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IMPROVING WATER AND SANITATION SERVICES IN THE MENA REGION (IWSMR)

ASSESSMENT REPORT 2 AND ACWUA ROCTP ROLLOUT PLAN

SEPTEMBER 2015

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

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1. Introduction

Despite massive infrastructure investments, millions of citizens in the MENA region lack adequate access to potable water. Wastewater management is markedly worse in some areas. Fiscal constraints and lack of political will hinder the sustainability of the sector and negatively impact public health. Once water-balanced MENA countries are now running water deficits.

ACWUA members and regional governments agree that the benefits of multimillion-dollar infrastructure investments will be short-lived without proper operation and maintenance (O&M) by a capable and qualified workforce. Academic theoretical education, while essential, must be complemented by practical, job-specific knowledge and skill acquired using effective training methods and materials customized for local needs.

Beginning in the 1970s, the U.S. federal and local framework for water quality and environmental management began requiring water and sanitation service providers to employ qualified operators, creating in the process greater demand for operator training and certification programs accredited by state boards. Recently enabled certification programs and accreditation systems in Jordan and Egypt are largely based on these models, culminating efforts that began in the early 1980s, when USAID began investing heavily in the rehabilitation and expansion of infrastructure, sector reform, and the development of related institutions in these countries.

In Jordan, operator certification was championed by USAID under its Operations and Maintenance Training (OMT) program, in close cooperation with the Ministry of Water and Irrigation and the Center for Accreditation and Quality Assurance (CAQA), which is responsible for accrediting programs, licensing public and private sector training providers, and, issuing certificates to qualified operators. Jordan has proved to be a successful incubator of operator certification programs not only at the national level but also for the MENA region. USAID programs launched in the past decade in Egypt stressed investments in operations and maintenance (O&M) activities, regulatory development, efficiency improvements, and capacity building. USAID's Water and Wastewater Sector Support (WWSS) and Water Policy and Regulatory Reform (WPRR) programs put utility management at the forefront of programmatic objectives, leading to the establishment of Egypt's first operator certification system.

Supported by USAID, the Arab Countries Water Utility Association (ACWUA) has assumed regional leadership both as a training provider and as a promoter of a harmonized and standardized accreditation approach known as the Regional Operator Certification and Training Program (ROCTP). Building on its 18-country network and the Jordan and Egypt experiences, ACWUA in conjunction with the USAID IWSMR project is establishing the MENA ROCTP and has offered its members the opportunity to participate in the pilot courses of this regional platform for operator certification.

As a result of the IWSMR project and steadfast efforts of ACWUA, three more countries (West Bank, Lebanon, Yemen) now join Jordan and Egypt with nascent operator certification programs and (4) additional countries (Iraq, Oman, Bahrain, Tunisia) are ready to conduct training pilots.

This ACWUA ROCTP Assessment and Rollout Plan describes the actions taken to determine and respond to the vast market demand for ROCTP and the steps ACWUA will take to build flexible, strategic, high-impact and sustainable operator certification and training services for its members that will contribute to improved facility O&M and utility management in participating countries throughout the MENA region.

2. ACWUA ROCTP Rollout Plan - Purpose and Objectives

1. To provide ACWUA with a concrete demand-based roadmap for the ongoing promotion and rollout of ROCTP to ACWUA members

2. To provide a basis for ACWUA to measure ROCTP impact on improved O&M performance at participating utilities
3. To facilitate ACWUA communications with donors regarding resources required to expand/scale-up ROCTP
4. To contribute to the long-term sustainability of the ACWUA ROCTP

Operator Certification

What is a water/wastewater operator? An operator is a manager, engineer, or technician with hands-on responsibility in a water/wastewater facility that safeguards public health, the environment, and the infrastructure.

What is operator certification? The goal of all operator certification programs is to ensure that skilled professionals are overseeing and taking action to treat and distribute safe drinking water and to protect the environment by collecting and treating wastewater.

Operator certification is the legal process by which a duly constituted body establishes minimum professional standards for the operation and maintenance of public water/wastewater systems and assesses the qualifications (education, experience) and job knowledge (written examination results) of operators to determine whether or not all specified requirements are satisfied.

What are the benefits of operator certification?

Employee benefits. Certification offers a mechanism for employees to receive recognition and credibility in their chosen career. The benefits of certification can include:

- Career advancement opportunities
- Higher wage earning opportunities
- Mechanism to demonstrate competency and professionalism
- Competitive advantage over non-certified individuals
- Enhanced professional reputation and prestige
- Demonstrated commitment to the field

Employer benefits. Employers use certification to:

- Screen potential new hires and select contractors
- Motivate employees to expand their knowledge and skills
- Increase competency level of employees
- Ensure ongoing continuing education for employees

3. ROCTP Description

Self-sufficient Training Model – With the exception of the oil-producing countries, water/wastewater utilities throughout the region operate with extremely tight budgets which are often deficient in covering routine O&M costs. Therefore, the greatest hurdle for ROCTP scale-up is ability to offer a high standard of training and testing at a cost that is affordable to ACWUA’s economically challenged member countries and utilities.

The ACWUA adoption of a training model that makes each participating utility qualified to offer recognized accredited operator training using their own trainers is a clear demonstration of ACWUA’s commitment to sustain ROCTP. Under IWSMR, ACWUA provided training of trainers (TOT) courses to all participating utilities so that training costs could be minimized by utilities using their

own training staff to teach ROCTP courses in the future. ACWUA has provided TOT free-of-charge to 108 utility managers and operators from 6 member countries.

In addition, ACWUA is providing the USAID-funded training materials to each utility at no cost and is simply charging an administrative coordination fee that is affordable to utilities to cover ROCTP administrative and coordination expenses. This cost-effective model promotes self-sufficiency at each participating utility and substantially overcomes the challenge of high training costs typically faced by these utilities.

The CAQA testing and certification fees present a challenge that ACWUA is working on with CAQA. The standard fees for CAQA services are:

- Test per Trainee: JD 40 (\$57)
- License and ID card per Trainee: JD 11 (\$16)
- Costs for transportation, accommodation and per diems for CAQA test monitoring officer/s if the test was conducted outside Jordan or outside Amman in some cases.

However, changes to CAQA regulations governing test administration and quality control have changed over the past two years causing CAQA costs to increase to levels that will have a negative effect on the ability of utilities participating in ROCTP to pay. ACWUA is engaged in negotiations with CAQA to reduce this burden so that ROCTP training remains within the means of member utilities throughout MENA. Should the negotiations fail to contain CAQA's high costs, ACWUA will seek alternative certification either from another legally empowered authority in another member country such as Egypt or ACWUA may choose to seek member authorization to directly certify operator who successfully complete ROCTP training and pass the associated tests.

Gender Inclusion – Going forward, ACWUA remains committed to maintaining a target of 25% female ROCTP trainees applied during the IWSMR project. ACWUA will continue to actively encourage participating member utilities to enroll women in ROCTP. ACWUA recognizes that gender inclusion is attractive to potential donors who may support ROCTP sustainability.

Institutional Structure and Capacity

ACWUA Strategic Business Plan 2015-19 – During the process to develop ACWUA's second 5-year business plan, ACWUA reaffirmed its commitment to operator certification as shown in the boxed excerpt. In January 2015 at Arab Water Week, the ACWUA board ratified their Strategic Business Plan 2015-19 and thus established operator certification as a central ACWUA objective for the coming 5 years.

ACWUA Incorporates Operator Certification into its Strategy

Facilitated by IWSMR, a 2015 update to ACWUA's current business plan (2015 – 2019), centers on the addition of a new strategic objective:

“To disseminate the operator certification and training culture in the MENA region and to broaden its application through facilitating such services and making them available to utilities at minimum cost and maximum efficiency.”

