operators for Level B certification in accordance with the Operator and Lab Analyst Certification Program, decreed by the minister of housing. Part 1 of this course begins with an overview of plant operators and covers the differing conditions of water sources. Subsequent chapters discuss each stage of the treatment process in-depth, from intake, flocculation, sedimentation, filtration, chemical

Serial No.	Document Title	Date	Description
			application, and treatment of waste. Additional chapters cover common technologies, including wells, and mobile water treatment units, and best practices in plant operations. Part 2 is published separately. See also No. 172b. (Arabic)
172b	Training Course for WTP Operators (Level B) - Trainee Guide Volume 2	Jan 2013	These training materials are for use in preparing water treatment plant operators for Level B certification in accordance with the Operator and Lab Analyst Certification Program, decreed by the minister of housing. Part 2 of this course supplements Part I (see No. 172a) and covers all main types of equipment at water treatment plants, their operations and maintenance procedures, safety and security, and administrative procedures. Finally, laboratory functions critical to water treatment are covered. In-depth instruction is provided on collection of samples, methods of results analysis and interpretation, and evaluating the properties of water sources (Arabic)
173	Training Course for WTP Operators (Level A) - Trainee Guide Volume 1	Jan 2013	These training materials are for use in preparing water treatment plant operators for Level A certification in accordance with the Operator and Lab Analyst Certification Program, decreed by the minister of housing. Part 1 of this course begins with an overview of plant operators and covers the differing conditions of water sources. Subsequent chapters discuss each stage of the treatment process in-depth, from intake, flocculation, sedimentation, filtration, chemical application, and the treatment of waste. Additional chapters cover common technologies, including wells, and mobile water treatment units, and best practices in plant operations. Finally, this volume covers operation of all main types of equipment at water treatment plants. Part 2 is published separately. See also No. 173b. (Arabic)
173	Training Course for WTP Operators (Level A) - Trainee Guide Volume 2	Jan 2013	These training materials are for use in preparing water treatment plant operators for Level A certification in accordance with the Operator and Lab Analyst Certification Program, decreed by the minister of housing. Part 2 of this course picks up where Part I (see 173a) leaves off and covers maintenance of all main types of equipment at water treatment plants, safety and security, and administrative procedures. Finally, laboratory functions critical to water treatment are covered. In-depth instruction is provided on collection of samples, methods of results analysis and interpretation, and evaluating the properties of water sources (Arabic)
174	Quarterly Progress Report No. 16, October-December 2012	Jan 2013	This report summarizes program activities from October through December 2012. (English)
175	Evaluation of Current Conditions and Operations Reports of Water Plant - Nazlet Abdellah - Assiut	Feb 2013	This report includes a detailed assessment of the current state of operations at the Nazlet Abdellah Water Treatment Plant in Assiut. After a thorough description of the plant and its components, the report describes the current status of each component of the plant and corresponding proposed repairs and upgrades. It also addresses the plant's organizational structure and health and safety procedures and proposes tools and/or activities for maintenance management, recordkeeping, and staff training. (Arabic)
176	Evaluation of Current Conditions and Operations Reports of Water Plant - New Assiut - Assiut	Feb 2013	This report includes a detailed assessment of the current state of operations at the New Assiut Water Treatment Plant in Assiut. After a thorough description of the plant and its components, the report describes the current status of each component of the plant and the corresponding proposed repairs and upgrades. It also addresses the plant's organizational structure and health and safety procedures and proposes tools and/or activities for maintenance management, recordkeeping, and staff training. (Arabic)
177	Evaluation of Current Conditions and Operations Reports of Water Plant - El Badary - Assiut	Feb 2013	This report includes a detailed assessment of the current state of operations at the el-Badary Water Treatment Plant in Assiut. After a thorough description of the plant and its components, the report describes the current status of each component of the plant and the corresponding proposed repairs and upgrades. It also addresses the plant's organizational structure and health and safety procedures and proposes tools and/or activities for maintenance management, recordkeeping, and staff training. (Arabic)

Serial No.	Document Title	Date	Description
178	Evaluation of Current Conditions and Operations Reports of Water Plant - Manfloot - Assiut	Feb 2013	This report includes a detailed assessment of the current state of operations at the Manfaloot Water Treatment Plant in Assiut. After a thorough description of the plant and its components, the report describes the current status of each component of the plant and corresponding proposed repairs and upgrades. It also addresses the plant's organizational structure and health and safety procedures and proposes tools and/or activities for maintenance management, recordkeeping, and staff training. (Arabic)
179	Evaluation of Current Conditions and Operations Reports of Water Plant - Abo Teeg - Assiut	Feb 2013	This report includes a detailed assessment of the current state of operations at the Abu Tig Water Treatment Plant in Assiut. After a thorough description of the plant and its components, the report describes the current status of each component of the plant and corresponding proposed repairs and upgrades. It also addresses the plant's organizational structure and health and safety procedures and proposes tools and/or activities for maintenance management, recordkeeping, and staff training. (Arabic)
180	Evaluation of Current Conditions and Operations Reports of Water Plant - ElQantara Sharq - Sinai	Feb 2013	This report includes a detailed assessment of the current state of operations at the Qantara Sharq Water Treatment Plant in Sinai. After a thorough description of the plant and its components, the report describes the current status of each component of the plant and corresponding proposed repairs and upgrades. It also addresses the plant's organizational structure and health and safety procedures and proposes tools and/or activities for maintenance management, recordkeeping, and staff training. (Arabic)
181	Evaluation of Current Conditions and Operations Reports of Water Plant - Gharb El Nafaq - Sinai	Feb 2013	This report includes a detailed assessment of the current state of operations at the Gharb el-Nafaq Water Treatment Plant serving South Sinai. After a thorough description of the plant and its components, the report describes the current status of each component of the plant and corresponding proposed repairs and upgrades. It also addresses the plant's organizational structure and health and safety procedures and proposes tools and/or activities for maintenance management, recordkeeping, and staff training. (Arabic)
182	Evaluation of Current Conditions and Operations Reports of Water Plant - Soltan Bahary - Minya	Feb 2013	This report includes a detailed assessment of the current state of operations at the Sultan Bahary Water Treatment Plant in Minya. After a thorough description of the plant and its components, the report describes the current status of each component of the plant and corresponding proposed repairs and upgrades. It also addresses the plant's organizational structure and health and safety procedures and proposes tools and/or activities for maintenance management, recordkeeping, and staff training. (Arabic)
183	Evaluation of Current Conditions and Operations Reports of Water Plant - Soltan Qebly El Nafaq - Minya	Feb 2013	This report includes a detailed assessment of the current state of operations at the Sultan Qibly el-Nafaq Water Treatment Plant in Minya. After a thorough description of the plant and its components, the report describes the current status of each component of the plant and corresponding proposed repairs and upgrades. It also addresses the plant's organizational structure and health and safety procedures and proposes tools and/or activities for maintenance management, recordkeeping, and staff training. (Arabic)
184	Evaluation of Current Conditions and Operations Reports of Water Plant - Kedwan - Minya	Feb 2013	This report includes a detailed assessment of the current state of operations at the Kedwan Water Treatment Plant in Minya. After a thorough description of the plant and its components, the report describes the current status of each component of the plant and corresponding proposed repairs and upgrades. It also addresses the plant's organizational structure and health and safety procedures and proposes tools and/or activities for maintenance management, recordkeeping, and staff training. (Arabic)
185	Evaluation of Current Conditions and Operations Reports of Water Plant - Samaloot- Minya	Feb 2013	This report includes a detailed assessment of the current state of operations at the Samaloot Water Treatment Plant in Minya. After a thorough description of the plant and its components, the report describes the current status of each component of the plant and corresponding proposed repairs and upgrades. It also addresses the plant's organizational structure and health and safety procedures and proposes tools and/or activities for maintenance management, recordkeeping, and staff training. (Arabic)

Serial No.	Document Title	Date	Description
186	Evaluation of Current Conditions and Operations Reports of Water Plant - Malawy - Minya	Feb 2013	This report includes a detailed assessment of the current state of operations at the Mallawy Water Treatment Plant in Minya. After a thorough description of the plant and its components, the report describes the current status of each component of the plant and corresponding proposed repairs and upgrades. It also addresses the plant's organizational structure and health and safety procedures and proposes tools and/or activities for maintenance management, recordkeeping, and staff training. (Arabic)
187	Evaluation of Current Conditions and Operations Reports of Water Plant - Sohag Gharb - Sohag	Feb 2013	This report includes a detailed assessment of the current state of operations at the Sohag Gharb Water Treatment Plant in Sohag. After a thorough description of the plant and its components, the report describes the current status of each component of the plant and corresponding proposed repairs and upgrades. It also addresses the plant's organizational structure and health and safety procedures and proposes tools and/or activities for maintenance management, recordkeeping, and staff training. (Arabic)
188	Evaluation of Current Conditions and Operations Reports of Water Plant - Akhmeem - Sohag	Feb 2013	This report includes a detailed assessment of the current state of operations at the Akhmeem Water Treatment Plant in Sohag. After a thorough description of the plant and its components, the report describes the current status of each component of the plant and corresponding proposed repairs and upgrades. It also addresses the plant's organizational structure and health and safety procedures and proposes tools and/or activities for maintenance management, recordkeeping, and staff training. (Arabic)
189	Evaluation of Current Conditions and Operations Reports of Water Plant - Gerga - Sohag	Feb 2013	This report includes a detailed assessment of the current state of operations at the Gerga Water Treatment Plant in Sohag. After a thorough description of the plant and its components, the report describes the current status of each component of the plant and corresponding proposed repairs and upgrades. It also addresses the plant's organizational structure and health and safety procedures and proposes tools and/or activities for maintenance management, recordkeeping, and staff training. (Arabic)
190	Evaluation of Current Conditions and Operations Reports of Water Plant - El Monshaah - Sohag	Feb 2013	This report includes a detailed assessment of the current state of operations at the el-Monsha'a Water Treatment Plant in Sohag. After a thorough description of the plant and its components, the report describes the current status of each component of the plant and corresponding proposed repairs and upgrades. It also addresses the plant's organizational structure and health and safety procedures and proposes tools and/or activities for maintenance management, recordkeeping, and staff training. (Arabic)
191	Evaluation of Current Conditions and Operations Reports of Water Plant - Tahta - Sohag	Feb 2013	This report includes a detailed assessment of the current state of operations at the Tahta Water Treatment Plant in Sohag. After a thorough description of the plant and its components, the report describes the current status of each component of the plant and corresponding proposed repairs and upgrades. It also addresses the plant's organizational structure and health and safety procedures and proposes tools and/or activities for maintenance management, recordkeeping, and staff training. (Arabic)
192	Evaluation of Current Conditions and Operations Reports of Wastewater Plant - Arab Elmadabegh 1 - Assiut	Feb 2013	This report includes a detailed assessment of the current state of operations at the Arab el-Madabegh (1) Wastewater Treatment Plant in Assiut. After a thorough description of the plant and its components, the report describes the current status of each component of the plant, including the laboratory, and an engineering review of the plant's hydraulics. The report then provides recommended actions for improving the plant's efficiency, covering technical adjustments, occupational health and safety, staff training, and administrative actions. (Arabic)
193	Evaluation of Current Conditions and Operations Reports of Wastewater Plant - Arab Elmadabegh 2 - Assiut	Feb 2013	This report includes a detailed assessment of the current state of operations at the Arab el-Madabegh (2) Wastewater Treatment Plant in Assiut. After a thorough description of the plant and its components, the report describes the current status of each component of the plant, including the laboratory, and an engineering review of the plant's hydraulics. The report then provides recommended actions for improving the plant's efficiency, covering technical adjustments, occupational health and safety, staff training, and administrative actions. (Arabic)

Serial No.	Document Title	Date	Description
194	Evaluation of Current Conditions and Operations Reports of Wastewater Plant - Arab Elmadabegh 3 - Assiut	Feb 2013	This report includes a detailed assessment of the current state of operations at the Arab el-Madabegh (3) Wastewater Treatment Plant in Assiut. After a thorough description of the plant and its components, the report describes the current status of each component of the plant, including the laboratory, and an engineering review of the plant's hydraulics. The report then provides recommended actions for improving the plant's efficiency, covering technical adjustments, occupational health and safety, staff training, and administrative actions. (Arabic)
195	Evaluation of Current Conditions and Operations Reports of Wastewater Plant - El Qoseya - Assiut	Feb 2013	This report includes a detailed assessment of the current state of operations at the el-Qoseya Wastewater Treatment Plant in Assiut. After a thorough description of the plant and its components, the report describes the current status of each component of the plant, including the laboratory, and an engineering review of the plant's hydraulics. The report then provides recommended actions for improving the plant's efficiency, covering technical adjustments, occupational health and safety, staff training, and administrative actions. (Arabic)
196	Evaluation of Current Conditions and Operations Reports of Wastewater Plant - El Zeraby - Assiut	Feb 2013	This report includes a detailed assessment of the current state of operations at the el-Zeraby Wastewater Treatment Plant in Assiut. After a thorough description of the plant and its components, the report describes the current status of each component of the plant, including the laboratory, and an engineering review of the plant's hydraulics. The report then provides recommended actions for improving the plant's efficiency, covering technical adjustments, occupational health and safety, staff training, and administrative actions. (Arabic)
197	Evaluation of Current Conditions and Operations Reports of Wastewater Plant - Bear Elabd- Sinai	Feb 2013	This report includes a detailed assessment of the current state of operations at the Bir el-Abed Wastewater Treatment Plant in Sinai. After a thorough description of the plant and its components, the report describes the current status of each component of the plant, including the laboratory, and an engineering review of the plant's hydraulics. The report then provides recommended actions for improving the plant's efficiency, covering technical adjustments, occupational health and safety, staff training, and administrative actions. (Arabic)
198	Evaluation of Current Conditions and Operations Reports of Wastewater Plant - Zeraa - Sinai	Feb 2013	This report includes a detailed assessment of the current state of operations at the Zeraa Wastewater Treatment Plant in Sinai. After a thorough description of the plant and its components, the report describes the current status of each component of the plant, including the laboratory, and an engineering review of the plant's hydraulics. The report then provides recommended actions for improving the plant's efficiency, covering technical adjustments, occupational health and safety, staff training, and administrative actions. (Arabic)
199	Evaluation of Current Conditions and Operations Reports of Wastewater Plant - Garadah - Sinai	Feb 2013	This report includes a detailed assessment of the current state of operations at the Garadah Wastewater Treatment Plant in Sinai. After a thorough description of the plant and its components, the report describes the current status of each component of the plant, including the laboratory, and an engineering review of the plant's hydraulics. The report then provides recommended actions for improving the plant's efficiency, covering technical adjustments, occupational health and safety, staff training, and administrative actions. (Arabic)
200	Evaluation of Current Conditions and Operations Reports of Wastewater Plant - Gharb Tala - Minya	Feb 2013	This report includes a detailed assessment of the current state of operations at the Gharb Tala Wastewater Treatment Plant in Minya. After a thorough description of the plant and its components, the report describes the current status of each component of the plant, including the laboratory, and an engineering review of the plant's hydraulics. The report then provides recommended actions for improving the plant's efficiency, covering technical adjustments, occupational health and safety, staff training, and administrative actions. (Arabic)
201	Evaluation of Current Conditions and Operations Reports of Wastewater Plant - Abo Korkas - Minya	Feb 2013	This report includes a detailed assessment of the current state of operations at the Gharb Tala Wastewater Treatment Plant in Minya. After a thorough description of the plant and its components, the report describes the current status of each component of the plant, including the laboratory, and an engineering review of the plant's hydraulics. The report then provides recommended actions for improving the plant's efficiency, covering technical adjustments, occupational health and safety, staff training, and administrative actions. (Arabic)