ACWUA ROCTP Institutional Framework - The structural features of the regional certification approach adopted by ACWUA are summarized as follows:

- Jordan's Center for Accreditation and Quality Control (CAQA) is currently being used as the interim testing and certifying agency, until country-specific certification frameworks are

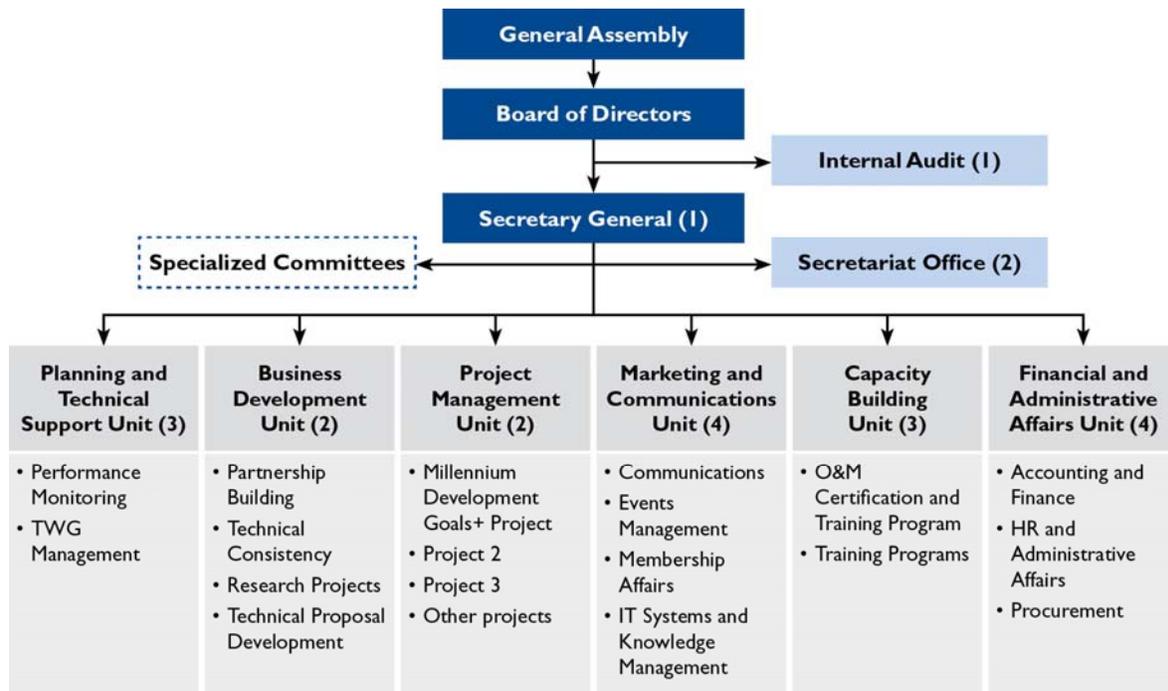
eventually established. CAQA has agreed to certify non-Jordanians who comply with CAQA requirements.

- CAQA and the Housing and Building National Research Center (HBRC) in Egypt have signed MOUs defining steps to be taken to harmonize the Jordan and Egypt certification programs which will lead to reciprocity between the two authorities and when the agreement is fully concluded will offer multiple but equal regional certification alternatives. ACWUA will seek to engage additional national certification authorities in member countries to establish reciprocity agreements. Therefore eventually more than one certifying authority will serve the MENA region with Egypt being the next.
- ACWUA will continue to promote and explore that ways and means to establish mandatory operator certification as a regulation to be recognized by all member countries. This is a complex legal process as local labor laws and utility authority differ greatly among the ACWUA member countries. ACWUA will focus immediate attention to make operator certification mandatory in the initial batch of countries participating in ROCTP (Jordan, Egypt, West Bank, Lebanon, and Yemen).
- ACWUA has and will continue to use the Jordanian operator training program for ROCTP pilots as this program was developed for regional application. CAQA has and will continue to use the test item pool developed in Jordan for operator certification examinations. In due course, ACWUA will seek to update and improve these materials, seek recognition of new training courses, and encourage country-specific certification frameworks. Once these frameworks are in place, ACWUA will facilitate the development of training programs (competencies, training courses, tests, etc.) to the maximum possible extent.
- ACWUA will seek to achieve a goal of 25% female trainees in each training event, ensure ongoing TIA to demonstrate impact, support the application of new knowledge and skills back on the job after training, and encourage utilities to link incentives to ROCTP.
- ACWUA's ongoing ROCTP implementation will strive to minimize costs to utilities by:
 1. Promoting use of internal trainers with a preference for certified operators who have also passed the TOT course;
 2. Providing participating utilities with free access to USAID-funded training materials at no cost to the trainees or their employers; and,
 3. Controlling ACWUA's operating costs for training events; and, the fees charged by certification authorities such as CAQA for testing and quality assurance, thus, maintaining affordable administrative and coordination fees.

Certification Test Administration - To ensure timely, cost-effective and sustainable administration of ROCTP certification tests, ACWUA will explore alternatives for test administration/proctoring currently exclusively conducted by CAQA for TOT and ROCTP pilots. As the number of training events increases, CAQA has already indicated difficulty keeping up with the demand. Costs for CAQA testing are also rising due to need for additional time in country for the testing process. NGOs such as AMIDEAST as well as local universities that already conduct exams such as the SAT and TOEFL will be considered to share the testing burden with CAQA. To control these costs, ACWUA may seek board approval to directly test and certify ROCTP and TOT programs and graduates.

ACWUA Capacity Development and Certification Unit – Triggered by board approval of the ACWUA Strategic Business Plan 2015-19, ACWUA is committed to developing its capability to provide efficient and professional support to utilities participating in ROCTP.

ACWUA's New Organizational Structure - 2015



The mission and structure of a new ACWUA Capacity Development and Certification Unit have been finalized and ACWUA will endeavor to hire and train the necessary qualified staff to ensure effective delivery of ROCTP services to members and program sustainability.

Qualified ROCTP Trainers and Course/Test Developers – To supplement the Capacity Development and Certification Unit, the table below details the number of qualified trainers and developers by ACWUA member country who can be tapped by ACWUA to conduct ROCTP courses as well as developers who can revise current ROCTP courses or prepare new ones.

ACWUA/IWSMR Training Summary

Training Courses	Certified Trainees			
	Male	Female	%	Total
ROCTP WWT1	39	9	19%	48
ROCTP WD1	20	1	5%	21
ROCTP UM	13	12	47%	25
Pump O&M	18	2	10%	20
TOT	80	28	26%	108
ISD	12	3	20%	15
CIS	6	6	50%	12
Total	188	61	25%	249

4. ACWUA ROCTP Scope and Results

Programs & Courses – The table summarizes the current ACWUA ROCTP courses. The ACWUA website contains training objectives and full descriptions of the course content (<http://www.acwua.org/node/379>). All of the current ACWUA ROCTP courses were developed by the USAID/Jordan OMT project. In addition, a complete set of certification test questions was transferred to CAQA.

ROCTP Curriculum	Course Instructional Hours (IH)				
	Level 1	Level 2	Level 3	Level 4	Total IH
Water treatment (WT)	46	37	36	29	148
Wastewater treatment (WWT)	44	35	33	46	158
Water distribution (WD)	31	47	40		118
Wastewater collection (WWC)	31	38			69
Utility management (UM)	40				40
Training of trainers (TOT)	28				28
Instructional Systems Development (ISD)	37				37
On-job performance improvement* (coaching for supervisors)	21				21
Total					619

**Note:* To date, ACWUA has not offered the On-Job Performance Improvement Course for Utility Supervisors. The ROCTP Rollout Plan now includes this vital course which assists utility supervisors to plan and facilitate the application of new knowledge and skill acquired by certified operators when they return to the job site after a training course.

ROCTP Pilots – Summarized below are the results of the ROCTP pilots conducted during the IWSMR project:

1. West Bank ROCTP Wastewater Treatment Operator Level 1 (WWTO-L1). Conducted in West Bank, October 12-23, 2014; 22 trainees passed the test, 1 failed, and 1 did not complete the course. MOU signed with Nablus Water Establishment in October, 2014.

The TIA surveys showed that 80% of the operators/trainees who attended the ROCTP WWTO1 course reported that after 6 months back on the job, their knowledge and skills had improved and were contributing to improved job performance as a result of the training. This was confirmed by their supervisor who strongly agreed that the ROCTP course was having a significant positive impact on the job performance of the newly certified Nablus WWT operators.