Serial No.	Document Title	Date	Description
202	Evaluation of Current Conditions and Operations Reports of Wastewater Plant - Matay - Minya	Feb 2013	This report includes a detailed assessment of the current state of operations at the Mattai Wastewater Treatment Plant in Minya. After a thorough description of the plant and its components, the report describes the current status of each component of the plant, including the laboratory, and an engineering review of the plant's hydraulics. The report then provides recommended actions for improving the plant's efficiency, covering technical adjustments, occupational health and safety, staff training, and administrative actions. (Arabic)
203	Evaluation of Current Conditions and Operations Reports of Wastewater Plant - Beni Maza r- Minya	Feb 2013	This report includes a detailed assessment of the current state of operations at the Bani Mazar Wastewater Treatment Plant in Minya. After a thorough description of the plant and its components, the report describes the current status of each component of the plant, including the laboratory, and an engineering review of the plant's hydraulics. The report then provides recommended actions for improving the plant's efficiency, covering technical adjustments, occupational health and safety, staff training, and administrative actions. (Arabic)
204	Evaluation of Current Conditions and Operations Reports of Wastewater Plant - Malawy - Minya	Feb 2013	This report includes a detailed assessment of the current state of operations at the Mallawy Wastewater Treatment Plant in Minya. After a thorough description of the plant and its components, the report describes the current status of each component of the plant, including the laboratory, and an engineering review of the plant's hydraulics. The report then provides recommended actions for improving the plant's efficiency, covering technical adjustments, occupational health and safety, staff training, and administrative actions. (Arabic)
205	Evaluation of Current Conditions and Operations Reports of Wastewater Plant - Sohag Gharb - Sohag	Feb 2013	This report includes a detailed assessment of the current state of operations at the Sohag Gharb Wastewater Treatment Plant in Sohag. After a thorough description of the plant and its components, the report describes the current status of each component of the plant, including the laboratory, and an engineering review of the plant's hydraulics. The report then provides recommended actions for improving the plant's efficiency, covering technical adjustments, occupational health and safety, staff training, and administrative actions. (Arabic)
206	Evaluation of Current Conditions and Operations Reports of Wastewater Plant - Akhmeem El kola - Sohag	Feb 2013	This report includes a detailed assessment of the current state of operations at the Sohag Gharb Wastewater Treatment Plant in Sohag. After a thorough description of the plant and its components, the report describes the current status of each component of the plant, including the laboratory, and an engineering review of the plant's hydraulics. The report then provides recommended actions for improving the plant's efficiency, covering technical adjustments, occupational health and safety, staff training, and administrative actions. (Arabic)
207	Evaluation of Current Conditions and Operations Reports of Wastewater Plant - Gerga - Sohag	Feb 2013	This report includes a detailed assessment of the current state of operations at the Gerga Wastewater Treatment Plant in Sohag. After a thorough description of the plant and its components, the report describes the current status of each component of the plant, including the laboratory, and an engineering review of the plant's hydraulics. The report then provides recommended actions for improving the plant's efficiency, covering technical adjustments, occupational health and safety, staff training, and administrative actions. (Arabic)
208	Evaluation of Current Conditions and Operations Reports of Wastewater Plant - Tahta - Sohag	Feb 2013	This report includes a detailed assessment of the current state of operations at the Tahta Wastewater Treatment Plant in Sohag. After a thorough description of the plant and its components, the report describes the current status of each component of the plant, including the laboratory, and an engineering review of the plant's hydraulics. The report then provides recommended actions for improving the plant's efficiency, covering technical adjustments, occupational health and safety, staff training, and administrative actions. (Arabic)
209	Evaluation of Current Conditions and Operations Reports of Wastewater Plant - Tema - Sohag	Feb 2013	This report includes a detailed assessment of the current state of operations at the Tema Wastewater Treatment Plant in Sohag. After a thorough description of the plant and its components, the report describes the current status of each component of the plant, including the laboratory, and an engineering review of the plant's hydraulics. The report then provides recommended actions for improving the plant's efficiency, covering technical adjustments, occupational health and safety, staff training, and administrative actions. (Arabic)

Serial No.	Document Title	Date	Description
210	Training Course for WWTP Operators (Levels A, B, C, D) -Review Questions	Feb 2013	These review questions accompany the training materials for Levels A, B, C, and D of the wastewater treatment plant operator curriculum under the Operator and Lab Analyst Certification Training Program (see Nos. 143, 153, 154, and 155 above). (Arabic)
211	Training Course for WTP Operators (Levels A, B, C, D) -Review Questions	Feb 2013	These review questions accompany the training materials for Levels A, B, C, and D of the water treatment plant operator curriculum under the Operator and Lab Analyst Certification Training Program (see Nos. 100, 144, 172, and 173 above). (Arabic)
212	Professional Development Program - Module 1	Feb 2013	These training materials were developed for the first module of a five-module course, the Professional Development Program for Mid-Level Utility Managers, designed to educate promising mid-career professionals broadly on the water and sanitation sector while building practical management and leadership skills. Module 1 materials cover the legal and regulatory framework governing the sector; financial, personnel, and other bylaws of the companies; an overview of the sector's institutions; a detailed look inside the structure of the Holding Company, including its mission, vision, and strategic objectives, its organizational units and their functions; problems and challenges facing the sector; and an overview of Egypt's water resources, characteristics of potable water, and common pollutants. The management skills portion of the module provides an overview of management theory and management levels, goals, and functions, laying the foundation for future modules' in-depth discussions of each key function of management. (Arabic)
213	Professional Development Program - Module 2	Feb 2013	These training materials were developed for the second module of a five-module course, the Professional Development Program for Mid-Level Utility Managers, designed to educate promising mid-career professionals broadly on the water and sanitation sector while also building practical management and leadership skills. Module 2 materials cover the technical function of the utility, including the basics of water and wastewater treatment, and the role of the laboratory in ensuring quality and adherence to standards. (Arabic)
214	Professional Development Program - Module 3	Feb 2013	These training materials were developed for the third module of a five-module course, the Professional Development Program for Mid-Level Utility Managers, designed to educate promising mid-career professionals broadly on the water and sanitation sector while also building practical management and leadership skills. Module 3 covers planning, financial, and information management, as well as practical skill-building sessions on analytical thinking, critical thinking, creative thinking, and problem-solving techniques. The management training portion focuses on organization as a key function of management. (Arabic)
215	Training Course for Engineers, Chemists and Technicians at Wastewater Treatment Plants Basics of Wastewater Treatment Technologies	Feb 2013	This package of training materials was for engineers, chemists, and technicians working in wastewater treatment plants. Designed as a follow-up training to plant-specific needs assessments, the course aims to help fill the gaps at the treatment plants by increasing the knowledge and skills of their operators. After a comprehensive overview of the wastewater treatment system and technology, the materials describe the levels of treatment in detail, including sludge treatment. Other sections include the role of the laboratory in providing high-quality control for plant operations, planning operations and maintenance work, and plant financial management. (Arabic)
216	Basics of Wastewater Treatment Technologies - Training Presentations	Feb 2013	These training visual aids accompany the training for engineers, chemists, and technicians of wastewater treatment plants (see No. 215). (Arabic)

Serial No.	Document Title	Date	Description
217	Training Course for Drinking Water Laboratory Analysts (Level A) - Trainee Guide	Mar 2013	These training materials are for use in preparing chemists and laboratory analysts at water treatment plant laboratories for Level A certification in accordance with the Operator and Lab Analyst Certification Program, decreed by the minister of housing. The materials open with a study of the legislation governing water quality standards, and other relevant international and Egyptian standards, before covering the specifications for a quality laboratory, including the necessary equipment. Subsequent chapters provide material on all stages of the laboratory work, from collecting samples, to conducting chemical, bacteriological, and biological analyses. Common errors are discussed, as well as quality assurance and quality control methods, before wrapping up with chapters on laboratory management and health and safety. (Arabic)
218	Training Course for Drinking Water Laboratory Analysts (Level B) - Trainee Guide	Mar 2013	These training materials are for use in preparing chemists and laboratory analysts at water treatment plant laboratories for Level B certification in accordance with the Operator and Lab Analyst Certification Program, decreed by the minister of housing. The materials open with a study of the legislation governing water quality standards, and other relevant international and Egyptian standards, before covering the specifications for a quality laboratory, including the necessary equipment. Subsequent chapters provide material on all stages of the laboratory work, from collecting samples, to conducting chemical, bacteriological, and biological analyses. Quality assurance and quality control methods are discussed, before wrapping up with chapters on laboratory reporting and documentation requirements, and health and safety. (Arabic)
219	Training Course for Drinking Water Laboratory Analysts (Level C) - Trainee Guide	Apr 2013	These training materials are for use in preparing chemists and laboratory analysts at water treatment plant laboratories for Level C certification in accordance with the Operator and Lab Analyst Certification Program, decreed by the minister of housing. The materials open a theoretical discussion of chemical analysis, followed by a description of sources and properties of drinking water contaminants. The specifications for a quality laboratory, including the necessary equipment, are discussed, followed by a chapter on safety and security. All stages of laboratory analysis are covered, from collecting samples, to conducting chemical, bacteriological, and biological testing. The final chapters discuss common errors in laboratory analysis, and laboratory reporting and documentation requirements. (Arabic)
220	Training Course for WTP Operators (Level A) - Trainer Guide Volume 1	Apr 2013	This is Part 1 of a two-part guide designed for trainers, to accompany the Trainee Guide for the same course (see No. 173 above). (Arabic)
220	Training Course for WTP Operators (Level A) - Trainer Guide Volume 2	Apr 2013	This is Part 2 of a two-part guide designed for trainers, to accompany the Trainee Guide for the same course (see No. 173 above). (Arabic)
221	Training Course for WTP Operators (Level B) - Trainer Guide Volume 1	Apr 2013	This is Part 1 of a two-part guide designed for trainers, to accompany the Trainee Guide for the same course (see No. 172 above). (Arabic)
221	Training Course for WTP Operators (Level B) - Trainer Guide Volume 2	Apr 2013	This is Part 2 of a two-part guide designed for trainers, to accompany the Trainee Guide for the same course (see No. 172 above). (Arabic)
222	Leak Detection and Reduction - Nazlet Abdella area in Assiut	Apr 2013	This report summarizes WWSS leak detection activities in Assiut. It includes a summary of the methodology steps, an orientation for company leadership, selection criteria for the pilot area, GIS and base map processes, customer surveys, and recommendations. Based on the program's application in the Nazlet Abdella pilot area, rates of leakage were reduced from 29% to 17%. (Arabic)
223	Training Course for WTP Operators (Level C) - Trainer	Apr 2013	This guide is designed for trainers and accompanies the Trainee Guide for the same course (see Nos. 144 and 147 above). (Arabic)

Serial No.	Document Title	Date	Description
	Guide		
224	Request for Qualifications from Specialist Consulting Firms for Design and Construction Supervision for Reverse Osmosis Seawater Desalination Plants - USAID North Sinai Initiative	Apr 2013	This request for qualifications was issued by the North and South Sinai Water and Wastewater Company in preparation for the USAID-funded development of five new desalination plants for drinking water in the North Sinai governorate. WWSS consultants assisted in the development of the request and throughout the tendering process, as part of our Program Management Component. (Arabic)
225	Training Course for Wastewater Laboratory Analysts (Level A) -Trainee Guide	Apr 2013	These training materials are for use in preparing chemists and laboratory analysts at wastewater treatment plant laboratories for Level A certification in accordance with the Operator and Lab Analyst Certification Program, decreed by the minister of housing. The materials cover the stages of laboratory work in turn, including the collection, processing, analysis, and quality control of samples. Common errors are also discussed, as well as operations and maintenance of standard laboratory equipment. The ISO 17025 standards are covered, and the final chapters contain material on laboratory management, safety, and security. (Arabic)
226	Quarterly Progress Report No. 17, January-March 2013	Apr 2013	This report summarizes program activities from January through March 2013. (English)
227	Professional Development Program - Module 4	Apr 2013	These training materials were developed for the fourth module of a five-module course, the Professional Development Program for Mid-Level Utility Managers, designed to educate promising mid-career professionals broadly on the water and sanitation sector while building practical management and leadership skills. Module 4 covers business planning and HR management, including sessions on strengths, weaknesses, opportunities, and threats analysis; mission, vision, and values; setting objectives; action planning; monitoring and evaluation using indicators; and purpose and functions of HR management. Complementary management training sessions covered "controlling" and "directing" as two of the five key functions of management. (Arabic)
228	HRD Planning Workshop Materials	Apr 2013	These workshop materials were for an HR planning workshop with all WWSS-targeted utility companies. The materials provide an overview of the HR concept, its components, and common HR management tools, before working sessions where the participants assessed their companies' HR management and initiated development of company-specific plans. (Arabic)
229	Staffing Planning - Workshop Materials	Apr 2013	These workshop materials were used at staffing planning workshops for multiple utility companies. The materials open with a definition and overview of staff planning, including the benefits and method of development. The steps in developing a staffing plan are covered, starting with ground-up estimates of staffing needed to conduct core operations of treatment plants and proceeding through associated administrative and management functions of commercial, financial, and HR operations. The materials were used to initiate the staffing planning process, which proceeded during subsequent months. (Arabic)
230	Applying the Automated Inventory Management System	Apr 2013	These training materials were used to introduce the automated inventory management system provided by the WWSS program. The brief presentation covers the following about the system: purpose; general and specific requirements and specifications; system functions, including adding, exchanging, transferring, and editing items; and reporting and querying. (Arabic)
231	Applying the Automated Billing System	Apr 2013	These materials were used to train staff at the water and wastewater utilities in Assiut and Sohag on the WWSS-provided automated billing system. The training guide provides an overview of the billing cycle, including illustrations, before walking through each stage of the cycle, including adding and modifying accounts, reading and calculating

Serial No.	Document Title	Date	Description
			consumption, accounting and billing, collecting bill payments, and closing a session. (Arabic)
232	Preparing & Implementing Business Plans - Workshop for Middle Managers of Subsidiary Companies	Apr 2013	These materials were developed for a series of business planning workshops with the WWSS-targeted water and wastewater utilities. This workshop targeted the second level of management at each individual utility and was a follow-up to a workshop with each company's executive team. The materials cover the concept and importance of strategic planning, followed by an overview of the planning process and cycle, roles and responsibilities, setting objectives and priorities, developing programs, action planning, forming work teams, and implementation and follow-up. (Arabic)
233	Quality Circles Orientation	Apr 2013	The workshop materials contained here were used to introduce the Quality Circles approach for performance improvement and management. The workshop began with a historical look at management theory and approaches and a description of the five main functions of management. The presentation introduces quality circles and their origin in Japan's manufacturing sector and their place in the framework of Total Quality Management. The Quality Circles tool is then explained in depth, using a step-by-step model called the Deming Cycle. Finally, problem analysis and problem-solving techniques are covered, with exercises for practice. (Arabic)
234	Training Course for Wastewater Laboratory Analysts (Level B) -Trainee Guide	Apr 2013	These training materials are for use in preparing chemists and laboratory analysts at wastewater treatment plant laboratories for Level B certification in accordance with the Operator and Lab Analyst Certification Program, decreed by the minister of housing. The materials cover the stages of laboratory work in turn, including collection, processing, analysis, and quality control of samples. Common errors are also discussed, as well as operations and maintenance of standard laboratory equipment. The ISO 17025 standards are covered, and the final chapters contain material on laboratory management, safety, and security. (Arabic)
235	Training Course for Wastewater Laboratory Analysts (Level C) -Trainee Guide	Apr 2013	These training materials are for use in preparing chemists and laboratory analysts at wastewater treatment plant laboratories for Level C certification in accordance with the Operator and Lab Analyst Certification Program, decreed by the minister of housing. The materials cover the stages of laboratory work in turn, including collection, processing, analysis, and quality control of samples. Common errors are also discussed, as well as operations and maintenance of standard laboratory equipment. The ISO 17025 standards are covered, and the final chapters contain material on laboratory management, safety, and security. (Arabic)
236	Energy Use Rationalization TOT - 3rd phase	May 2013	These training materials were used at the final training-of-trainers event with utility employees. The course reviewed the technical material on energy use rationalization, including opportunities for improving efficiency, placement guidelines, and safety precautions for key equipment use. The material then focuses on requirements for delivery of effective training and guidance for planning and implementing training events. (Arabic)
237	Chemicals Use Rationalization TOT - 3rd phase	May 2013	These materials were used at the final training-of-trainers event with utility employees. The course reviewed the technical material on chemical use optimization, past problems in implementation, and review of methods for maximum effectiveness. This includes specific chlorination and purification processes and recommendations. The material then reviews guidelines for delivery of effective training and guidance for participants to develop their own programs for implementing chemical use rationalization training in their companies. (Arabic)
238	Preparing Business Plans - Workshop for Senior Managers of Subsidiary Companies	May 2013	These workshop materials were used to orient senior utility executives to the business planning process. Slides cover the importance of business planning, linking utility business plans to the strategy of the Holding Company, dealing with potential risks, and identifying appropriate goals and plans based on specific company projections.

Serial No.	Document Title	Date	Description
239	Workshop on Preparing Business Plans for Subsidiary Companies	May 2013	This workshop built on the material from No. 238, targeting middle- and upper-level managers with more practical, hands-on assistance for drafting their business plans. Slides facilitated working sessions where participants began to outline priorities and activities at the level of each organizational unit.
240	Standard Operating Procedures - General Concept and Overview	May 2013	These workshop materials give an overview of the composition and utility of SOPs for treatment plants. They present the benefits and importance of establishing such procedures for quality management and efficiency, general definitions and characteristics, and delineate potential obstacles and problems. (Arabic)
241	Training Course for Drinking Water Laboratory Analysts (Level C) - Trainer Guide	May 2013	This guide is designed for trainers and accompanies the Trainee Guide for the same course (see No. 219 above). Intended as a course for chemists and laboratory analysts at water treatment plant laboratories for Level C certification in accordance with the Operator and Lab Analyst Certification Program, it includes sections on chemical analysis, drinking water contaminants, specifications for a quality lab, and all stages of laboratory analysis and reporting. (Arabic)
242	Recommended Works for WTP & WWTP (Minya, Assiut, Sohag, and Sinai)	Jun 2013	This report recommends actions to raise the efficacy of water and wastewater purification plants in the Minya, Assiut, Sohag, and Sinai regions based on assessments from Reports 175-209. It includes analysis of current operating procedures, comprehensive estimates for costs of implementation of improvements, and any necessary repairs identified by the earlier assessments. (Arabic)
243	Quarterly Progress Report No. 18, April-June 2013	Jul 2013	This report summarizes program activities from April through June 2012. (English)
244	Training Course for Drinking Water Laboratory Analysts (Level A) - Trainer Guide	Aug 2013	This guide is designed for trainers and accompanies the Trainee Guide for the same course (see No. 217 above). (Arabic)
245	Training Course for Drinking Water Laboratory Analysts (Level B) - Trainer Guide	Aug 2013	This guide is designed for trainers and accompanies the Trainee Guide for the same course (see No. 218 above). (Arabic)
246	Training Course for Wastewater Laboratory Analysts (Level A) -Trainer Guide	Aug 2013	This guide is designed for trainers and accompanies the Trainee Guide for the same course (see No. 225 above). (Arabic)
247	Training Course for Wastewater Laboratory Analysts (Level B) -Trainer Guide	Aug 2013	This guide is designed for trainers and accompanies the Trainee Guide for the same course (see No. 234 above). (Arabic)
248	Training Course for Wastewater Laboratory Analysts (Level C) -Trainer Guide	Aug 2013	This guide is designed for trainers and accompanies the Trainee Guide for the same course (see No. 219 above). (Arabic)
249	Training Course for WWL Analysts (Levels A, B, C) - Review Questions	Aug 2013	These review questions accompany the training materials for Levels A, B, and C of the wastewater laboratory analyst curriculum under the Operator and Lab Analyst Certification Training Program (see Nos. 225, 234, and 235 above). (Arabic)

Serial No.	Document Title	Date	Description
250	Operation and Maintenance Management Manual for Utility Chairmen	Aug 2013	One of seven sections in a comprehensive handbook intended for the chairs of utilities guiding the daily activity and strategic planning for commercial water and wastewater management services. This manual covers management of operation, maintenance, and rehabilitation functions of water and wastewater infrastructure, focusing on strategic issues for executive-level utility managers. (Arabic)
251	Understanding Financial Statements for Utility Chairmen	Aug 2013	One of seven sections in a comprehensive handbook intended for the chairs of utilities guiding the daily activity and strategic planning for commercial water and wastewater management services. This manual provides guidance for budgeting and financial management, aiming to increase financial literacy in utilities held increasingly responsible for their financial performance. (Arabic)
252	Contracts and Contracting Models Manual for Utility Chairmen	Aug 2013	One of seven sections in a comprehensive handbook intended for the chairs of utilities guiding the daily activity and strategic planning for commercial water and wastewater management services. This manual provides an overview and strategic guidance for outsourcing utility functions, including water and wastewater infrastructure development, operations, and maintenance. (Arabic)
253	Occupational and Environmental Health and Safety Manual for Utility Chairmen	Aug 2013	One of seven sections in a comprehensive handbook intended for the chairs of utilities guiding the daily activity and strategic planning for commercial water and wastewater management services. This manual provides guidance for ensuring occupational health and safety, and environmental best practices in the sector. (Arabic)
254	Project Management Manual for Utility Chairmen	Aug 2013	One of seven sections in a comprehensive handbook intended for the chairs of utilities guiding the daily activity and strategic planning for commercial water and wastewater management services. This manual includes an overview of best practices in project management and construction supervision for capital investment projects in water and wastewater sector. (Arabic)
255	Master Planning Manual for Utility Chairmen	Aug 2013	One of seven sections in a comprehensive handbook intended for the chairs of utilities guiding the daily activity and strategic planning for commercial water and wastewater management services. This manual is designed to assist utility executives to plan and prioritize capital investments to meet evolving needs of customers. (Arabic)
256	Performance Indicators System Manual for Utility Chairmen	Aug 2013	One of seven sections in a comprehensive handbook intended for the chairs of utilities guiding the daily activity and strategic planning for commercial water and wastewater management services. This segment outlines tools for quantitative measurement of company performance to improve forward planning and management strategies, accountability, and staff performance. (Arabic)
257	Training Course for Water Lab Analysts (Levels A, B, C) - Review Questions	Sept 2013	These review questions accompany the training materials for Levels A, B, and C of the drinking water laboratory analyst curriculum under the Operator and Lab Analyst Certification Training Program (see Nos. 217 – 219 above). (Arabic)
258	User and Webmaster Manual for USAID-supported HCWW Website	Sept 2013	This two-part manual is for internal use at the Holding Company for Water and Wastewater in managing its WWSS-supported website. The website is build on a custom-designed content management system that allows each department in the company to manage the content relevant to its work, with quality control and approval rights granted to a single webmaster.
259	Business Plan – Sohag Water and Wastewater Company	Sept 2013	This is an updated version of the first-iteration business plan for the Sohag utility (see No. 35). This update, designed to be used as a model for other companies, used a streamlined format and adjusted the company's goals, objectives, and activities considering the intensified resource constraints facing the sector.
260	Business Plan – Sinai Water and Wastewater Company	Sept 2013	This is an updated version of the first-iteration business plan for the Sinai utility (see No. 105). This update, designed to be used as a model for other companies, used a streamlined format and adjusted the company's goals, objectives, and activities considering the intensified resource constraints facing the sector.

ANNEX F. EQUIPMENT DELIVERED TO COUNTERPARTS

The WWSS task order contract budget included a $2.6 million line item for "Procurement of Equipment and Special Studies." The WWSS approach was to procure and distribute equipment for the targeted utilities when such equipment supported the technical assistance activities. This table details the items purchased for each targeted company and does not include those items purchased for WWSS internal use that were transferred at the end of the program to HCWW and select subsidiaries.

No.	Type	Property	Transfer Date
Assiut Water and Wastewater Company			
1	SW	ARC View (GIS) 9.3.1	Jun 1, 2009
2	PhC	2 Xerox Photocopiers 5645	Apr 13, 2010
3	SW	ADVAC Financial & HR SW License, 10-User	Apr 19, 2010
4	SW	ARC View ArcInfo 9.3.1	May 17, 2010
5	SW	2 Water CAD & Sewer CAD Licenses	May 17, 2010
6	Printer	7 Printers HP Laser Jet 3015D	May 26, 2010
7	Printer	1 HP Ink Jet Printer K 8600	May 26, 2010
8	Printer	4HP Laser Jet 5200 TN	Jun 3, 2010
9	SW	2 MS Office Project 2007	Jul 29, 2010
10	SW	1 AutoCAD LT 2011	Jul 29, 2010
11	PC	22 PCs	Oct 3, 2010
12	Monitor	22 Monitors	Oct 3, 2010
13	UPS	26 UPS PCs	Oct 3, 2010
14	Scanner	1 Scanner	Oct 3, 2010
15	Projector	1 Data Projector	Oct 3, 2010
16	A0 Plotter	1 HP DesignJet 4020 Large Format Printer	Oct 3, 2010
17	Enclosure	1 Dell PowerEdge M1000e Enclosure	Oct 3, 2010
18	Server	2 Dell PowerEdge M610 Blade Server	Oct 3, 2010
19	Rack	1 Tripplite 42U Smart Rack Premium Enclosure, 42" Depth	Oct 3, 2010
20	Server UPS	1 Eaton 5130 3000 Server UPS	Oct 3, 2010
21	SW	8 Trend Micro Pro 2010, 3-User	Oct 3, 2010
22	WS	4 Workstations	Oct 3, 2010
23	Monitor	4 Monitors	Oct 3, 2010
24	Printer/Fax	1 Canon JX 210P Printer/Fax	Oct 3, 2010
25	Printer	3 Line Printers	Oct 3, 2010
26	HD	Fantom Drives GreenDrive II 1 TB Drive	Oct 3, 2010
27	Equip	1 Device pn# 1101TB-LR, Indianapolis Test Bench	Oct 13, 2010
28	Equip	1 pn# ECU-1, Electric Control Unit	Oct 13, 2010
29	Equip	1 pn# pipe, 2" Swinging Copper Delivery Pipe	Oct 13, 2010
30	Equip	20 pn#GT 118, Spare Parts, 5/8" × 3/4" & 3/4" Meters - Rubber	Oct 13, 2010
31	Equip	20 Spare Parts, 5/8" Split Ring Adapter for 1" Indianapolis, 9711	Oct 13, 2010
32	Equip	1 pn# TC, TC Tester Clamp	Oct 13, 2010
33	Equip	20 Spare Parts, 5/8" × 3/4" and 3/4" Split Ring Adapter, 9712	Oct 13, 2010
34	Equip	20 pn# GT124, Spare Parts, 1" Meters - Rubber Test Bench Gasket	Oct 13, 2010
35	Equip	20 pn# GT166, 5/8" Rubber Test Bench Gasket	Oct 13, 2010

No.	Type	Property	Transfer Date
36	Equip	1 pn# 400-L, 400 Liter Calibrated Test Tank	Oct 13, 2010
37	Equip	1 pn# 100-L, 100 Liter Calibrated Test Tank	Oct 13, 2010
38	Panel	1 Panel 150 KVAR	Oct 28, 2010
39	Panel	1 Panel 230 KVAR	Oct 28, 2010
40	Equip	Dranetz Powervisa Power Quality Analyzer, 3003XL24	Jan 23, 2011
41	Equip	Flex CT Probe	Jan 23, 2011
42	Equip	Dranetz USB Compact Flash Card Reader	Jan 23, 2011
43	Equip	Dranetz Powervisa Rugged Shipping Container	Jan 23, 2011
44	Equip	Power Analyzer Adapter	Jan 23, 2011
45	Printer	3 HP LaserJet Pro P1102	Jan 23, 2011
46	Equip	1 Leak Detection (Ground Microphone)	Dec 8, 2011
47	Equip	1 Bulk Meter	Jan 12, 2012
48	Equip	1 Leak Detection (Correlator)	Apr 10, 2012
49	Folders & Contract Books	3,000 Folders and 60 Contract Books (50 contracts/book)	Feb 15, 2012
50	Books	2 Volumes of Engineering Management of Water Treatment Plants (3 of each volume)	Apr 10, 2012
51	Books	2 Volumes of Engineering Management of Wastewater Treatment Plants (3 of each volume)	May 27, 2012
52	Folders & Contract Books	3,000 Folders & 60 Contract Books (50 contracts/book)	Oct 17, 2012
53	Air Conditioner	2 Air Conditioners Sharp Split 2.25 Horse Power	Oct 17, 2012
54	SW	IBM Informix Genero	Jan 21, 2013
55	Equip	1 Bulk Meter	Mar 24, 2013
56	SW	ADVAC Financial & HR SW Warranty Extension 2 Years	Apr 25, 2013
57	Printer	2 Printer Laser Jet HP 1102	Jun 17, 2013
Aswan Water and Wastewater Company			
58	SW	2 ARC View (GIS) 9.3.1	Jun 13, 2010
59	Printer	1 Printer HP Laser Jet 3015D	Jul 15, 2010
60	SW	1 MS Office Project	Aug 4, 2010
61	PC	6 PCs	Oct 10, 2010
62	Monitor	8 Monitors	Oct 10, 2010
63	WS	2 Workstations	Oct 10, 2010
64	UPS	8 PC UPS	Oct 10, 2010
65	Scanner	1 Scanner	Oct 10, 2010
66	SW	2 Trend Micro Pro 2010, 3-User	Oct 10, 2010
67	Panel	1 Panel 230 KVAR	Nov 21, 2010
68	Equip	Dranetz Powervisa Power Quality Analyzer, 3003XL24	Jan 23, 2011
69	Equip	Flex CT Probe	Jan 23, 2011
70	Equip	Dranetz USB Compact Flash Card Reader	Jan 23, 2011
71	Equip	Dranetz Powervisa Rugged Shipping Container	Jan 23, 2011
72	Equip	Power Analyzer Adapter	Jan 23, 2011
73	PC	2 PCs	Jan 23, 2011
74	Monitor	2 Monitors	Jan 23, 2011
75	UPS	2 PC UPS	Jan 23, 2011
76	Printer	2 HP LaserJet Pro P1102	Jan 23, 2011