2. Yemen ROCTP Wastewater Treatment Operator Level 1 (WWTO-L1). Conducted in Aqaba, Jordan, December 7-18, 2014 for 24 trainees. All the 24 participants passed the certification test. MOU signed with Sanaa Water Authority in December, 2014.
3. Lebanon ROCTP Water Distribution Operator Level 1 (WD-L1). Conducted in Beirut, March 2-6 and 16-20, 2015 for 21 trainees; 20 passed the certification test and one failed. An MOU

was signed with the Director General of the Beirut Mt. Lebanon Water Establishment (BMLWE) and ACWUA on March 19, 2015.

4. Lebanon Pump Station O&M - This special unaccredited training course was conducted upon request from BMLWE for 24 operators during June, 2015 in coordination with the USAID Water Infrastructure Support and Enhancement for Lebanon (WISE) project. This training which was not a part of the original IWSMR work and implementation plans was in support of the expressed dire need of BMLWE. This level of ACWUA response to urgent member needs promotes ACWUA as a reliable training provider and therefor contributes to ROCTP sustainability. Pump Station O&M represents a potential new ROCTP course and is under review for retroactive accreditation by CAQA.

Pilot Commitment MOU – To secure the level of commitment necessary to ensure successful ROCTP pilots each participating utility signed a MOU with ACWUA guaranteeing specific actions and areas of cooperation including a goal of 25% female trainees, cooperation with TIA, supporting the application of new knowledge and skills back on the job after training, and seeking to link incentives to ROCTP.

Annex B contains the complete ROCTP Pilot MOU revised for direct use by ACWUA as a matter of standard procedure during the ROCTP rollout (pilots for new ROCTP countries and courses for countries already participating in ROCTP) to include but not be limited to:

ACWUA shall be responsible for the following tasks in support of the designated ROCTP pilot/course and the associated Training Impact Assessment (TIA):

- a. Orient NM personnel on ROCTP design, features and requirements
- b. Facilitate, schedule and coordinate training event logistics
- c. Provide a master copy of training materials for the designated pilot/course
- d. Agree with utility on local trainer to conduct the designated ROCTP pilot/course.
- e. Maintain training records and issuance of reports using the ACWUA Certification Information System (CIS)
- f. Coordinate with the CAQA/Jordan (or alternate authority) for testing and licensing
- g. Implement agreed quantitative and qualitative measurement of indicators of O&M performance impact
- h. Implement the TIA method and report periodic results for the designated ROCTP pilot/course
- i. Charge the participating entity (country/utility) for all the costs related to the implementation of ROCTP pilots/courses and associated TIA.

Participating Country/Utility shall be responsible for the following tasks in support of the designated ROCTP pilot/course and the associated TIA:

- a. Agree to the rules and conditions of the ACWUA ROCTP and TIA
- b. Nominate the local qualified trainer (TOT graduate) for the designated ROCTP pilot/course for ACWUA review
- c. Nominate the trainees to participate in the ROCTP pilot/course in accordance with CAQA/ROCTP policy framework; seek to achieve a goal of 25% female participation
- d. Provide the required coordination services to enable ACWUA to implement the ROCTP pilot/course and associated TIA including:
 - Local printing of an adequate quantity of training materials from master supplied by ACWUA
 - Training venue and local transportation adequate for participants
 - Completion of all application documentation for each ROCTP trainee as per CAQA specifications
 - Communicate with ACWUA on a timely basis to ensure smooth training implementation

- e. Provide annual information and statistics starting in 2013 as a baseline for TIA measurement with main focus on the following six quantitative indicators.
 - Quality of W/WW treated – Non-compliance Citations/Year
 - Major Unplanned Shut-downs (service interruptions)/Year
 - Emergency Actions (unit; facility)/Year
 - Accident Reports (unit; facility)/Year
 - Operating Costs (unit; facility)/Year
 - Maintenance Costs (unit; facility)/Year
- f. Support ROCTP graduates/certified operators in the application of new knowledge and skills on the job to contribute to improved facility O&M
- g. Participate in the TIA data collection and reporting process involving trained operators and their immediate supervisors from the designated facility
- h. Work toward introducing incentives and career advancements based on the new certification environment

5. ACWUA ROCTP Monitoring and Evaluation

Training Impact Assessment (TIA) – This approach was developed during the USAID/Jordan OMT project, adopted by ACWUA and implemented during IWSMR. It is a comprehensive method of tracking O&M performance improvement at participating utilities by collecting both key quantitative management, operational/technical and financial performance data (see list above) as well as qualitative pre and post training opinion-based data from ROCTP certified operators and their supervisors.

A TIA description including reporting forms can be found in Annex B.

Achievement of concrete O&M results attributable to ROCTP will provide evidence-based proof of ROCTP results and this proof of return on investment will contribute to long-term ACWUA and ROCTP sustainability.

6. Assessment Description and Approach – ROCTP Demand Analysis

The ACWUA ROCTP assessment was carried out in two stages.

Stage 1 – Preparation for interim certification and training pilots

This one-year stage (completed in January 2014) focused on activities directly supporting the establishment of an interim certification platform as described earlier in this report and the planned implementation of the initial set of ROCTP pilots by surveying all interested ACWUA member countries.

The Stage 1 questionnaire was shared with the ACWUA board, related working groups/technical committees, and, attending members at the ACWUA Best Practices Conference in Algiers during December 2013. The survey assessed the following main topics at the national and utility levels:

- Legislative and institutional dimensions of the water and wastewater operator certification program
- Existing training resources currently available locally
- Demand for a standardized regional operator certification program
- Supply side of a regional water certification program
- ACWUA's role in facilitating knowledge exchange partnerships and other opportunities for sharing among member water and wastewater utilities.

The details of the Stage 1 Assessment were documented in a separate comprehensive Assessment Report and Implementation Plan (finalized in March 2014) which fully describes survey approach, data collection and analysis methods, and, results.

The key outcome of the Stage 1 Assessment was identification of the following ROCTP pilots to be implemented by ACWUA with IWSMR assistance:

- West Bank Wastewater Collection (WWC-Level 1) Operator Pilot
- Lebanon Water Distribution (WD-Level 1) Operator Pilot
- Yemen Wastewater Treatment Plant (WWTP-Level 1) Operator Pilot

Stage 2 – Broadened assessment supporting regional replication

The Stage 2 Assessment associated with the broader expansion of ROCTP in the pilot countries and ROCTP regional scale-up in new MENA countries was concluded in March 2015 and drives the development of the ACWUA Training Roll-out Plan.

Annex C contains the following specially prepared Stage 2 survey forms that were distributed to ACWUA member countries along with a detailed ROCTP description including trainee selection criteria and program requirements:

- Enrollment Form to Request Additional ROCTP Courses – This form was developed for countries currently participating in ACWUA ROCTP: West Bank, Yemen, Lebanon, Jordan, and Egypt
- Application Form for New ROCTP Pilot Courses – This form was developed for interested ACWUA member countries who are not yet involved in ROCTP. See Annex D for a list of ACWUA members (2014).

7. ACWUA ROCTP Rollout and Scale-Up Plan: 2015-2017

The ACWUA ROCTP Rollout and Scale-Up Plan is the most important output of the two-stage assessment process. ACWUA will implement this plan with initial support from IWSMR and ACWUA will continue the implementation beyond the end of the IWSMR project through 2017.

This plan provides a realistic number of ROCTP activities to continue in the first three pilot countries and scale-up ROCTP to new pilot countries based in the results of Assessment Stage 2.

The ACWUA ROCTP Roll-out and Scale-Up Plan will provide a platform for the growth of ROCTP at a sustainable pace based on prevailing financial considerations and the degree to which USAID and other donors continue their support.