No.	Type	Property	Transfer Date
77	Equip	Leak Listening Devices	Feb 20, 2011
78	PC	5 PCs	May 11, 2011
79	Monitor	5 Monitors	May 11, 2011
80	UPS	5 PC UPS	May 11, 2011
81	Printer	5 HP LaserJet Pro P1102	May 11, 2011
82	SW	2 Trend Micro Pro 2010, 3-User	May 11, 2011
83	Equip	Leak Detection DigiCorr Correlator	Jul 3, 2011
84	Equip	2 GPS	Oct 31, 2011
85	Equip	2 Bulk Meters	Nov 16, 2011
86	Furniture	Office Furniture (11 Employee Desks, 5 Manager Desks, 16 Employee Chairs & 13 Mobile Pedestals with 3 Drawers)	Dec 24, 2011
87	Batteries	24 Rechargeable Batteries	Feb 13, 2012
88	Folders & Contract Books	3,000 Folders & 60 Contract Books (50 contracts/book)	Feb 20, 2012
89	Books	2 Volumes of Engineering Management of Water Treatment Plants (3 of each volume)	Jun 26, 2012
90	Books	2 Volumes of Engineering Management of Wastewater Treatment Plants (3 of each volume)	Jun 26, 2012
91	PC	1 PC Desktop (HP Compaq dc7900) + 1 Keyboard + 1 Mouse USB	Oct 21, 2012
92	Monitor	1 Monitor	Oct 21, 2012
93	Printer	1 HP LaserJet 1006	Oct 21, 2012
94	SW	ADVAC Financial & HR SW warranty extension 2 years	Jun 16, 2013
Beni Suef Water and Wastewater Company			
95	SW	MS Office Project 2007	Mar 25, 2010
96	Printer	1 Printer HP Laser Jet 3015D	May 25, 2010
97	PC	2 PCs	Oct 12, 2010
98	Monitor	2 Monitors	Oct 12, 2010
99	UPS	2 PC UPS	Oct 12, 2010
100	Scanner	1 Scanner	Oct 12, 2010
101	Panel	1 Panel 150 KVAR	Oct 18, 2010
102	Equip	Leak Listening Devices	Feb 16, 2011
103	Equip	Power Analyzer Adapter	Feb 20, 2011
104	Equip	Dranetz Powervisa Power Quality Analyzer, 3003XL24	Feb 20, 2011
105	Equip	Flex CT Probe	Feb 20, 2011
106	Equip	Dranetz USB Compact Flash Card Reader	Feb 20, 2011
107	Equip	Dranetz Powervisa Rugged Shipping Container	Feb 20, 2011
108	PC	2 PCs	May 24, 2011
109	Monitor	2 Monitors	May 24, 2011
110	UPS	2 PC UPS	May 24, 2011
111	Printer	2 HP LaserJet Pro P1102	May 24, 2011
112	SW	1 Trend Micro Pro 2010, 3-User	May 24, 2011
113	Equip	Leak Detection DigiCorr Correlator	Jun 30, 2011
114	Equip	1 Bulk Meter	Dec 25, 2011
115	Folders & Contract Books	1,000 Folders & 20 Contract Books (50 contracts/book)	Mar 5, 2012
116	Books	2 Volumes of Engineering Management of Wastewater Treatment Plants (3 of each volume)	Jul 24, 2012

No.	Type	Property	Transfer Date
117	Books	2 Volumes of Engineering Management of Water Treatment Plants (3 of each volume)	Sep 19, 2012
Daqahliya Water and Wastewater Company			
118	SW	MS Office Project 2007	Mar 22, 2010
119	Books	2 Volumes of Engineering Management of Wastewater Treatment Plants (3 of each volume)	Nov 8, 2012
120	Books	2 Volumes of Engineering Management of Water Treatment Plants (3 of each volume)	Nov 8, 2012
Giza Water and Wastewater Company			
121	PC	1 PC with Accessories	Feb 23, 2010
122	SW	MS Office Project 2007	Feb 23, 2010
123	SW	ARC View (GIS) 9.3.1	Mar 24, 2010
124	PhC	1 Xerox Photocopier 5638	Mar 24, 2010
125	Printer	HP Laser Jet 1005	Mar 30, 2010
126	SW	ADVAC Financial & HR SW License, 10-User	Apr 19, 2010
127	SW	2 Water CAD & Sewer CAD Licenses	May 2, 2010
128	Printer	3 Printers HP Laser Jet 3015D	May 16, 2010
129	Printer	1 HP Ink Jet Printer K 8600	May 16, 2010
130	SW	ArcGIS ArcInfo 9.3.1	May 26, 2010
131	Printer	2 Printers HP Laser Jet 5200 TN	Jun 9, 2010
132	SW	1 AutoCAD LT 2011	Aug 2, 2010
133	Sw	1 MS Office Project	Aug 2, 2010
134	PC	22 PCs	Sep 29, 2010
135	Monitor	22 Monitors	Sep 29, 2010
136	UPS	26 UPS PC	Sep 29, 2010
137	Printer	1 A0 Plotter Hp Designjet 4020 Large Format Printer	Sep 29, 2010
138	SW	8 Trend Micro Pro 2010, 3-User	Sep 29, 2010
139	PC	4 Workstations	Sep 29, 2010
140	Monitor	4 Monitors	Sep 29, 2010
141	Equip	1 Device pn# 1101TB-LR, Indianapolis Test Bench	Oct 13, 2010
142	Equip	1 pn# ECU-1, Electric Control Unit	Oct 13, 2010
143	Equip	1 pn# pipe, 2" Swinging Copper Delivery Pipe	Oct 13, 2010
144	Equip	20 pn#GT 118, Spare Parts, 5/8" × 3/4" & 3/4" Meters - Rubber	Oct 13, 2010
145	Equip	20 Spare Parts, 5/8" Split Ring Adapter for 1" Indianapolis, 9711	Oct 13, 2010
146	Equip	1 pn# TC, TC Tester Clamp	Oct 13, 2010
147	Equip	20 Spare Parts, 5/8" × 3/4" and 3/4" Split Ring Adapter, 9712	Oct 13, 2010
148	Equip	20 pn# GT124, Spare Parts, 1" Meters - Rubber Test Bench Gasket	Oct 13, 2010
149	Equip	20 pn# GT166, 5/8" Rubber Test Bench Gasket	Oct 13, 2010
150	Equip	1 pn# 400-L, 400 Liter Calibrated Test Tank	Oct 13, 2010
151	Equip	1 pn# 100-L, 100 Liter Calibrated Test Tank	Oct 13, 2010
152	Equip	Power Analyzer Adapter	Mar 8, 2011
153	Equip	Dranetz Powervisa Power Quality Analyzer, 3003XL24	Mar 8, 2011
154	Equip	Flex CT Probe	Mar 8, 2011
155	Equip	Dranetz USB Compact Flash Card Reader	Mar 8, 2011
156	Equip	Dranetz Powervisa Rugged Shipping Container	Mar 8, 2011
157	Equip	Leak Listening Devices	Jun 28, 2011
158	Equip	Leak Detection DigiCorr Correlator	Jun 28, 2011

No.	Type	Property	Transfer Date
159	PC	1 PC with Accessories	Feb 23, 2010
160	Equip	1 Bulk Meter	Dec 12, 2011
161	Books	2 Volumes of Engineering Management of Water Treatment Plants (3 of each volume)	Jun 26, 2012
162	Books	2 Volumes of Engineering Management of Wastewater Treatment Plants (3 of each volume)	Jun 26, 2012
Holding Company for Water and Wastewater			
163	PhC	1 Xerox Photocopier 5638	Mar 11, 2010
164	Pics	17 Framed Pictures	May 9, 2010
165	Printer	2 HP Ink Jet Printers K 8600	May 16, 2010
166	NB	2 HP Elite Book 8530w, 1 Docking Station and 1 Laptop Adapter	May 27, 2010
167	Books	7 Books on Sanitarian and Construction Engineering of Water & Wastewater Sector	Jun 10, 2010
168	Enclosure	Dell PowerEdge M1000e	Aug 25, 2010
169	Server	2 Blade Server Dell PowerEdge M610	Aug 25, 2010
170	Rack	Smart Rack Premium Enclosure, 42" Depth	Aug 25, 2010
171	UPS	Server UPS Eaton 5130 3000	Aug 25, 2010
172	Laptop	2 Tablet Laptops HP Elitebook 2740P	Sep 19, 2010
173	Router	Cisco Router 2801	Sep 19, 2010
174	Scanner	1 Scanner	Oct 5, 2010
175	Printer	1 A0 Plotter Hp Designjet 4020 Large Format Printer	Oct 17, 2011
176	WS	4 Workstations	Oct 17, 2011
177	Monitor	4 Monitors	Oct 17, 2011
178	UPS	4 PC UPS	Oct 17, 2011
179	SW	1 Trend Micro Pro 2010, 3-User	Oct 17, 2011
180	Printer	HP 7000 DeskJet A3 Color Printer	Nov 10, 2010
181	Printer	HP LaserJet 2055 Duplex A4 B&W Printer	Nov 10, 2010
182	Laptop	Dell Latitude E6400 Intel Core 2 Duo T9550 with Accessories	Nov 10, 2010
183	Toner	05 for the HP 2055D	Nov 10, 2010
184	Ink Set	Ink Set For Deskjet A3 Color Printer	Nov 10, 2010
185	Printer	HP LaserJet 2055 Duplex A4 B&W Printer	Dec 2, 2010
186	Scanner	HP Scanjet G2410 Flatbed Scanner	Dec 2, 2010
187	Supplies	Microsoft Wireless Keyboard & Mouse	Dec 2, 2010
188	Equip	Dranetz Powervisa Power Quality Analyzer, 3003XL24	Mar 15, 2011
189	Equip	Flex CT Probe	Mar 15, 2011
190	Equip	Dranetz USB Compact Flash Card Reader	Mar 15, 2011
191	Equip	Dranetz Powervisa Rugged Shipping Container	Mar 15, 2011
192	Equip	Power Analyzer Adapter	Mar 15, 2011
193	Computer	3 PC Desktops (HP Compaq dc7900) + 3 Keyboard + 3 Mouse USB	Jan 19, 2012
194	Monitor	3 Monitors 19" HP L1945w Widescreen LCD	Jan 19, 2012
195	Laptop	1 Laptop HP (HP EliteBook 6930p Notebook PC)	Jan 24, 2012
196	Printer	1 Printer HP Laser Jet P1006	Jan 24, 2012
197	Books	2 Volumes of Engineering Management of Water Treatment Plants (5 of each volume)	Apr 3, 2012
198	Books	2 Volumes of Engineering Management of Wastewater Treatment Plants (5 of each volume)	May 14, 2012
199	Monitor	Dell LCD 20"	May 23, 2012

No.	Type	Property	Transfer Date
200	Data Show	Data show Sony	Jun 12, 2012
201	Computer	1 PC Desktop (HP Compaq dc7900) + 2 Keyboard + 2 Mouse USB	Jun 20, 2013
202	Monitor	2 Monitors 19" HP L1945w Widescreen LCD	Jun 20, 2013
203	UPS	2 PC UPS	Jun 20, 2013
204	Laptop	3 Laptops HP EliteBook 6930	Jun 20, 2013
205	Bag	3 Carry Cases for Laptop	Jun 20, 2013
206	Docking Station	3 Docking Stations for Laptop	Jun 20, 2013
207	Cordless Mouse	3 Cordless Mouse	Jun 20, 2013
208	Computer	1 PC Desktop (HP Compaq dx2420) + 1x2Gb PC2-6400 DDR2 RAM	Jun 20, 2013
Luxor Water and Wastewater Company			
209	SW	ARC View (GIS) 9.3.1	Jun 25, 2009
210	PhC	2 Xerox Photocopiers 5638	Mar 22, 2010
211	SW	2 Water CAD & Sewer CAD Licenses	Apr 27, 2010
212	SW	ADVAC Financial & HR SW License, 10-User	Apr 27, 2010
213	Equip	3 Dura Measuring Wheels	May 3, 2010
214	Equip	15 Listening Sticks	May 3, 2010
215	Printer	2 HP Laser Printers 5200 TN	Jun 10, 2010
216	Printer	1 HP Ink Jet Printer K 8600	Jun 10, 2010
217	Printer	5 HP 3015n	Jun 10, 2010
218	SW	1 AutoCAD LT 2011	Aug 12, 2010
219	SW	2 MS Office Project 2007	Aug 12, 2010
220	Equip	5 Flow Meters Kits	Oct 10, 2010
221	Equip	7 Pressure Loggers with SW	Oct 10, 2010
222	PC	20 PCs	Oct 11, 2010
223	Monitor	22 Monitors	Oct 11, 2010
224	WS	2 Workstations	Oct 11, 2010
225	UPS	22 PC UPS	Oct 11, 2010
226	Scanner	1 Scanner	Oct 11, 2010
227	SW	7 Trend Micro Pro 2010, 3-User	Oct 11, 2010
228	HD	Fantom Drives GreenDrive II 1 TB Drive	Oct 11, 2010
229	Projector	1 Data Projector	Oct 11, 2010
230	Panel	1 Panel 310 KVAR	Nov 9, 2010
231	Equip	Dranetz Powervisa Power Quality Analyzer, 3003XL24	Jan 26, 2011
232	Equip	Flex CT Probe	Jan 26, 2011
233	Equip	Dranetz USB Compact Flash Card Reader	Jan 26, 2011
234	Equip	Dranetz Powervisa Rugged Shipping Container	Jan 26, 2011
235	Equip	Power Analyzer Adapter	Jan 26, 2011
236	Equip	Leak Listening Devices	Feb 22, 2011
237	PC	1 PC	May 30, 2011
238	Monitor	1 Monitor	May 30, 2011
239	UPS	1 PC UPS	May 30, 2011
240	Line Printer	1 Line Printer	May 30, 2011
241	SW	1 Trend Micro Pro 2010, 3-User	May 30, 2011
242	Equip	Leak Detection DigiCorr Correlator	Jul 3, 2011