ACWUA ROCTP Rollout Summary: October 2015 to December 2017

Member Utility	ROCTP Courses	ROCTP Level	Male	Female	Total
Expansion in Current Participating Utilities/Countries					
West Bank	WWT	1	12	4	16
		2	10	2	12
Water/Wastewater Utilities:		3	5	1	6
1- Nablus		4	2	1	3
2- Maythaloan	WWC	1	12	4	16
3- Coastal municipalities-Gaza		2	10	2	12
4- Water Authority	WT	1	12	4	16
5- Tubas		2	10	2	12
6- Anabta		3	5	1	6
		4	2	1	3
	WD	1	12	4	16
		2	10	2	12
	UM	1	12	4	16
Subtotals:	---	---	114	32	146
Lebanon	WWT	1	12	4	16
		2	10	2	12
Water/Wastewater Utilities:		3	5	1	6
		4	2	1	3
Beirut & Mt Lebanon	WWC	1	12	4	16
Bekaa		2	10	2	12
North Lebanon	WT	1	12	4	16
South Lebanon		2	10	2	12
		3	5	1	6
		4	2	1	3
	WD	1	12	4	16
		2	10	2	12
	UM	1	12	4	16
Subtotals:	---	---	114	32	146
Yemen	WWT	1	12	4	16
		2	10	2	12

Member Utility	ROCTP Courses	ROCTP Level	Male	Female	Total
All water/wastewater utilities		3	5	1	6
		4	2	1	3
	WWC	1	12	4	16
		2	10	2	12
	WT	1	12	4	16
		2	10	2	12
		3	5	1	6
		4	2	1	3
	WD	1	12	4	16
		2	10	2	12
UM	1	12	4	16	
Subtotals:	---	---	114	32	146
Jordan	WWT	1	18	6	24
		2	12	4	16
Yarmouk Water Company	WWC	1	18	6	24
Miyahuna/Amman Company		2	12	4	16
Aqaba Water Company	WT	1	18	6	24
		2	12	4	16
	WD	1	18	6	24
		2	12	4	16
UM	1	21	7	28	
Subtotals:	---	---	141	47	188
Egypt	WWT	1	36	12	48
		2	24	8	32
Holding Company (24 companies: Al Minyah, Cairo)	WWC	1	36	12	48
		2	24	8	32
	WT	1	36	12	48
		2	24	8	32
	WD	1	36	12	48
		2	24	8	32
UM	1	42	14	56	
Subtotal:	--	--	282	94	376
Total:	--	--	846	237	1,002
Scale-Up – New Utilities/Countries					
Iraq	WD	1	36	12	48
Ministry of Water Resources					
Subtotal:	--	--	36	12	48
Oman	WT	1	18	6	24
Public Authority for Electricity and Water	WD	1	18	6	24
Subtotal:			36	12	48
Gulf States	WWT	1	18	6	24
	WWC	1	18	6	24
Bahrain, Saudi Arabia, Qatar, etc.	WT	1	18	6	24
	WD	1	18	6	24
UM	1	18	6	24	
Subtotal:	--	--	90	30	120
Tunisia/SONEDE	WD	1	6	6	12
Subtotal:	--	--	6	6	12
Total:			168	60	228
Grand Total (Current + New):	--	--	1,014	297	1,311

Annex E – Detailed Rollout Plan and Schedule: 2015-2017 provides a template for use by ACWUA (post-IWSMR) to further plan and schedule the ROCTP Rollout when funding and resources are secured and utilities finalize their commitment.

8. ROCTP Rollout Budget and Resource Requirements for Sustainability

Based on the ROCTP pilots conducted with IWSMR, ACWUA will estimate the costs and the resources required to implement their rollout activities and coordinate with USAID and other donors for support.

9. Recommendations

A. *Intensify ACWUA Capacity Building* - Ensure the continued training of ACWUA Secretariat and Certification Unit staff

- Support and train ACWUA staff in the full implementation of the ACWUA Strategic Business Plan
- Build ACWUA ROCTP Certification and Twinning Unit; Develop Staff
- Continue TOT & effectively utilize local certified operator trainers to control costs
- Continue broadening needs assessment initiated by IWSMR
- Broaden CIS applications, access and use as required
- Apply ISO standards for ACWUA daily operations
- Establish intellectual property rights for ACWUA platforms, outcomes and products.

B. *Plan and Implement a Comprehensive ACWUA ROCTP/Twinning Marketing Strategy* - Intensify ACWUA promotion of ROCTP, Twinning and other services

- Develop a comprehensive ROCTP and Twinning Master Marketing Plan
- Promote the benefits of virtual Twinning for Utilities (10 planned activities) at orientations and conferences
- Enhance use of electronic web-based marketing techniques
- Make greater use of direct on-site marketing at member utilities
- Build cooperative relationships in the international certification and twinning community i.e. Association Boards of Certification (ABC), American Water Works Association (AWWA), WEFTEC-the water quality event, and International Water Association (IWA) to partner in knowledge exchange, and cooperation to meet ACWUA's objectives.

C. *Secure ROCTP and Twinning Financial Sustainability* – Secure the commitment of each participating utility, without exception, by requiring payment of fees at the time of enrollment.

- Work with member governments and utilities to budget for ROCTP and Twinning fees
- Identify alternative local certification authorities and testing services to reduce the high administration costs incurred by CAQA/Jordan

D. *Promote ROCTP Mandate and Strengthen Regional Institutions* – Continue to focus attention on the following institutional targets in ROCTP participating countries/utilities:

- Establish effective mandatory and legally binding operator certification decrees/regulations encompassing both public and private sector operators;
- Monitor and follow-up new certification regulations and enforce stringent penalties for noncompliance;
- Promote certification reciprocity requiring inter-country recognition of operator certification credentials and the agreement from labor-importing members to only hire operators holding current and legally recognized certification credentials; and,
- Link promotion, salary and incentives to operator certification within utility HR systems to retain a skilled and professional workforce as well as protect the training investment.

E. *Expand ROCTP Content and Courses* – Continue to expand ROCTP to meet demands for the following illustrative courses:

- Water Utility Leadership Empowerment Program
 - Public Private Partnerships including management and services contracts, Micro PSP, and BOT, and Performance Based Contracts
 - Monitoring and regulating private sector operation
 - Utility Business Planning
 - Improved financial performance and cost recovery for utilities
 - Utility Economic and Services Regulations
 - Civil Society and Public Engagement

- Numerous specialized courses based on existing US certification materials, for example:
 1. Water Utility Systems
 - Energy Efficiency for water and wastewater utilities
 - Non-Revenue Water (Basic & Advanced)
 - ✓ Physical losses
 - ✓ Commercial losses
 - ✓ GIS and Customers Management systems
 - ✓ Metering programs
 - ✓ Developing NRW strategies
 - District Zoning and Networks Management
 - Ground water well management and safe operation
 - Desalination technologies
 - Pumps & Pressure Management
 - ✓ Basic Electricity and Motors
 - ✓ Pumps and Components
 - ✓ Meters and Service Connections
 - ✓ Valves and hydrants
 - Master Plumber Program

 2. Wastewater Networks, Treatment, and Reuse
 - Wastewater treatment technologies (i.e. MBR and other technologies)
 - Wastewater reuse and standards
 - Sludge treatment and reuse and source recovery
 - Management of wastewater plants and networks

 3. Industrial Wastewater Management
 - Industrial wastewater inspection and auditing
 - Treatment of industrial wastewater
 - Managing and operating reuse schemes

 4. Water Quality & Laboratories Management
 - Water safety plans
 - Water quality sampling & monitoring
 - Laboratory accreditation programs
 - Microbiological analysis
 - Physical analysis
 - Chemical analysis
 - Isotopes analysis

- Exam study guides adapted with permission from existing publications

F. *Explore E-Learning and Distance-learning Approaches for ROCTP Delivery* – Develop, pilot and conduct on-line training and testing

- Identify member utilities that have operators with reliable internet connectivity, equipment and expertise
- Identify appropriate pilot distance learning/on-line courses based on need.
- Research how to best configure a ROCTP course and test for distance learning/on-line management and delivery.
- Continue to leverage the relationships with California State University Sacramento (CSUS), Association of Boards of Certification (ABC), and other international associations regarding their experience, guidance and potential support for distance-learning options.
- Design, implement and evaluate viable distance learning/on-line ROCTP courses and tests in close coordination with CAQA.

G. *Increase ROCTP Opportunities for Women and Youth* – Explore ROCTP options for women and young professionals and technicians in the water/wastewater sector

- Establish a Female Operators Interest Group to provide a forum for women throughout the MENA region to share ideas and discuss issues of direct relevance to gender in the water sector.
- Promote the operator career in vocational education and university engineering by encouraging member utilities to conduct orientations and participate in events such as youth job fairs.
- Continue to disaggregate ROCTP performance data and track post-ROCTP promotions, salary increases and incentives on the basis of gender.

H. *Actively support the tracking and reporting of ROCTP Impact* – Continue to demonstrate that ROCTP results contribute to utility performance improvement

- Implement the On Job – Performance Improvement for Supervisors course
- Continue to rigorously implement Training Impact Assessment (TIA)
- Encourage participating utilities to link ROCTP and TIA to salary increase, incentives, and promotions.
- Support further application of utility assessment tools developed by ACWUA to identify new possible ACWUA interventions of benefit to members.

ANNEX A. ROCTP PILOT MOU

MEMORANDUM OF UNDERSTANDING (MOU)

Between

ARAB COUNTRIES WATER UTILITIES ASSOCIATION (ACWUA)

And

(Name of Utility)

For

**REGIONAL OPERATORS CERTIFICATION TRAINING PROGRAM - AND TRAINING
IMPACT ASSESSMENT**

This Memorandum of Understanding (MOU) is hereby made and entered into by and among the Arab Countries Water Utilities Association (hereinafter referred to as ACWUA represented by **Eng. Khaldon Khashman, Secretary General**, and the (name of the utility), represented by *(name and position)* .

The terms and conditions herein appearing shall govern the roles, responsibilities, duties and obligations of the respective parties under this MOU; however, this MOU shall be considered to be a good faith agreement to pursue the goals and objectives described herein and is non-binding and not legally enforceable on either party hereto.

A. Parties:

Party I – the Arab Countries Water Utilities Association, located in Amman-Jordan, 19 Umm Ummarah St., Al Rasheed Area, whose representative is Eng. Khaldon Khashman, Secretary General. ACWUA is a registered regional, non-governmental organization (NGO) that partners with water supply and wastewater utilities in the Arab countries to provide best practice service delivery to its members.

Party II – *(Utility name, location, representative name and title with very brief identification of its role)*

B. Objective:

The above Parties have collectively agreed to enter into this MOU which reflects their mutual intention to cooperate and coordinate for the purpose of effectively implementing the (the name of the training course with its abbreviation) of the ACWUA Regional Operators Certification Training Program (ROCTP) and assessing the impact on improved utility O&M performance at the related *(utility)* facilities.

C. Background

The ACWUA ROCTP aims to:

1. Introduce a new approach to human resources development in the water sector region-wide, requiring operators to demonstrate job knowledge and skills by passing professional tests, and by granting them state-recognized certification.

2. Provide standardized training linked to best O&M practices for operator certifications in water treatment and distribution, wastewater treatment and collection, and utility management.
3. Close O&M knowledge and skills gaps contributing to improved O&M performance at plants and network facilities as well as promoting job empowerment for licensed managers, engineers and technicians.
4. Measure the O&M performance improvement impacts of the ROCTP at participating member water and wastewater facilities.

This approach was endorsed at the ACWUA Best Practices conference in Algiers, December 2013, and put into effect in 2014. It features the following:

- Use of the Jordan system as the Interim Certification Platform with the Center of Accreditation and Quality Assurance (CAQA) recognized as the legal authority issuing certificates in accordance with CAQA standards and requirements
- Implementation of ROCTP at pilot utilities in three ACWUA member countries with scale-up based on experience and lessons-learned
- The training and testing materials developed, evaluated and refined by the Jordan OMT project will be utilized on an interim basis by ACWUA
- To contribute to ROCTP sustainability, participating utilities will become self-sufficient in conducting training by using their own employees who have completed and passed a standardized training of trainers (TOT) course to promote affordable ROCTP costs/fees

Working in partnership, the Arab Countries Water Utilities Association, and (*name of the utility*) will strive to achieve the objectives of the ACWUA Regional Operators Certification Training Program (ROCTP) on improved utility O&M performance at the (*utility name/abbreviation*).

D. Responsibilities of the Parties

D.1 (ACWUA) The Arab Countries Water Utilities Association shall be responsible for the following tasks supporting the ROCTP – (*Course*) and the associated Training Impact Assessment (TIA):

- a. Orient (*Utility abbreviation*) personnel on ROCTP design, features and requirements
- b. Fully responsible for coordination of scheduling and venue logistics as well as identifying/ approving a qualified trainer for the (*Training course name/ abbreviation and level*) with (*utility title abbreviation*).
- c. Provide adequate copies of training materials and to conduct the (*course title/ abbreviation and level*)
- d. Maintain training records and issuance of reports using the ACWUA Certification Information System (CIS)
- e. Coordinate with the CAQA/Jordan for quality assurance according to the CAQA criteria for quality control, testing and licensing
- f. Develop quantitative and qualitative measurement of indicators of O&M performance impact.
- g. Full implementation of the training program according to the CAQA regulations.
- h. Implement the TIA method and report periodic results for the (*course title/ abbreviation and level*) pre and post training at (*utility name/ abbreviation*) to the participating utility and ACWUA Board.
- i. Charge (*utility name/ abbreviation*) for all the costs related to the implementation of ROCTP courses and TIA.

D.2 The (*utility name/ abbreviation*) shall be responsible for the following tasks to support ROCTP (*course title/ abbreviation and level*) and the associated TIA:

- a. Agree to the rules and conditions of the ACWUA ROCTP and TIA
- b. Nominate the ROCTP trainees to participate in the (*course title/ abbreviation and level*) in accordance with CAQA/ROCTP policy framework.
- c. Provide the required coordination services to enable ACWUA to implement the ROCTP pilot and TIA including:

- Training venue and local transportation adequate for (*number*) participants
- Completion of all application documentation for each ROCTP trainee as per CAQA and CIS specifications
- Communicate with ACWUA on a timely basis to ensure smooth training implementation

d. Provide annual information and statistics starting in (*year*) as a baseline for TIA measurement with main focus on the following six quantitative indicators.

- Quality of (*service related to the training course*) – Non-compliance Citations/Year
- Major Unplanned Shut-downs (service interruptions)/Year
- Emergency Actions (unit; facility)/Year
- Accident Reports (unit; facility)/Year
- Operating Costs (unit; facility)/Year
- Maintenance Costs (unit; facility)/Year
- Quality tests in external labs (unit; facility)/Year

e. Support ROCTP graduates/certified operators in the application of new knowledge and skills on the job to contribute to improved facility O&M

f. Participate in the TIA data collection and reporting process involving trained (*utility name/ abbreviation*) operators and their immediate supervisors

g. Work toward introducing incentives and career advancements based on the new certification environment

h. Consider rendering operator certification mandatory for all (*utility name/abbreviation*) technical managers, engineers and technicians

i. Pay to ACWUA all costs related to the implementation of ROCTP and TIA, by securing finances as part of the utility's budget or leveraging donor or private resources.

D.3 The two parties agree to the below (*utility name/ abbreviation*) (*course title and level*) specifications:

- **Course title:** (*Course title*)
- **Duration and Schedule:** (*Dates*)
- **Number of trainees:** (*number of trainees*)
- **Training venue and Transportation:** (place)

E. Term

The two Parties shall perform respectively agreed upon responsibilities over a period (*duration dates*), unless otherwise terminated in accordance with clause K below.

F. Other Funding and Expenses

This MOU does not obligate any funds to either Party or the employees of either Party. Unless otherwise mutually and explicitly provided and agreed upon in writing, all other expenses and costs incurred by either Party shall be borne by the Party incurring the same and neither shall be obliged to reimburse the other.

G. Communications

Day-to-day communication with respect to this MOU and any notice, request, document, or other communication related to the implementation of this MOU shall be in writing, in Arabic, and shall be deemed given or sent when delivered to the two parties at the following addresses:

Arab Countries Water Utilities Associations:

19/ Umm Umarah St, Al Rasheed Area.

Telephone: + 962 6 5161700

Fax: + 962 6 65161800

Email: acwua_secretariat@acwua.org

Utility name

Address

Telephone number

Fax

E mail

H. Confidentiality

Each Party agrees to maintain in confidence any and all proprietary information received from the other including, but not limited to: data, reports, technical plans, business plans and any financial or fiscal information.

I. Amendments

This MOU may be amended or modified in writing by mutual consent of the two Parties as may be necessary from time to time.

J. Dispute Resolution

Any doubts or ambiguities or disputes, if any, in the interpretation of the provisions of this MOU or any of its supplements, shall be resolved through mutual consultations between the two parties.