No.	Type	Property	Transfer Date
243	Equip	1 GPS	Oct 31, 2011
244	Equip	1 Bulk Meter	Jan 11, 2012
245	Folders & Contract Books	3,000 Folders & 60 Contract Books (50 contracts/book)	Feb 27, 2012
246	Books	2 Volumes of Engineering Management of Water Treatment Plants (3 of each volume)	Jul 1, 2012
247	Books	2 Volumes of Engineering Management of Wastewater Treatment Plants (3 of each volume)	Jul 1, 2012
248	SW	ADVAC Financial & HR SW Warranty Extension 2 Years	Apr 28, 2013
Matrouh Water and Wastewater Company			
249	SW	ADVAC Financial & HR SW License, 10-User	Mar 22, 2010
250	SW	MS Office Project 2007	Mar 22, 2010
251	Printer	1 Printer HP 3015D	Jun 6, 2010
252	Printer	2 Printers HP5200 TN	Jun 6, 2010
253	Printer	1 Printer HP Laser Jet 3015D	Jun 7, 2010
254	Printer	2 Printers HP Laser Jet 5200 TN	Jun 7, 2010
255	SW	2 Water CAD & Sewer CAD Licenses	Jun 10, 2010
256	SW	2 ArcGIS ArcInfo 9.3.1	Jul 6, 2010
257	SW	1 AutoCAD LT 2011	Aug 2, 2010
258	SW	1 MS Office Project	Aug 2, 2010
259	PC	9 PCs	Sep 23, 2010
260	Monitor	9 Monitors	Sep 23, 2010
261	PC	9 PCs UPS	Sep 23, 2010
262	Scanner	1 Scanner	Sep 23, 2010
263	Equip	2 Bulk Meters	Nov 17, 2011
264	Equip	1 Power Factor Analyzer	Dec 15, 2011
265	Books	2 Volumes of Engineering Management of Water Treatment Plants (3 of each volume)	May 13, 2012
266	Books	2 Volumes of Engineering Management of Wastewater Treatment Plants (3 of each volume)	May 13, 2012
Menufiya Water and Wastewater Company			
267	SW	ARC View (GIS) 9.3.1	Nov 11, 2009
268	Monitor	HP Monitor LCD 19" HP	Nov 11,2009
269	PC	1 PC with Accessories	Feb 22, 2010
270	SW	MS Office Project 2007	Feb 22, 2010
271	SW	Windows Vista Business SP1 32-Bit English	Feb 23, 2010
272	PhC	2 Xerox Photocopiers 5638	Feb 23, 2010
273	Printer	1 HP Ink Jet Printer K 8600	May 16, 2010
274	SW	2 Water CAD & Sewer CAD Licenses	May 24, 2010
275	SW	ARC View ArcInfo 9.3.1	May 24, 2010
276	Printer	5 HP 3015D	Jun 29, 2010
277	Printer	2 HP Laser Printers 5200 TN	Jun 29, 2010
278	SW	1 AutoCAD LT 2011	Aug 2, 2010
279	SW	1 MS Office Project	Aug 2, 2010
280	PC	20 PCs	Sep 27, 2010
281	Monitor	20 Monitors	Sep 27, 2010
282	PC	24 UPS PCs	Sep 27, 2010
283	Projector	1 Data projector	Sep 27, 2010

No.	Type	Property	Transfer Date
284	Hard Disk	1 External Hard Disk	Sep 27, 2010
285	WS	4 Workstations	Sep 27, 2010
286	Monitor	4 Monitors	Sep 27, 2010
287	Printer	1 Canon JX 210P Printer/Fax	Sep 27, 2010
288	SW	8 Trend Micro Pro 2010, 3-User	Sep 27, 2010
289	Panel	1 Panel 150 KVAR	Oct 5, 2010
290	Equip	1 Device pn# 1101TB-LR, Indianapolis Test Bench	Oct 13, 2010
291	Equip	1 pn# ECU-1, Electric Control Unit	Oct 13, 2010
292	Equip	1 pn# Pipe, 2" Swinging Copper Delivery Pipe	Oct 13, 2010
293	Equip	20 pn# GT 118, Spare Parts, 5/8" × 3/4" & 3/4" Meters - Rubber	Oct 13, 2010
294	Equip	20 Spare Parts, 5/8" Split Ring Adapter for 1" Indianapolis, 9711	Oct 13, 2010
295	Equip	1 pn# TC, TC Tester Clamp	Oct 13, 2010
296	Equip	20 Spare Parts, 5/8" × 3/4" and 3/4" Split Ring Adapter, 9712	Oct 13, 2010
297	Equip	20 pn# GT124, Spare Parts, 1" Meters - Rubber Test Bench Gasket	Oct 13, 2010
298	Equip	20 pn# GT166, 5/8" Rubber Test Bench Gasket	Oct 13, 2010
299	Equip	1 pn# 400-L, 400 Liter Calibrated Test Tank	Oct 13, 2010
300	Equip	1 pn# 100-L, 100 Liter Calibrated Test Tank	Oct 13, 2010
301	Equip	Dranetz Powervisa Power Quality Analyzer, 3003XL24	Mar 17, 2011
302	Equip	Flex CT Probe	Mar 17, 2011
303	Equip	Dranetz USB Compact Flash Card Reader	Mar 17, 2011
304	Equip	Dranetz Powervisa Rugged Shipping Container	Mar 17, 2011
305	Equip	Power Analyzer Adapter	Mar 17, 2011
306	PC	4 PCs	Jun 7, 2011
307	Monitor	4 Monitors	Jun 7, 2011
308	UPS	4 PCs UPS	Jun 7, 2011
309	Printer	4 HP LaserJet Pro P1102	Jun 7, 2011
310	SW	2 Trend Micro Pro 2010, 3-User	Jun 7, 2011
311	Equip	Leak Listening Devices	Jun 30, 2011
312	Equip	Leak Detection DigiCorr Correlator	Jun 30, 2011
313	Books	2 Volumes of Engineering Management of Water Treatment Plants (3 of each volume)	Nov 8, 2012
314	Books	2 Volumes of Engineering Management of Wastewater Treatment Plants (3 of each volume)	Nov 8, 2012
Minya Water and Wastewater Company			
315	Printer	1 Printer HP Laser Jet 3015D	May 27, 2010
316	SW	1 MS Office Project	Aug 19, 2010
317	PC	2 PCs	Oct 7, 2010
318	Monitor	2 Monitors	Oct 7, 2010
319	UPS	2 UPS PCs	Oct 7, 2010
320	Scanner	1 Scanner	Oct 7, 2010
321	Panel	1 Panel 310 KVAR	Oct 19, 2010
322	Equip	Leak Listening Devices	Feb 17, 2011
323	Equip	Power Analyzer Adapter	Feb 20, 2011
324	Equip	Dranetz Powervisa Power Quality Analyzer, 3003XL24	Feb 20, 2011
325	Equip	Flex CT Probe	Feb 20, 2011
326	Equip	Dranetz USB Compact Flash Card Reader	Feb 20, 2011

No.	Type	Property	Transfer Date
327	Equip	Dranetz Powervisa Rugged Shipping Container	Feb 20, 2011
328	Equip	Leak Detection DigiCorr Correlator	Jun 29, 2011
329	Folders & Contract Books	3,000 Folders & 60 Contract Books (50 contracts/book)	Feb 15, 2012
330	Laptop	1 Laptop HP EliteBook 8530W	Feb 16, 2012
331	Camera	1 Digital Camera Fujifilm	Feb 16, 2012
332	Equip	1 Bulk Meter	Mar 21, 2012
333	Books	2 Volumes of Engineering Management of Water Treatment Plants (3 of each volume)	Apr 10, 2012
334	Books	2 Volumes of Engineering Management of Wastewater Treatment Plants (3 of each volume)	May 6, 2012
335	Air Conditioner	2 Air Conditioners Split 1.5 Horse Power	Oct 18, 2012
336	Equip	Power Analyzer Adapter	Mar 24, 2013
337	Equip	Dranetz Powervisa Power Quality Analyzer, 3003XL24	Mar 24, 2013
338	Equip	Flex CT Probe	Mar 24, 2013
339	Equip	Dranetz USB Compact Flash Card Reader	Mar 24, 2013
340	Equip	Dranetz Powervisa Rugged Shipping Container	Mar 24, 2013
341	Equip	1 Leak Detection DigiCorr Correlator	Mar 24, 2013
342	Equip	1 Leak Listening Device	Mar 24, 2013
343	Book	Dranetz Handbook for the Power Factor Analyzer	Jun 11, 2013
Qena Water and Wastewater Company			
344	Printer	1 Printer HP Laser Jet 3015D	May 30, 2010
345	PC	2 PCs	Oct 12, 2010
346	Monitor	2 Monitors	Oct 12, 2010
347	UPS	2 PC UPS	Oct 12, 2010
348	Scanner	1 Scanner	Oct 12, 2010
349	Panel	1 Panel 150 KVAR	Nov 7, 2010
350	Equip	Dranetz Powervisa Power Quality Analyzer, 3003XL24	Jan 23, 2011
351	Equip	Flex CT Probe	Jan 23, 2011
352	Equip	Dranetz USB Compact Flash Card Reader	Jan 23, 2011
353	Equip	Dranetz Powervisa Rugged Shipping Container	Jan 23, 2011
354	Equip	Power Analyzer Adapter	Jan 23, 2011
355	PC	1 PCs	Jun 12, 2011
356	Monitor	1 Monitor	Jun 12, 2011
357	UPS	1 PC UPS	Jun 12, 2011
358	Line Printer	1 Line Printer	Jun 12, 2011
359	SW	1 Trend Micro Pro 2010, 3-User	Jun 12, 2011
360	Printer	1 HP LaserJet Pro P1102	Jun 12, 2011
361	Equip	1 Power Factor Analyzer	Sep 15, 2011
362	Equip	1 Bulk Meter	Dec 8, 2011
363	Equip	1 Leak Detection (Ground Microphone)	Dec 8, 2011
364	Folders & Contract Books	3,000 Folders & 60 Contract Books (50 contracts/book)	Feb 22, 2012
365	Books	2 Volumes of Engineering Management of Water Treatment Plants (3 of each volume)	May 13, 2012
366	Books	2 Volumes of Engineering Management of Wastewater Treatment Plants (3 of each volume)	May 13, 2012

No.	Type	Property	Transfer Date
North and South Sinai Water and Wastewater Company			
367	SW	ADVAC Financial & HR SW License, 10-User	Jan 24, 2011
368	PC	20 PCs	Mar 21, 2011
369	Monitor	20 Monitors	Mar 21, 2011
370	UPS	20 PC UPS	Mar 21, 2011
371	SW	6 Trend Micro Pro 2010, 3-User	Mar 21, 2011
372	Printer	10 HP LaserJet Pro P1102	Mar 21, 2011
373	Equip	Dranetz Powervisa Power Quality Analyzer, 3003XL24	Mar 27, 2011
374	Equip	Flex CT Probe	Mar 27, 2011
375	Equip	Dranetz USB Compact Flash Card Reader	Mar 27, 2011
376	Equip	Dranetz Powervisa Rugged Shipping Container	Mar 27, 2011
377	Equip	Power Analyzer Adapter	Mar 27, 2011
378	PC	4 PCs	May 29, 2011
379	Monitor	4 Monitors	May 29, 2011
380	UPS	4 PC UPS	May 29, 2011
381	Printer	4 HP LaserJet Pro P1102	May 29, 2011
382	Line Printer	1 Line Printer	May 29, 2011
383	SW	2 Trend Micro Pro 2010, 3-User	May 29, 2011
384	Equip	1 Power Factor Analyzer	Oct 11, 2011
385	Equip	2 Bulk Meters	Nov 28, 2011
386	Equip	1 Leak Detection (Ground Microphone)	Nov 28, 2011
387	Panel	1 Power Factor Correction Panel	Sep 1, 2013
388	Equip	1 Lab	Oct 18, 2011 Oct 31, 2011 Jan 12, 2012 Jan 15, 2012
389	PC	1 PC Desktop (HP Compaq dc7900) + 1 Keyboard HP + 1 Mouse USB	Jan 12, 2012
390	Monitor	1 Monitor 19" HP L1945w Widescreen LCD	Jan 12, 2012
391	Printer	1 Printer Laser Jet HP 1102	Jan 12, 2012
392	Stationary, Equip. & Office Furniture	North Sinai Training Center	Dec 19, 2011 Dec 1, 2011
393	Stationary, Equip. & Office Furniture	South Sinai Training Center	Nov 29, 2011 Dec 19, 2011 Dec 1, 2011
394	Folders & Contract Books	3,000 Folders & 60 Contract Books (50 contracts/book)	Feb 26, 2012
395	Glassware	Glassware	Feb 26, 2012
396	Air Conditioner	2 Air Conditioners (North Sector)	Apr 24, 2012
397	Air Conditioner	2 Air Conditioners (South Sector)	Apr 24, 2012
398	Printer	2 Printer Laser Jet HP1102 (North Sector)	May 27, 2012
399	PC	2 PC Desktop (HP Compaq dc7900) + 2 Keyboard HP + 2 Mouse HP USB (North Sinai)	May 27, 2012
400	Monitor	2 Monitors HP 19" (North Sector)	May 27, 2012
401	Books	2 Volumes of Engineering Management of Water Treatment Plants (3 of each volume)	May 27, 2012
402	Books	2 Volumes of Engineering Management of Wastewater	May 27, 2012

No.	Type	Property	Transfer Date
		Treatment Plants (3 of each volume)	
403	Equip	1 Leak Detection (Correlator)	May 27, 2012
404	Printer	2 Printers Laser Jet HP1102 (South Sector)	Oct 4, 2012
405	PC	4 PC Desktops (3 HP Compaq dc7900 + 1 HP Compaq DX2420) + 4 Keyboards + 4 Mouse USB (South Sector)	Oct 4, 2012
406	Monitor	4 Monitors HP 19" (South Sector)	Oct 4, 2012
407	SW	4 Microsoft Office 2007 Pro License (South Sector)	Oct 4, 2012
408	SW	ADVAC Financial & HR SW warranty extension 2 years	Jun 16, 2013
		Sohag Water and Wastewater Company	
409	SW	2 ARC View (GIS) 9.3.1	Aug 3, 2009
410	PhC	2 Xerox Photocopiers 5645	May 3, 2010
411	SW	ARC View ArcInfo 9.3.1	May 11, 2010
412	SW	2 Water CAD & Sewer CAD Licenses	May 11, 2010
413	Printer	9 Printers HP Laser Jet 3015D	May 26, 2010
414	Printer	1 HP Ink Jet Printer K 8600	May 26, 2010
415	Printer	6 Printers HP Laser Jet 5200 TN	Jun 9, 2010
416	SW	1 AutoCAD LT 2011	Aug 19, 2010
417	SW	2 MS Office Project 2007	Aug 19, 2010
418	SW	ADVAC Financial & HR SW License, 10-User	Oct 10, 2010
419	Equip	1 Device pn# 1101TB-LR, Indianapolis Test Bench	Oct 13, 2010
420	Equip	1 pn# ECU-1, Electric Control Unit	Oct 13, 2010
421	Equip	1 pn# pipe, 2" Swinging Copper Delivery Pipe	Oct 13, 2010
422	Equip	20 pn#GT 118, Spare Parts, 5/8" × 3/4" & 3/4" Meters - Rubber	Oct 13, 2010
423	Equip	20 Spare Parts, 5/8" Split Ring Adapter for 1" Indianapolis, 9711	Oct 13, 2010
424	Equip	1 pn# TC, TC Tester Clamp	Oct 13, 2010
425	Equip	20 Spare Parts, 5/8" × 3/4" and 3/4" Split Ring Adapter, 9712	Oct 13, 2010
426	Equip	20 pn# GT124, Spare Parts, 1" Meters - Rubber Test Bench Gasket	Oct 13, 2010
427	Equip	20 pn# GT166, 5/8" Rubber Test Bench Gasket	Oct 13, 2010
428	Equip	1 pn# 400-L, 400 Liter Calibrated Test Tank	Oct 13, 2010
429	Equip	1 pn# 100-L, 100 Liter Calibrated Test Tank	Oct 13, 2010
430	PC	50 PCs	Oct 13, 2010
431	WS	4 Workstations	Oct 13, 2010
432	Monitor	54 Monitors	Oct 13, 2010
433	UPS	54 PC UPS	Oct 13, 2010
434	Scanner	1 Scanner	Oct 13, 2010
435	Projector	1 Data Projector	Oct 13, 2010
436	HD	1 External hard Disk	Oct 13, 2010
437	SW	18 Trend Micro Pro 2010, 3-User	Oct 13, 2010
438	Printer	1 A0 plotter HP Designjet 4020 Large Format Printer	Oct 13, 2010
439	Printer/Fax	1 Canon JX 210P Printer/Fax	Oct 13, 2010
440	Line Printer	2 Line Printers	Oct 13, 2010
441	Equip	Dranetz Powervisa Power Quality Analyzer, 3003XL24	Jan 20, 2011
442	Equip	Flex CT Probe	Jan 20, 2011
443	Equip	Dranetz USB Compact Flash Card Reader	Jan 20, 2011
444	Equip	Dranetz Powervisa Rugged Shipping Container	Jan 20, 2011