K. Termination

Any of the two Parties, in writing, may terminate the MOU in whole, or in part, at any time before the date of expiration, provided that a written notice preceded two months to rectify the other party's situation.

L. Force Majeure

If at any time during the course of this MOU it becomes impossible for the two Parties to perform any of their obligations for reasons of force majeure, that Party shall promptly notify the others in writing of the existence of such force majeure. The Party giving notice is thereby relieved from such obligations as long as force majeure persists.

M. General Provisions

The two Parties entering into this MOU maintain their own separate and unique missions and mandates, and their own accountabilities. This MOU shall not supersede or interfere in any way with other agreements or contracts entered into between the parties, either prior to or subsequent to the signing of the MOU, unless otherwise stated herein.

Nothing in this MOU shall be construed as constituting any Party as the agent of the other Party for any purpose whatsoever and neither of the Parties shall have the authority or power to bind the others or to contract in the name of or create a liability against the other Parties in any way.

This MOU and all notices and amendments to it shall be executed in the Arabic language, although they may be translated into English. The Arabic language version shall be considered in any dispute between the Parties.

N. Acceptance and Execution

This Memorandum of Understanding is made on the day and year stated below in two originals in the Arabic language. Acceptance of the terms of this agreement shall be indicated by the two Parties on the lines provided below and by initialing each page of this agreement. The two Parties hereby accept the terms of this agreement.

IN WITNESS THEREOF, the two Parties hereto have executed this MOU:

For: Arab Countries Water Utilities Association

Name: Eng. Khaldon Khashman

Title: Secretary General

Date: 12/7/2014

Place: Amman - Jordan

Signature _____

For: (*Utility name*)

Name: (*Representative of the utility*)

Title:

Date:

Place:

Signature _____

ANNEX B. TRAINING IMPACT ASSESSMENT-DESCRIPTION AND RESULTS

Background – As the project name indicates, the goal of IWSMR is improving overall water and wastewater utility performance, operation and maintenance (O&M) and service delivery throughout the MENA region. To contribute to this outcome, IWSMR is assisting ACWUA to establish a regional operator certification and training program including highly defined career paths stipulating detailed need-to-know competencies. This competency hierarchy is supported by a standardized training and testing program customized for particular regional needs from successful US models.

Status - During Year 1, IWSMR initiated the process to take advantage of the Training Impact Assessment (TIA) approach developed by the USAID/Jordan OMT Project for use by ACWUA to assess the impact of ROCTP courses on improved utility O&M performance. As per the approved IWSMR Work Plan and Implementation Plan/Year 1 and 2, the ROCTP courses took place in Year 2 commencing with the Wastewater Treatment Operator Level 1 course.

The initial three ACWUA ROCTP pilots underwent the full TIA data collection, analysis and reporting process as described below and as documented in related TIA reports.

TIA Report 1/Brief - West Bank Nablus Wastewater Treatment Plant: The West Bank Nablus Wastewater Treatment Plant results of the TIA survey were highly encouraging with 80% of the operators/trainees who attended the ROCTP WWTO1 course and completed the TIA form reporting that after 6 months back on the job, their knowledge and skills had improved and were contributing to improved job performance as a result of the training. This was confirmed by their supervisor who agreed that the ROCTP course was having a significant positive impact on the job performance of the newly certified Nablus WWT operators, and consequently improved work unit performance in general. Furthermore, O&M costs at the WWTP are dropping which cannot be directly attributed to ROCTP but it is a quantitative indication of positive change. See full details in the associate TIA report.

TIA Report 2/Brief – Sanaa/Yemen Wastewater Treatment Plant: Due to the recent unstable conditions in Yemen and difficulties communicating with concerned staff and trainees in Sana'a wastewater treatment plant, there was a delay in receiving required data and feedback for the TIA at the 6 month interval set for the post training – on job follow up. The Sana'a Wastewater Treatment Level 1 training course was held in Aqaba/ Jordan (Dec. 7-18, 2014) and the pre training survey was conducted on the first day of the training course. However, the first on-job TIA was conducted after (8) months of the training. Results are contained in this report.

Substantial decreases were reported in O&M cost. The acting plant manager explains this as due mainly to the local instability which forced cuts in costs in employee allowances including transportation and overtime allowance, etc. In addition, there have been reductions in the electricity and fuel costs due to intermittent short plant shutdowns and the complete shutdown caused by electrical power and fuel shortages.

TIA results for Yemen were solidly positive. 100% of operators confirmed the direct relevance of the training; an increase in the knowledge and job skills; an increase in the self-esteem and confidence on-the job; newly acquired technical skills as a result of the training that enabled them of better perform their jobs; and, that they could see the positive impact of the training on the actual on-site job performance. These results were further confirmed by the immediate supervisor of the certified operators.

TIA Report 3/Brief – Beirut and Mt Lebanon Water Utility: Upon completion of the IWSMR project, ACWUA was actively engaged in collecting TIA quantitative data from the Lebanon pilot. TIA

Report 3/Brief – Beirut and Mt Lebanon Water Utility was limited to analysis of qualitative operator and supervisor pre and post-training survey results.

Results continued to be encouraging is providing evidence validating that the ACWUA ROCTP training effectively increases the job-knowledge of trainees enabling them to improve their performance leading directly to positive performance impacts on their work and that of their work unit.

Operators confirmed the success of the training in developing trainees technical and management skills, where 100% in the post-training survey agreed that they had acquired new technical skills as a result of the training that enabled them of better perform their jobs; and, 100% agree that they had acquired new ways for solving work problems and organizing people and tasks as a result of the training. In addition, 100% of operators agreed that the training had given them the confidence to apply new knowledge on their jobs. After 6 months back on the job, 83% of the operators continued to indicate that they could see improvements in their performance and the performance of their work unit as a result of the training.

Regarding supervisor support of the operators in application of their new knowledge and skills on the jobs, only 50% of the operators indicated their agreement of receiving such support. ACWUA should consider conducting orientation for supervisors to ensure that operators receive support in application of new knowledge and skill obtained during training.

In close alignment with staff, the supervisor opinions confirm the success of the program in improving operator knowledge and understanding of their field as well as confidence that enabled them to better do their jobs and manage work relations better. Furthermore supervisors observed that operators are demonstrating improved job performance which is a strong validation that the ROCTP training is having a beneficial impact at the Beirut & Mount Lebanon Water Establishment and that further investment in ACWUA ROCTP training is justified.

Purpose – Although the reporting of results achieved by operator trainees on standardized certification tests provides an indication of the degree of learning that has been accomplished, it does not show the impact of the training on the job and any associated O&M performance improvement by the work unit or the facility as a whole. Therefore, in Year 2 IWSMR is assisting ACWUA in implementing and institutionalizing the TIA approach to measure and report the O&M performance impacts of certification and training at utilities and facilities participating in the ACWUA operator certification and training program. Initially the TIA will be applied at pilots to be conducted by the IWSMR project. ACWUA is committed to continue to apply TIA as ACWUA proceeds to scale-up ROCTP at additional member utilities.

This TIA will collect both quantitative and qualitative utility data using 2013 as the pre-training O&M performance baseline and compare that with the post-training O&M performance impact at pilot facilities. The findings of this assessment will be used to further improve the training program and to assist managers in supporting training and certification to achieve the greatest results.

Theory - There is wide recognition that capacity building and training are prerequisites to development. However, most evaluations of capacity building stop well short of attributing benefits specifically to training. Most only go so far as to claim that the capacity building made a significant contribution to achieving objectives. The IWSMR project and ACWUA are committed to the assessment of the ROCTP impact on the O&M at treatment and network facilities. The approach to be used here is based on the following basic assumptions:

- Improving human capacity through relevant training (formal or informal) is inherently valuable and absolutely necessary for the achievement of performance improvement,
- Given a supportive organizational environment, individual employees will apply newly acquired knowledge and skills on the job,
- The effects of these changes in practice and/or behavior can be observed, described, often measured based on the controls and accomplishments reported, and,

- These effects can have a positive impact on productivity, efficiency, and cost of services or outputs delivered.

The ultimate beneficiaries of the training and certification, apart from the trainees in terms of greater self-esteem and financial reward, are the water/wastewater utilities and their customers. It is accepted here that improved individual performance will lead collectively to facility O&M that ensures greater compliance with potable water, effluent quality, and environmental standards as well as protecting the investment in treatment and network infrastructure and contributing to its sustainability.

The Enabling Environment – The greatest variable when considering attribution is the enabling environment, which plays a key role in determining the degree to which employees are encouraged and supported in the on-job application of new knowledge, skills, behaviors, and practices. As a rule of thumb, performance improvement interventions that, along with relevant high-quality training, include a nurturing management commitment, securing related financial resources, and providing access to the necessary tools and spare parts will be more successful in achieving and demonstrating measurable results.

The IWSMR project and ACWUA program advocate strongly for an operator training and certification program that adopts a pro-active change strategy that recognizes the importance of the enabling environment in achieving performance impacts. The managers of ACWUA member utilities that participate in operator certification pilots and training will sign a joint MOU with ACWUA and IWSMR stating that they fully understand the purpose of the ROCTP courses, that they will abide by the program prerequisite conditions, and that they will encourage on-job application of newly acquired ROCTP knowledge and skills by the trained operators. IWSMR and ACWUA will conduct orientations to kick-off training at each site to secure management buy-in commitment.

Assessment Design – Most training takes place in an organizational setting, typically in support of skill and knowledge requirements originating in the workplace. This certainly applies to the ACWUA operator training and certification program. The job performance competencies, knowledge, and skills supported by the ACWUA program are based on the need-to-know criteria developed by the Association of Boards of Certification (ABC) by conducting on-going job task assessments of US and Canadian treatment plant and network operators. The ABC criteria have been reviewed by local subject matter experts in Jordan and Egypt and tailored to the specific needs and requirements of MENA operators.

The important relationship between training and the workplace has been adhered to in the design of the ACWUA training and certification program. Using this relationship as a framework, the following four basic points can be identified at which the IWSMR project will take measurements, conduct assessments, and reach judgments: Before Training; During Training; After Training or Before Returning to the Job; and, On-the-Job at the Facility.

Collecting data at these four points provides an understanding of the effectiveness of the training and the impact on performance at the plant. Collecting data before training establishes the performance baseline and provides a picture of the performance improvement expectations of operator trainees, their supervisors, and company managers. Any changes in performance resulting from the operator training and certification program will be measured against this initial 2013 baseline for the IWSMR ROCTP pilots.

Testing during and after training measures the degree of new learning taking place as well as the reaction of the trainees to the instruction itself – in other words, how well the trainees liked the training. Monitoring the trainees when they are back on the job measures changes in behavior or the degree to which newly learned practices are being applied. The measureable quantitative and qualitative results of the trainee application of new practices can provide an assessment of the training impact on individual, work unit, and overall plant performance.

Quantitative Measures – Practical indicators of measureable facility performance typically available at MENA utilities have been determined with the cooperation of ACWUA and regional utility

managers using 2013 as the baseline. Within the international water sector, baseline and performance data collection is encouraged in the following utility functions: Operations and Maintenance, Finance, Customer Service, and Human Resources/Staff Training. As well as tracking ROCTP implementation and operator certification and training via the ACWUA Certification Information System and the IWSMR PMP, indicators which are linked directly to the IWSMR results framework PR3 – Improved performance of regional water and wastewater utilities through leveraging USAID-funded improvements are being applied for the initial ACWUA pilots including:

- 1) Quality of W/WW treated – Non-compliance Citations/Year
- 2) Major Unplanned Shut-downs (service interruptions)/Year
- 3) Emergency Actions (unit; facility)/Year
- 4) Accident Reports (unit; facility)/Year
- 5) Operating Costs (unit; facility)/Year
- 6) Maintenance Costs (unit; facility)/Year

Qualitative Measures - In addition to collecting facility performance data, the training impact assessment also collects qualitative, opinion-based input from trainees and their supervisors/managers using standardized surveys and interviews for pre- and post-training comparison. For all IWSMR ROCTP pilots, on-the-job observation of trainee practical application and performance improvements at their facilities will be conducted periodically relying primarily on cost-effective survey versus interview methods to assess use of new knowledge and skills. These surveys require the respondent to provide their opinion on the following issues: Relevance of Training; Language of Instruction; Improved Knowledge/Understanding; Improved Attitude/Confidence and Self Esteem; Improved Technical Skills; Improved Management Skills; and Impact of Training on the Job.

Frequency - The initial indicators and survey data gathering were associated with ROCTP pilot implementation commencing in Year 2. The current ACWUA TIA procedures call for impact data collection as follows: Trainee – Pre/Post (6 months; annual); Supervisor and Manager Pre/Post (6 months; annual); On-Site Observation of Performance (associated with Interview). The data collection periods are flexible and recognizing that IWSMR will end in September 2015, the project intends to accelerate qualitative data collection for TIA reporting purposes.

TIA Capacity Building – Initial application of the TIA approach was led by IWSMR. In the course of Year 2, as ACWUA staff became familiar with the TIA, it was transferred to ACWUA responsibility so that ACWUA could continue to track and report training impact on a long-term sustainable basis.

ANNEX C. ROCTP ENROLLMENT/PILOT REQUEST FORMS – ENGLISH & ARABIC

(English version)



ROCTP Request Form

Instructions: please e-mail completed form to ACWUA: Ahmad_Azzam@acwua.org

- A. Referring to the sixth article of the Arab Countries Water Utilities Association (ACWUA) charter “objectives and tasks”, item no. (6) related to capacity development of water utility staff members and other professionals in various water science and management fields, and item no. (11) related to promoting certification and accreditation among water and wastewater professionals and utilities.
- B. ACWUA has implemented training programs in a number of Arab countries in the fields of: Training of Trainers (TOT) and Regional Operator Certification Training Program (ROCTP).
- C. In the upcoming 5 years ACWUA will develop a number of training programs/certification courses in the fields of operation, maintenance, customer service and utility management.
- D. Therefore, you are kindly requested to fill the below form to enable ACWUA to identify your training needs and consequently developing its 2015-2019 training plan.

1- Institutional Status

Governing authority for water/wastewater sector in your country:

Occupational certification body in your country: Yes – NO

If yes, what is the name of body?

2- Interest

Please indicate level of interest in establishing a standardized and regionally recognized operator certification program at a utility in your country:

Very High - High - Low - Very Low

3- Payment

Is your utility willing to pay reasonable training fees limited to basic costs only?

Yes – No

4- Utility Staff- Please provide best estimates of the following staff categories:

Water Treatment	Male	Female	Total	Water Distribution	Male	Female	Total
Managers				Managers			
Engineers				Engineers			
Technicians				Technicians			
Totals				Totals			

Wastewater Treatment	Male	Female	Total		Wastewater Collection	Male	Female	Total
Managers					Managers			
Engineers					Engineers			
Technicians					Technicians			
Totals					Totals			

Water and labs Quality	Male	Female	Total		Geographic information system	Male	Female	Total
Managers					Managers			
Engineers					Engineers			
Technicians					Technicians			
Totals					Totals			

For more information about ACWUA's training courses please visit: www.acwua.org

Please indicate your needs for the following training programs implemented by ACWUA:

5- Regional Operator Certification and Training Program/ Water and Wastewater Utilities

- Water Treatment Operator – Level 1 Yes – No
- Water Distribution Operator – Level 1 Yes – No
- Wastewater Treatment Operator – level 1 Yes – No
- Wastewater Collection Operator – Level 1 Yes – No

6- Geographic Information System (GIS)

- Uses of the Geographic information system (GIS) in operation and maintenance.
Yes – No
- Advanced program in managing the customer services using GIS.
Yes – No
- Specialized program in GIS operation
Yes – No