No.	Type	Property	Transfer Date
445	Equip	Power Analyzer Adapter	Jan 20, 2011
446	Printer	3 HP LaserJet Pro P1102	Feb 22, 2011
447	PC	1 PC	Jun 13, 2011
448	Monitor	1 Monitor	Jun 13, 2011
449	UPS	1 PC UPS	Jun 13, 2011
450	Printer/Fax	1 Canon JX 210P Printer/Fax	Jun 13, 2011
451	Printer	1 HP LaserJet Pro P1102	Jun 13, 2011
452	Equip	1 GPS	Oct 31, 2011
453	Equip	1 Bulk Meter	Nov 16, 2011
454	Equip	1 Leak Detection (Ground Microphone)	Nov 16, 2011
455	Equip	1 Leak Detection (Correlator)	Apr 10, 2012
456	Stationary, Equip. & Office Furniture	Nida Training Center	Jan 15, 2012
457	Folders & Contract Books	3,000 Folders & 60 Contract Books (50 contracts/book)	Feb 15, 2012
458	Books	2 Volumes of Engineering Management of Water Treatment Plants (3 from each volume)	Apr 10, 2012
459	Books	2 Volumes of Engineering Management of Wastewater Treatment Plants (3 from each volume)	Jul 2, 2012
460	SW	IBM Informix Genero	Jan 21, 2013
461	Equip	1 Leak Detection DigiCorr Correlator	Mar 24, 2013
462	SW	ADVAC Financial & HR SW Warranty Extension 2 Years	Mar 25, 2013

ANNEX G. LIFE-OF-PROJECT PERFORMANCE MONITORING PLAN INDICATOR VALUES

Note: Grey highlighted boxes are baseline numbers, and blue are targets.

Percent of Collection

Subsidiary	FY 2007/2008 (Baseline)	FY 2008/2009 (Actual)	FY 2009/2010 (Actual)	FY 2010/2011 (Target)	FY 2010/2011 (Actual)	FY 2011/2012 (Target)	FY 2011/2012 (Actual)
Assiut	N/A	N/A	26%	50%	45%	60%	41%
Aswan	34%	50%	51%	41%	45%	53%	44%
Beni Suef	88%	87%	87%	90%	82%	93%	85%
Giza	N/A	60%	20%	45%	47%	65%	40%
Luxor	N/A	54%	59%	62%	55%	70%	37%
Matrouh	N/A	32%	30%	35%	35%	60%	35%
Menufiya	50%	75%	75%	88%	63%	91%	50%
Minya	55%	64%	74%	80%	74%	90%	64%
Qena**	53%	44%	50%	65%	48%	80%	48%
Sinai	N/A	N/A	N/A	50%	50%	55%	51%
Sohag	N/A	N/A	65%	60%	72%	65%	56%
Baseline Average*	52%			N/A			
Annual Averages*	56%	58%	54%	61%	56%	71%	50%
Baseline							

*All averages are included for reporting purposes only. They are not meant to represent the sector as a whole. Annual averages include shaded baseline figures for the respective year.
**2010/2011 figures are not from the financially audited statements

Percent Increase/Decrease in Water Loss

Subsidiary	FY 2007/2008 (Baseline)	FY 2008/2009 (Actual)	FY 2009/2010 (Actual)	FY 2010/2011 (Target)	FY 2010/2011 (Actual)	FY 2011/2012 (Target)	FY 2011/2012 (Actual)
Assiut	N/A	N/A	25%	-1%	3%	-2%	-7%
Aswan	28%	-2%	-0.24%	-2%	-1%	-1%	-0.33%
Beni Suef	29%	1%	1%	-6%	1%	-2%	-2%
Giza	N/A	28%	1%	0%	-15%	0%	21%
Luxor	N/A	45%	-3%	-2%	-0.3%	-2%	3%
Matrouh	N/A	27%	9%	4%	13%	-5%	12%
Menufiya	38%	-5%	-3%	-3%	-3%	-2%	1%
Minya	29%	0.3%	-2%	-3%	-3%	0%	4%
Qena**	51%	-9%	-4%	-9%	-5%	-2%	8%
Sinai	N/A	N/A	42%	-8%	-13%	-2%	3%
Sohag	N/A	N/A	36%	-6%	-2%	-5%	-4%
Baseline Average*	34%			N/A			
Annual Averages*	N/A	-3%	-0.20%	-3%	-2%	-2%	4%
Baseline	Baseline figures represent "Percent of water loss." All subsequent figures represent "Percent of increase/decrease in water loss."						

*All averages are included for reporting purposes only. They are not meant to represent the sector as a whole. Annual averages do not include shaded baseline figures for the respective year.
**Figures from 2008/2009 and 2009/2010 are not from the financially audited statements.

Percent of Volume of Water Produced that is Billed

Subsidiary	FY 2007/2008 (Baseline)	FY 2008/2009 (Actual)	FY 2009/2010 (Actual)	FY 2010/2011 (Target)	FY 2010/2011 (Actual)	FY 2011/2012 (Target)	FY 2011/2012 (Actual)
Assiut	N/A	N/A	75%	76%	72%	78%	79%
Aswan	72%	72%	72%	73%	73%	75%	74%
Beni Suef	71%	70%	69%	75%	68%	77%	70%
Giza	N/A	72%	71%	71%	86%	72%	65%
Luxor	N/A	55%	58%	60%	59%	62%	56%
Matrouh	N/A	73%	64%	60%	51%	65%	39%
Menufiya	62%	67%	70%	73%	73%	75%	73%
Minya	71%	71%	72%	75%	75%	75%	71%
Qena**	49%	58%	61%	70%	66%	72%	58%
Sinai	N/A	N/A	58%	66%	71%	68%	68%
Sohag	N/A	N/A	64%	70%	66%	75%	70%
Baseline Average*	66%			N/A			
Annual Averages*	65%	67%	67%	70%	69%	72%	65%
Baseline							

*All averages are included for reporting purposes only. They are not meant to represent the sector as a whole. Annual averages include shaded baseline figures for the respective year.
**2010/2011 figures are not from the financially audited statements.

Percent Increase/Decrease in Energy Cost per Cubic Meter

Subsidiary	FY 2007/2008 (Baseline)	FY 2008/2009 (Actual)	FY 2009/2010 (Actual)	FY 2010/2011 (Target)	FY 2010/2011 (Actual)	FY 2011/2012 (Target)	FY 2011/2012 (Actual)
Assiut	N/A	N/A	N/A	N/A	0.09	N/A	17%
Aswan	0.10	4%	6%	-12%	-12%	5%	-2%
Beni Suef	0.08	1%	-7%	0%	13%	0%	-2%
Giza	N/A	0.08	2%	10%	16%	10%	27%
Luxor	N/A	0.53	-71%	-10%	-31%	-5%	22%
Matrouh	N/A	0.22	-4%	-33%	-6%	-15%	-6%
Menufiya	0.07	-0.10%	30%	27%	-8%	26%	10%
Minya	0.10	0%	5%	0%	14%	0%	7%
Qena**	0.12	-16%	0.07%	19%	21%	21%	-7%
Sinai	N/A	N/A	0.38	29%	-11%	-37%	-2%
Sohag	N/A	N/A	0.10	19%	10%	21%	5%
Baseline Average*	0.18			N/A			
Annual Averages*	N/A	-2%	-5%	5%	1%	3%	6%
Baseline	Baseline figures in this table represent "Energy Cost per cubic meter", and all subsequent figures represent "Percent of increase/decrease in energy cost per cubic meter"						

*All averages are included for reporting purposes only. They are not meant to represent the sector as a whole. Annual averages do not include shaded baseline figures for the respective year.
**Figures for 2008/2009, 2009/2010, and 2010/2011 are not from the financially audited statements.

Percent of Samples Meeting Egyptian Water Quality Standards

Subsidiary	FY 2007/2008 (Baseline)	FY 2008/2009 (Actual)	FY 2009/2010 (Actual)	FY 2010/2011 (Target)	FY 2010/2011 (Actual)	FY 2011/2012 (Target)	FY 2011/2012 (Actual)
Assiut	N/A	N/A	30%	35%	74%	40%	73%
Aswan	92%	100%	99%	99%	99%	99%	99%
Beni Suef	96%	95%	95%	96%	96%	97%	96%
Giza	N/A	100%	97%	98%	97%	98%	98%
Luxor	N/A	100%	100%	99%	100%	99%	100%
Matrouh	N/A	99%	95%	96%	99%	97%	44%
Menufiya	93%	74%	95%	96%	95%	96%	57%
Minya	94%	93%	95%	96%	95%	97%	96%
Qena**	90%	93%	100%	99%	85%	99%	94%
Sinai	N/A	N/A	100%	99%	99%	99%	100%
Sohag	N/A	N/A	94%	96%	95%	97%	92%
Baseline Average*	96%			N/A			
Annual Averages*	93%	94%	97%	97%	96%	98%	87%
Baseline							

*Averages do not include values for Assiut. Because Assiut's water source relies more heavily on ground water than the other companies, many of its samples do not meet Egyptian standards and thus skew the results. All averages are included for reporting purposes only. They are not meant to represent the sector as a whole. Annual averages include shaded baseline figures for the respective year.
**Figures for 2008/2009, 2009/2010, and 2010/2011 are not from the financially audited statements.

Percent of Meters Functioning in Targeted Areas

Subsidiary	FY 2007/2008 (Baseline)	FY 2008/2009 (Actual)	FY 2009/2010 (Actual)	FY 2010/2011 (Target)	FY 2010/2011 (Actual)	FY 2011/2012 (Target)	FY 2011/2012 (Actual)
Assiut	N/A	N/A	87%	88%	87%	89%	77%
Aswan	85%	84%	91%	93%	90%	93%	90%
Beni Suef	95%	96%	96%	98%	96%	98%	82%
Giza	N/A	56%	64%	64%	88%	64%	50%
Luxor	N/A	94%	95%	96%	93%	96%	92%
Matrouh	N/A	45%	93%	94%	98%	95%	74%
Menufiya	90%	96%	97%	98%	98%	98%	91%
Minya	91%	97%	95%	96%	96%	96%	91%
Qena**	55%	60%	71%	82%	65%	90%	62%
Sinai	N/A	N/A	85%	88%	87%	88%	58%
Sohag	N/A	N/A	97%	80%	79%	82%	75%
Baseline Average	80%			N/A			
Annual Averages*	83%	79%	88%	89%	89%	90%	77%
Baseline							

*All averages are included for reporting purposes only. They are not meant to represent the sector as a whole. Annual averages include shaded baseline figures for the respective year.
**Figures for 2008/2009, 2009/2010, and 2010/2011 are not from the financially audited statements.

Progress in Developing and Implementing Subsidiary Business Plans (Milestone Indicator)

Actual									
	Development					Implementation			Institutionalization
Subsidiary	Training Conducted	Plan Drafted	Review Workshop Held	Final Draft Completed	Annual Update Completed	No. of Programs in Plan	No. of Programs Initiated	No. of Programs Completed	Equipment Delivered
Assiut	X	X	X	X	X	37	11	6	X
Aswan	X	X	X	X	X	167	72	29	X
Beni Suef	X	X	X	X		64	22	5	X
Giza	X	X	X	X	X	76	76	70	X
Luxor	X	X	X	X		74	74	55	X
Matrouh	X	X	X	X	X	122	70	6	X
Menufiya	X	X	X	X	X	62	46	16	X
Minya	X	X	X	X	X	22	17	5	X
Qena	X	X	X	X	X	56	52	40	X
Sinai	X	X	X		X	97	70	37	
Sohag	X	X	X	X	X	30	30	30	X

Target								
	Development					Implementation		Institutionalization
Subsidiary	Training Conducted	Plan Drafted	Review Workshop held	Final Draft Completed	Annual Update Completed	No. of Programs in Plan	No. of Plans Completed	Equipment Delivered
Assiut	X	X	X	X	X	36	18	X
Aswan	X	X	X	X	X	165	83	X
Beni Suef	X	X	X	X	X	64	32	X
Giza	X	X	X	X	X	76	38	X
Luxor	X	X	X	X	X	74	37	X
Matrouh	X	X	X	X	X	68	34	X
Menufiya	X	X	X	X	X	62	31	X
Minya	X	X	X	X	X	60	30	X
Qena	X	X	X	X	X	56	28	X
Sinai	X	X	X	X	X			X
Sohag	X	X	X	X	X	30	15	X

Note: Last updated March 2013

Number of Program-Targeted Subsidiaries Producing Quarterly Financial and Accounting Statements

Subsidiary	FY 2008/2009 (Baseline)	FY 2009/2010 (Actual)	FY 2010/2011 (Target)	FY 2010/2011 (Actual)	FY 2011/2012 (Target)	FY 2011/2012 (Actual)	FY 2012/2013 (Target)	FY 2012/2013 (Actual)
Assiut	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Giza	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Luxor	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Matrouh	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sinai	N/A	N/A	Yes	Yes	Yes	Yes	Yes	Yes
Sohag	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subtotals (No. of Subsidiaries)	**5**	**5**	**6**	**6**	**6**	**6**	**6**	**6**

This indicator is monitored only for the companies receiving WWSS ADVAC financial assistance.

Number of Subsidiary HR Plans Developed

Subsidiary	FY 2007/2008 (Baseline)	FY 2008/2009 (Actual)	FY 2009/2010 (Actual)	FY 2010/2011 (Target)	FY 2010/2011 (Actual)	FY 2011/2012 (Target)	FY 2011/2012 (Actual)	FY 2012/2013 (Target)	FY 2012/2013 (Actual)
Assiut	NA			X					
Aswan	NA			X	X		X		
Beni Suef	NA		X						
Giza	NA			X	X				
Luxor	NA			X	X				
Matrouh	NA		X						
Menufiya	NA		X						
Minya	NA			X	X				
Qena	NA		X						
Sinai	NA					X	X		
Sohag	NA		X						
No. of Plans Developed			**5**	**5**	**4**	**1**	**2**	**-**	**-**

Number of Subsidiaries Using an Automated HR Management System

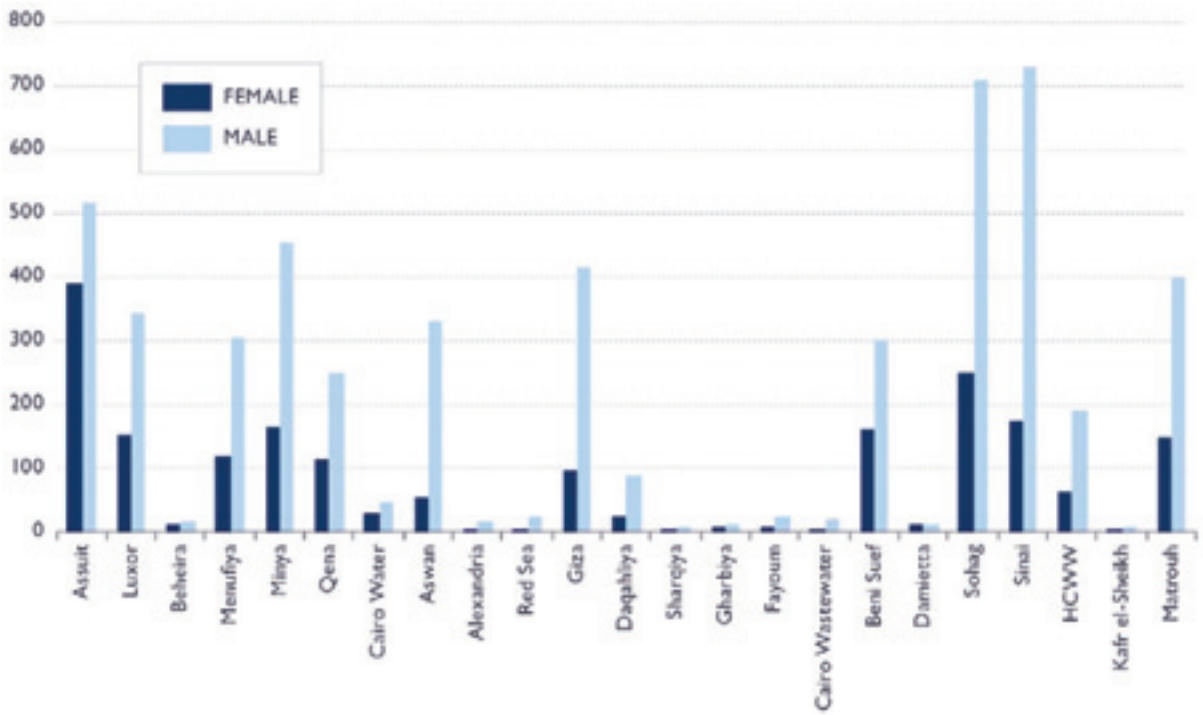
Subsisdiary	FY 2007/2008 (Baseline)	FY 2008/2009 (Actual)	FY 2009/2010 (Actual)	FY 2010/2011 (Target)	FY 2010/2011 (Actual)	FY 2011/2012 (Target)	FY 2011/2012 (Actual)	FY 2012/2013 (Target)	FY 2012/2013 (Actual)
Assiut			X						
Aswan				X		X	X		
Beni Suef									
Cairo				X	X				
Giza			X						
Luxor			X						
Matrouh			X						
Menufiya									
Minya									
Qena				X	X				
Sinai						X	X		
Sohag				X	X				
Number of subs using automated HR system			**4**	**4**	**3**	**2**	**2**		

Number of People Trained

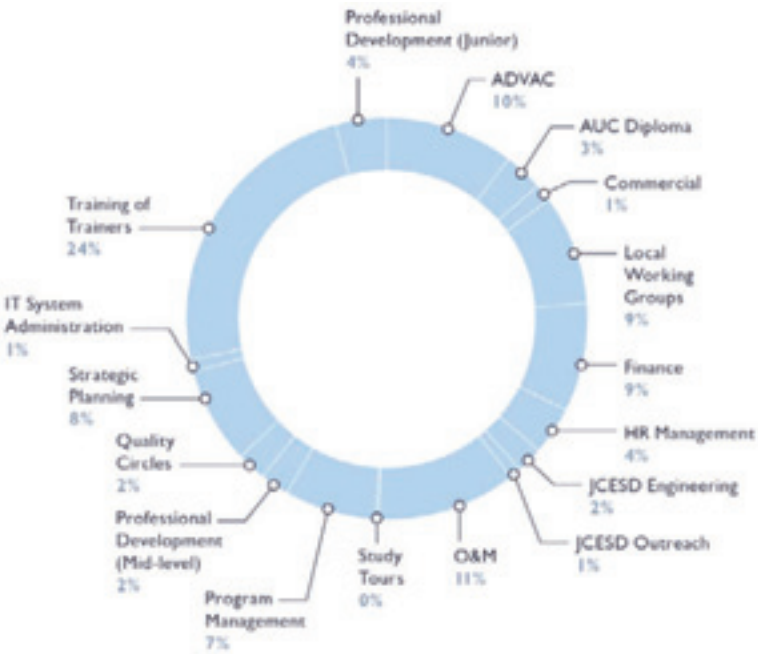
Subsidiary	Actual										Target	Actual					Target	Actual					Target	Actual
	Q3 2008/2009	Q4 2008/2009	Q1 2009/2010	Q2 2009/2010	Q3 2009/2010	Q4 2009/2010	Q1 2010/2011	Q2 2010/2011	Q3 2010/2011	Q4 2010/2011	WWSS Y3 2010/2011	WWSS Y3 2010/2011	Q1 2011/2012	Q2 2011/2012	Q3 2011/2012	Q4 2011/2012	WWSS Y4 2011/2012	WWSS Y4 2011/2012	Q1 2012/2013	Q2 2012/2013	Q3 2012/2013	Q4 2012/2013	WWSS Y5 2012/2013	WWSS Y5 2012/2013
Assiut	16	123	30	25	56	48	26	20	123	48	100	217	20	71	74	30	80	195	29	58	21	_	80	159
Aswan	_	_	_	2	0	5	66	57	41	32	100	196	38	70	29	3	80	140	_	_	_	_		_
Beni Suef	_	_	_	7	11	8	53	59	77	6	100	195	62	55	29	8	80	154	15	_	_	_		15
Cairo	_	_	_	3	0	5	1	5	15	5	30	26	9	4	_	_	25	13	_	_	_	_		_
Daqahliya	_	_	_	3	2	61	_	5	9	10	30	24	10	4	_	_	25	14	_	_	_	_		_
Giza	_	73	0	30	20	62	8	64	20	2	100	94	21	62	_	7	80	90	23	_	_	_		23
Luxor	_	80	16	6	85	34	2	43	46	6	100	97	15	73	38	3	80	129	_	_	_	_		_
Matrouh	_	_	_	3	121	68	7	4	87	12	75	110	24	73	42	10	60	149	_	6	_	_		6
Menufiya	_	49	46	19	54	10	6	60	80	6	100	152	16	76	_	_	80	92	4	_	_	_		18
Minya	_	_	_	5	25	6	2	63	45	22	100	132	20	88	44	19	80	171	29	32	7	_	80	144
Qena	_	_	_	4	47	6	8	0	64	16	75	88	21	41	37	3	60	102	_	_	_	_		_
Sinai	_	_	_	_	_	_	_	29	191	10	120	230	114	99	88	25	80	326	52	72	67	_	80	285
Sohag	_	52	99	10	5	72	60	26	146	8	100	240	47	141	69	21	80	278	38	30	75	16	80	192
Subtotal	**16**	**377**	**191**	**117**	**426**	**385**	**239**	**435**	**944**	**183**	**1,130**	**1,801**	**417**	**857**	**450**	**129**	**890**	**1,853**	**190**	**198**	**170**	**16**	**320**	**842**

ANNEX H. TRAINING STATISTICS

Life-of-Program Capacity Building Event Attendance, by Governorate



Life-of-Program Capacity Building Event Attendance, by Activity Area



ANNEX I. PROGRAM TEAM LIST

Name	Position	Start Date	End Date	Employer
Long-Term Staff				
Ahmed Kandil	Program Management Senior Advisor	Mar 22, 2009	Mar 31, 2011	CH2M HILL
Abdel Fattah Saad	Senior Performance Management Specialist	Jan 1, 2009	Dec 31, 2010	Chemonics Egypt
Abdel Wahab Lotfy	Financial and Planning Analyst	Mar 1, 2009	Feb 28, 2011	Chemonics Egypt
Ahmed Abdel Hamid	Program Management Specialist	Aug 16, 2009	Aug 15, 2011	Chemonics Egypt
Ahmed Aboul Agha	Financial Planning Analyst	May 2, 2010	Apr 30, 2011	Chemonics Egypt
Ahmed Allam	Senior O&M Advisor	Mar 1, 2009	Apr 30, 2013	Chemonics Egypt
Ahmed Rekaby	Office Assistant	Mar 1, 2009	Mar 25, 2013	Chemonics
Ahmed Sheir	Program Management Engineer	Nov 1, 2009	Sep 30, 2011	Chemonics
Ahmed Soliman	Water Treatment Plant Specialist	Feb 1, 2009	Feb 28, 2011	Chemonics Egypt
Ashraf Salah El Din Aly	Project Management Specialist	Mar 1, 2009	Feb 28, 2010	Chemonics Egypt
Ayatallah Barakat	Administrative Assistant	Jun 9, 2010	Jun 8, 2012	Chemonics
Azza Tawfik	IT/Monitoring and Evaluation Specialist	Sep 1, 2012	Feb 19, 2013	Chemonics Egypt
Bennett Parton	Chief of Party	Mar 1, 2009	Oct 1, 2009	Chemonics
Caroline Talaat	Administrative Assistant	Mar 22, 2009	Jun 30, 2013	Chemonics
Dina Abdalla Mohamed	Administrative Assistant	May 23, 2010	Sep 15, 2013	Chemonics
Dina Hassan Mostafa	Administrative Assistant	Jul 1, 2010	Apr 23, 2012	Chemonics
El Sayed Abd El Rafie	O&M Planning and Budgeting Specialist	Mar 1, 2009	Oct 31, 2011	Chemonics Egypt
El Sayed Abdel Mawgood	Driver	May 10, 2009	Sep 15, 2013	Chemonics
El Sayed Mostafa	MIS/Performance Monitoring Specialist	Mar 29, 2009	Dec 31, 2012	Chemonics Egypt
Emad Abdel Ghaffar	Business Planning Specialist	Mar 1, 2009	Sep 30, 2011	Chemonics Egypt
Fady Nessim	Design Manager	May 1, 2009	Sep 15, 2012	Chemonics
Fatin William	Network Administrator	Feb 1, 2009	Jan 31, 2012	Chemonics
Ghaleb Akari	Utility Management Advisor	Dec 15, 2008	Jul 28, 2012	Chemonics
Hanaa Hanafy	Executive Assistant to Deputy Chief of Party	Feb 1, 2010	May 6, 2010	Chemonics
Hassan El Samman	Metering, Billing and Collection Specialist	Jan 15, 2009	Jan 14, 2010	Chemonics Egypt
Hassan Ghanem	Driver	Jan 1, 2009	Jun 30, 2013	Chemonics

Name	Position	Start Date	End Date	Employer
Hassan Mostafa	Business Planning Coordinator	Jan 3, 2010	Mar 1, 2011	Chemonics
Heba Afifi	Administrative Assistant	Nov 8, 2009	Sep 1, 2010	Chemonics
Heba Boulos	Operations Manager	Nov 9, 2008	Jun 23, 2011	Chemonics
Kathleen Sheridan	Director of Program Development	Jan 15, 2010	Sep 15, 2013	Chemonics
Khaled Ahmed	Office Assistant	Apr 1, 2009	Oct 15, 2012	Chemonics
Madiha Afifi	Senior HRD Advisor	Nov 12, 2008	Aug 31, 2013	Chemonics
Magdy AwadAllah Moussa	O&M Planning and Budgeting Specialist	Feb 1, 2009	Jan 31, 2010	Chemonics Egypt
Maher Eid	Office Assistant	Mar 1, 2011	Sep 15, 2013	Chemonics
Mahmoud Bakr Ibrahim	Senior Finance Advisor	Dec 1, 2008	Nov 30, 2010	Chemonics Egypt
Mahmoud El Sayed Abdel Hamid	Cost & Budgeting Analyst	Sep 1, 2009	Jun 30, 2013	Chemonics Egypt
Mai Basha	HR Specialist	Aug 2, 2009	Jan 12, 2010	Chemonics
Mariam Shoukry	Administrative Assistant	Mar 1, 2009	Sep 15, 2013	Chemonics
Marline Fahmy	Administrative Assistant	May 18, 2010	Dec 31, 2011	Chemonics
Medhat Mohamed Tolba	Laboratory Specialist	Feb 1, 2009	Jan 31, 2011	Chemonics Egypt
Mina Mounir Wahba	Financial Management IT Specialist	Feb 1, 2009	Sep 30, 2011	Chemonics Egypt
Mohamed Ali Sabry	Construction Management Senior Engineer	Jan 1, 2010	Aug 31, 2013	Chemonics
Mohamed Bahnas	Driver	Jan 1, 2009	Dec 31, 2011	Chemonics
Mohamed Farid Sewelam	Deputy Chief of Party	Jan 1, 2009	Sep 4, 2009	Chemonics
Mohamed Fawzi Soliman	Egypt Country and Security Manager	Sep 19, 2012	Sep 15, 2013	Chemonics
Mohamed Hany Nahlawy	Senior GIS Specialist	Jun 8, 2010	Jun 30, 2013	Chemonics
Mohamed Hashem	Deputy Chief of Party	Jan 1, 2010	Sep 30, 2012	CH2M HILL
Mohamed Kassem	Supply Chain and Procurement Consultant	Apr 1, 2009	Jun 30, 2011	Chemonics Egypt
Mohamed Mostafa Abdallah	Translator	Dec 28, 2008	Jan 31, 2009	Chemonics
Mohamed Raouf	Driver	Mar 1, 2009	Sep 15, 2013	Chemonics
Mohamed Shalaby	Driver	Jan 19, 2009	Jun 30, 2013	Chemonics
Mostafa Mohamed Said Ahmed	Cost and Budgeting Analyst	Apr 1, 2009	Mar 31, 2010	Chemonics Egypt
Nadia Moustafa	Executive Assistant	Jan 26, 2010	Aug 21, 2011	Chemonics Egypt
Nardine Phillippe	Administrative Assistant	Apr 1, 2009	Sep 15, 2013	Chemonics
Noha Haddad	Publications Manager	Jan 18, 2010	Jan 31, 2012	Chemonics Egypt

Name	Position	Start Date	End Date	Employer
Noha Sami	Chief Accountant	Jan 1, 2009	Sep 15, 2013	Chemonics
Ossama Abdel Aziz Farag	IT Consultant	Sep 1, 2010	Jan 31, 2012	Chemonics
Reem Osman	Director of Operations	Aug 17, 2009	Sep 15, 2013	Chemonics
Sally Hamed Abd El Aziz	Training Consultant	Jan 22, 2009	Aug 31, 2012	Chemonics Egypt
Sarah Mounir	HR Coordinator	Jan 2, 2009	Sep 1, 2009	Chemonics
Sarwat Mohamed Moustafa	Wastewater Treatment Plant Specialist	Feb 13, 2009	Feb 14, 2010	Chemonics Egypt
Sherif Moursi Mohamed	Unaccounted-for Water Advisor	Feb 1, 2009	Jan 31, 2012	Chemonics Egypt
Yacoub Aly Yacoub	Office Assistant	Mar 22, 2010	Jun 7, 2010	Chemonics
Yehia Mahmoud Abdel Hamid	Capital Investment Planning Specialist	Nov 19, 2009	Nov 18, 2010	Chemonics Egypt
Yehia Zakaria	HR Specialist	Feb 22, 2010	Jun 30, 2013	Chemonics
Zakaria Yehia Ahmed	GIS Specialist	Mar 1, 2009	Feb 28, 2011	Chemonics Egypt
Short-Term Staff (Includes part-time personnel, consultants, and trainers)				
Ahmed Afifi	Trainer	Aug 10, 2010	Sep 9, 2010	Chemonics
AbdAllah Mohamed Ahmed	Water CAD Instructor	Dec 15, 2011	Sep 30, 2012	Chemonics Egypt
Abdel Kader Mohamed	Wastewater Treatment Plant Specialist	Sep 7, 2010	Jan 31, 2011	Chemonics Egypt
Agnieszka Orzechowska	Field Accounting and Compliance Manager	Jun 13, 2012	Jun 26, 2012	Chemonics
Ahmed Abdel Hamid	Leak Detection Consultant	Jun 3, 2012	Jan 31, 2013	Chemonics Egypt
Ahmed Al-Ebyari	Utility Revenue Specialist	Jan 2, 2013	Jun 30, 2013	Chemonics Egypt
Ahmed Allam	Chief Engineer and Upper Egypt Coordinator	May 1, 2013	Aug 31, 2013	Chemonics Egypt
Ahmed Amin Hassan	Legal Consultant	Mar 15, 2010	Apr 15, 2010	Chemonics
Ahmed Amin Mohamed Ali	IT Specialist	Jun 2, 2012	Jul 31, 2012	Chemonics
Ahmed Hussien El Sayed El Azab	Senior Financial Advisor	Aug 1, 2010	Oct 7, 2010	Chemonics
Ahmed Mohamed Samir Hamza	Water CAD Instructor	Mar 1, 2011	Sep 30, 2012	Chemonics Egypt
Ahmed Omar Mohamed	Resident Engineer	Jun 4, 2011	Aug 31, 2013	Chemonics Egypt
Ahmed Zakaria El Herrawy	Laboratory Consultant	Mar 1, 2012	Jun 30, 2012	Chemonics
Amal Farouk	Administrative Assistant	Sep 2, 2012	Apr 30, 2013	Chemonics
Amgad Saad El Din El Ansary	Project Coordinator	Mar 2, 2011	Aug 31, 2013	Chemonics Egypt
Andrew Baker	Home Office Project Manager	May 13, 2012	May 19, 2012	Chemonics
Anwar Mohamed Manaf	Water and Wastewater Engineer	Jun 1, 2010	May 31, 2012	Chemonics

Name	Position	Start Date	End Date	Employer
Ashraf Ghanem	Surface Water Expert	Feb 1, 2013	Aug 31, 2013	Chemonics Egypt
Ayatallah Barakat	Administrative Assistant	Jun 10, 2012	Oct 15, 2012	Chemonics
Azza Tawfik	IT/Monitoring and Evaluation Specialist	Jun 14, 2012	Aug 31, 2013	Chemonics Egypt
Badr Ahmed Khair ElDin	Basic Hydraulics Instructor	Mar 7, 2011	Aug 31, 2013	Chemonics Egypt
Caroline Talaat	Administrative and Accountant Assistant	Jul 1, 2013	Sep 15, 2013	Chemonics
Dalia Kamel Mohamed Dawood	Web Developer	Jul 25, 2011	Mar 31, 2012	Chemonics
David Escarrega	Home Office Accounting Manager	Aug 26, 2013	Sep 3, 2013	Chemonics
Dina Abdalla Mohamed	Administrative Assistant	Sep 16, 2013	Sep 30, 2013	Chemonics
El Nahas Ahmed Abdel Hamid	Resident Engineer in Minya	Apr 3, 2011	Aug 31, 2013	Chemonics
El Sayed Abdel Rafie El Sayed	O&M Specialist	Feb 17, 2013	Apr 30, 2013	Chemonics Egypt
El Sayed Mostafa	IT Specialist	Feb 17, 2013	Jun 30, 2013	Chemonics Egypt
Emad El Saad Ismail El Beltagy	HR Development Consultant	Jul 19, 2009	Jul 31, 2010	Chemonics
Emam Ramadan Ibrahim	Electric Engineer	Aug 14, 2011	May 31, 2013	Chemonics Egypt
Essam Ali Ghaly	Trainer	Oct 10, 2010	Oct 12, 2010	Chemonics
Fady Nessim Gerguis	Design Consultant	Sep 16, 2012	Sep 15, 2013	Chemonics
Faten William Nakhla	Network Administrator	Feb 1, 2012	Jun 20, 2012	Chemonics
Fikry Halim Ghobrial	Water and Wastewater Consultant	Apr 10, 2011	Sep 30, 2011	Chemonics Egypt
Gamal Mohamed Aboul Komsan	Leak Detection Trainer	Dec 1, 2009	Dec 31, 2010	Chemonics
Gamila Hussein Ali	Laboratory Consultant	Jan 1, 2012	Feb 28, 2013	Chemonics
Gazya Salah El Din Zaatar	Laboratory Consultant	Apr 1, 2010	Dec 31, 2010	Chemonics
Ghada William Hana	HR Consultant	Sep 1, 2009	Apr 15, 2010	Chemonics
Gilan Emile George	Training Consultant	Dec 6, 2009	Sep 15, 2013	Chemonics
Gomaa Abdel Rahman	Senior Water Engineer	Feb 1, 2013	Aug 31, 2013	Chemonics Egypt
Hassan Sayed Aly Hegazy	Water CAD Instructor	Jun 1, 2011	May 31, 2012	Chemonics Egypt
Hatem Mohamed Taha	Water CAD Instructor	Dec 15, 2011	Sep 30, 2012	Chemonics Egypt
Heba Abdel Aziz El Toudy	Curriculum Specialist	Feb 22, 2009	Nov 30, 2009	Chemonics Egypt
Hossam El Din Mostafa Ali Faheem	IT Specialist	May 1, 2009	Jun 30, 2009	Chemonics Egypt
Hossam Mohamed Abdel Kareem	IT Specialist	Dec 7, 2009	Nov 30, 2009	Chemonics Egypt
Hossam Monier Abdel Hady	Water/Sewer CAD Instructor	Jun 21, 2011	Sep 30, 2011	Chemonics Egypt

Name	Position	Start Date	End Date	Employer
Ibrahim El Desouky Mohamed	Water Treatment Specialist	Nov 2, 2010	May 30, 2011	Chemonics Egypt
Ibrahim Sabri	Senior IT Advisor	May 2, 2011	Sep 15, 2012	Chemonics
Jeffrey Wuorinen	Acting Chief of Party	Mar 1, 2013	Jun 14, 2013	Chemonics
John Harris	Communications Consultant	Jun 5, 2010	Oct 31, 2011	Chemonics
Khaled Ezzat	Project Management Expert	Mar 1, 2012	Aug 31, 2012	Chemonics Egypt
Kristina Cartwright	Work Planning Specialist	Nov 7, 2008	Nov 26, 2008	Chemonics
Lamy Makary	Financial Specialist	Mar 22, 2010	May 21, 2010	Chemonics Egypt
Lamy Riad Samir Makary	Financial and Economic Advisor	Jun 1, 2010	Aug 31, 2010	Chemonics
Magdy Abdel Wahab Moussa	Consultant	Apr 1, 2010	Jun 30, 2012	Chemonics
Magdy Abdel Wahab Moussa	Water and Wastewater Consultant	Oct 1, 2008	Mar 31, 2010	Chemonics Egypt
Mahmoud Abdel Dayem	Water Leak Detection Advisor	Dec 23, 2012	Jun 30, 2013	Chemonics Egypt
Mahmoud Ahmed Aly Aboul Naga	Water Engineer Advisor	Dec 15, 2011	May 31, 2013	Chemonics Egypt
Mahmoud Bakr	Utility Financial Management Specialist	Dec 1, 2010	Nov 30, 2011	Chemonics Egypt
Mahmoud El Sayed Abdel Hamid Batran	Cost and Budgeting Analyst	Nov 2, 2012	Jun 30, 2013	Chemonics Egypt
Mahmoud Kamal El Sarnagawy	Project Management Consultant	Feb 1, 2010	Jan 31, 2011	Chemonics
Mahmoud Khaled Ahmed	Human Resources Specialist	Jan 16, 2011	Jul 31, 2011	Chemonics Egypt
Mahmoud Mostafa Ali	Microsoft Project Instructor	Mar 17, 2011	Sep 30, 2012	Chemonics Egypt
Mai Mohamed Ahmed El Shafie	Communications/Public Awareness Consultant	Mar 1, 2011	Jan 31, 2013	Chemonics
Medhat Mohamed Tolba	Laboratory Specialist	Mar 1, 2011	May 31, 2013	Chemonics Egypt
Mohamed Abdel Megeid Abdel Razik	Public Awareness Specialist	Feb 15, 2009	Mar 31, 2010	Chemonics Egypt
Mohamed Abdel Sakek El Shorbagy	Team Leader for Certification Program	Nov 2, 2010	Jun 30, 2012	Chemonics Egypt
Mohamed Abdullah	Field Accounting and Compliance Manager	Apr 12, 2010	Apr 27, 2010	Chemonics
Mohamed Bahnas	Driver	Jan 1, 2012	Mar 31, 2012	Chemonics
Mohamed Eid Yamani Ahmed	Financial Analysis Specialist	Nov 1, 2010	Jan 15, 2011	Chemonics Egypt
Mohamed El Fouly	Wastewater Engineer	Sep 1, 2012	Dec 31, 2012	Chemonics Egypt
Mohamed Hassan Abdel Razik	Water/Sewer CAD Training Consultant	May 2, 2010	Aug 31, 2010	Chemonics
Mohamed Kamel El Marazki	Laboratory Consultant	Mar 1, 2012	Jun 30, 2012	Chemonics
Mohamed Khaled Abdel Aziz	Training Specialist	Nov 11, 2010	May 31, 2011	Chemonics Egypt
Mohamed Raouf	Driver	Sep 16, 2013	Sep 30, 2013	Chemonics

Name	Position	Start Date	End Date	Employer
Mohamed Said El Kholy	O&M Consultant	Jan 15, 2012	May 31, 2013	Chemonics/Chemonics Egypt
Mohamed Telb Aly	Driver	Oct 16, 2012	Sep 15, 2013	Chemonics
Mosaad Ahmed Kishk	LaboratoryConsultant	Apr 1, 2010	Jun 30, 2012	Chemonics
Mostafa Samir Moussa	Wastewater Specialist	Nov 2, 2010	May 31, 2011	Chemonics Egypt
Mostafa Sidky Noury	Procurement and Contracting Specialist	May 2, 2010	Nov 30, 2010	Chemonics
Nancy Barnes	HR/Performance Management Consultant	Jan 4, 2010	Apr 30, 2011	CH2M HILL
Nardine Phillippe	Administrative Assistant	Sep 16, 2013	Sep 30, 2013	Chemonics
Noha Sami	Chief Accountant	Sep 16, 2013	Sep 30, 2013	Chemonics
Osama Abdel Rahman	O&M Advisor	Jan 2, 2013	Jun 30, 2013	Chemonics
Osama Ahmed Moahmed Metawea	Resident Engineer in Aswan	Nov 25, 2011	Mar 31, 2013	Chemonics
Osama Mohamed Mohi El Din Awad	Consultant	Oct 1, 2009	Sep 30, 2010	Chemonics
Parasto Hamed	Work Planning Assistant	Feb 26, 2010	Mar 12, 2010	Chemonics
Peter Ilick	Monitoring and Reporting Coordinator	Aug 3, 2009	Nov 3, 2009	Chemonics
Phillip McKissick	Reporting Specialist	May 11, 2009	May 11, 2010	Chemonics
Ragab Arafa Gomaa	Resident Engineer in Sinai	Jun 1, 2011	Aug 31, 2013	Chemonics
Rami Khyami	Field Accounting and Compliance Manager	Feb 14,-2007	Feb 27, 2009	Chemonics
Rawad Mohamed El Dahshoury	HRD Consultant	Oct 15, 2009	Jan 14, 2010	Chemonics
Reda Damak	Ground Water Expert	Feb 1, 2013	Aug 31, 2013	Chemonics Egypt
Reem Osman	Director of Operations	Sep 16, 2013	Sep 30, 2013	Chemonics
Remy De Jong	Legal and Policy Expert	Feb 1, 2009	Feb 28, 2009	Chemonics
Saad El Sayed Mohamed Hassan	Laboratory Consultant	Jul 1, 2010	Dec 31, 2012	Chemonics
Salah El Din Zaki Kamal	HR Consultant	Jan 1, 2012	Jun 30, 2012	Chemonics
Salah Salem Afify	Electrical Engineer	Jun 1, 2011	Dec 31, 2012	Chemonics Egypt
Sally Hamed Abd El Aziz	Training Specialist	Oct 1, 2011	Apr 30, 2013	Chemonics Egypt
Sanad Ahmed Ragaee	Senior Microsoft Project Instructor	Apr 10, 2011	Sep 30, 2012	Chemonics Egypt
Sayed Osman	Electrical Engineering Consultant	Nov 13, 2011	Sep 30, 2012	Chemonics Egypt
Sherif Morsi	Water Network Specialist	Mar 21, 2011	Nov 20, 2012	Chemonics Egypt
Sherif Mostafa El Haggan	Consultant	Feb 1, 2010	Jan 31, 2011	Chemonics

Name	Position	Start Date	End Date	Employer
Waleed Said Ismail	Leak Detection Specialist	Nov 15, 2011	Sep 30, 2012	Chemonics Egypt
Walid Abdel Azeem Ibrahim	Water/Sewer CAD Instructor	Mar 10, 2011	Sep 30, 2012	Chemonics Egypt
Walid Ahmed Abbas Ibrahim	Laboratory Consultant	Apr 1, 2010	Mar 31, 2011	Chemonics
Yaser Abdel Nabi Qotb Hussein	Water Leak Detection Advisor	Apr 3, 2011	Apr 2, 2012	Chemonics
Yehia Zakaria	Human Resource Advisor	Jul 1, 2013	Sep 15, 2013	Chemonics
Yousry Saad El Din	Consultant	May 28, 2009	Dec 30, 2009	Chemonics

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