- Tracks design using GIS maps for billing and collecting.	Yes- No
7- Utility Management	Yes – No
8- Water Utility Systems	
- Energy Efficiency.	Yes – No
- Non- Revenue Water:	Yes – No
i. Physical Losses	
ii. Commercial Losses	Yes – No
iii. Using the GIS in managing customers system.	Yes – No
iv. Metering Programs	Yes – No
v. Developing the strategies of reducing non-revenue water.	Yes – No
- District Zoning & Networks Management	Yes – No
- Ground Water Well Management	Yes – No
- Desalination Technologies	Yes – No
- Pumps (Selection, Operation and Maintenance)	Yes – No
9- Master Plumber Program	Yes – No
10- Wastewater Networks, Treatment, and Reuse.	Yes – No
▪ New Wastewater treatment technologies(I.e. MBR and other technologies)	
▪ Wastewater reuse and standards.	Yes – No
▪ Sludge treatment and reuse and source recovery.	Yes – No
11- Industrial Wastewater Management	Yes – No
▪ Industrial wastewater inspection and auditing.	Yes – No
▪ Treatment of industrial wastewater.	Yes – No
▪ Managing and operating reuse schemes.	Yes – No
12- Water Quality & laboratories Management	Yes – No
▪ Water safety plans.	Yes – No
▪ Water quality sampling & monitoring.	Yes – No
▪ Microbiological analysis.	Yes – No
▪ Physical analysis.	Yes – No
▪ Chemical analysis.	Yes – No
▪ Isotopes analysis.	Yes – No
▪ Laboratory accreditation programs.	Yes – No
13- Water Utility Leadership Empowerment Program	Yes – No
▪ Public Private Partnerships including management and services contracts, Micro PSP, and BOT, and Performance based contracts.	Yes – No
▪ Monitoring and regulating private sector operation.	Yes – No
▪ Utility Business Planning.	Yes – No
▪ Improved financial performance and cost recovery for utilities.	Yes – No
▪ Utility Economic and Services Regulations.	Yes – No
▪ Civil Society and Public Engagement	Yes – No
14- Training Available facilities: Please identify the availability of the following training facilities at your pilot site.	Yes – No
- Do you have certified trainers who had participated in the association’s training course (TOT)?	Yes – No
- Do you have an accredited training center?	Yes – No
- Do you have Data Show Projector?	Yes – No

- Do you have a Screen? Yes – No
- Do you have a White Board? Yes – No
- Do you have basic Data-show projector? Yes – No
- Do you have Flip Chart? Yes – No
- In the case of not having a training center, where do you conduct your training courses?

15- Contact Please provide the following for ACWUA communication and follow up:

Main contact Name:

Organization/ Utility Name:

Telephone with country code:

E-mail address:

Thank you for your help!

(Arabic version)



ROCTP Request Form

نموذج مسح الاحتياجات التدريبية للبرنامج الإقليمي لإجازة/ شهادة المزاولة لمشغلي مرافق المياه*

إرشادات: أرجو تعبئة البيانات المطلوبة في النموذج وإعادته عبر البريد الإلكتروني إلى الجمعية العربية لمرافق المياه (أكوا) حسب العنوان " halrawashdeh @iwsmr.com "

تتيح الجمعية العربية لمرافق المياه تنفيذ البرنامج الإقليمي لإجازة المزاولة / شهادة مشغل مرافق المياه (ROCTP) لكافة الراغبين من أعضائها، وستقوم الجمعية بعقد دورة تدريبية رياضية ضمن البرنامج المذكور لمجموعة من العاملين لديكم لتعريفكم بالبرنامج، لذا أرجو استكمال تعبئة هذا النموذج لطلب عقد الدورة الرياضية.

1-الوضع التنظيمي:

- الجهة المسؤولة عن قطاع المياه/ الصرف الصحي في بلدكم:
- هل يوجد في بلدكم جهة معتمدة لمنح إجازات/ شهادات المزاولة لمشغلي مرافق المياه لديكم؟ نعم لا
إذا كانت الإجابة نعم، أرجو تحديد اسم هذه الجهة:

2-مدى الاهتمام:

- أرجو تحديد مدى اهتمامكم بإنشاء وتطبيق برنامج معياري معترف به إقليمياً لإجازة/ شهادة المزاولة لمشغلي المياه العاملين في مرافق المياه والصرف الصحي في بلدكم:
- | | | | |
|-------------------|-------|-------|-------|
| اهتمام مرتفع جداً | مرتفع | منخفض | منخفض |
|-------------------|-------|-------|-------|

3- دفع رسوم التدريب:

- هل أنتم مستعدون لدفع رسوم تدريب معقولة بحيث تغطي الكلفة الأساسية فقط؟
إذا كانت الإجابة نعم، هل أنتم حالياً قادرين على دفع رسوم التدريب الأساسية؟

4- العاملون في المرفق:

- أرجو تحديد أعداد العاملين في مرافق المياه لديكم حسب التصنيفات التالية:

المجموع	انثى	ذكر	توزيع المياه
			مدير
			مهندس
			فني
			المجموع

المجموع	انثى	ذكر	معالجة مياه
			مدير
			مهندس
			فني
			المجموع

المجموع	انثى	ذكر	جمع مياه الصرف الصحي
			مدير
			مهندس
			فني
			المجموع

المجموع	انثى	ذكر	معالجة مياه الصرف الصحي
			مدير
			مهندس
			فني
			المجموع

- لمزيد من المعلومات حول برنامج إجازة المزاولة لمشغلي المياه يرجى زيارة موقع الجمعية العربية لمرافق المياه (www.acwua.org)

5- برنامج التدريب الإقليمي لإجازة/ شهادة المزاولة لمشغلي مرافق المياه:

أرجو اختيار أحد دورات برنامج التدريب الإقليمي لإجازة المزاولة التالية، والتي ترغبون بتنفيذها ل (15) من العاملين في مرافق المياه المؤهلين للاشتراك بها في بلدكم:

لا	نعم	مشغل معالجة مياه - مستوى 1
لا	نعم	مشغل توزيع مياه - مستوى 1
لا	نعم	مشغل معالجة مياه صرف صحي - مستوى 1
لا	نعم	مشغل تجميع مياه صرف صحي - مستوى 1

ملاحظة: حال وصول هذا النموذج، ستقوم الجمعية بمتابعة التنسيق اللازم لجدولة وعقد الدورة التدريبية الريادية المطلوبة من قبلكم وذلك خلال الأعوام (2015-2017).

6- التسهيلات التدريبية:

أرجو تحديد مدى توفر التسهيلات التدريبية التالية في موقع عقد دورة التدريب الريادية المطلوبة لديكم.

- مدربين محليين مؤهلين لتنفيذ الدورة من خريجي برنامج الجمعية لتدريب المدربين ACWUA/ TOT: نعم
لا
- إذا كانت الإجابة نعم، أرجو تحديد الاسم:
- قاعة/ غرفة تدريب: نعم
لا
- إذا كانت الإجابة نعم، حدد استيعابها/ عدد المتدربين:

- نعم - توفر جهاز عرض بيانات/ شرائح (Data Show Projector):
لا
- نعم - توفر شاشة عرض (Screen):
لا
- نعم - توفر سبورة/ لوح عرض أبيض (White Board):
لا

7- الاتصال والمتابعة:

لغايات الاتصال والمتابعة مع الجمعية (أكوأ)، أرجو تحديد ما يلي:

- اسم المفوض بالاتصال:
- المؤسسة/ المرفق:
- رقم الهاتف مع رمز البلد:
- البريد الإلكتروني (E-mail):

شاكرين لكم حسن تعاونكم

ANNEX D. LIST OF ACWUA MEMBER UTILITIES

No.	Name	Country	Membership type
1	Jordan Valley Authority (JVA)	Jordan	Water Utility
2	Ministry of Water and Irrigation MWI	Jordan	Water Utility
3	Northern Governorates Water Administration	Jordan	Water Utility
4	Water Authority of Jordan	Jordan	Water Utility
5	Jordan Water Company - Miyahuna	Jordan	Water Utility
6	Aqaba Water Company - AWC	Jordan	Water Utility
7	Ajloun Water Authority	Jordan	Water Utility
8	Tira	Jordan	Water Utility
9	dalona	Jordan	Water Utility
10	DAOM - Disi Amman Operation and Maintenance	Jordan	Water Utility
11	Menya Water and Sanitation Company	Egypt	Water Utility
12	Gharbia Water and Sanitation Company	Egypt	Water Utility
13	Greater Cairo Sanitary Drainage Company	Egypt	Water Utility
14	Fayoum Drinking Water and Sanitation Company	Egypt	Water Utility
15	Giza Drinking Water & Wastewater Company	Egypt	Water Utility
16	Menoufia Company for Water and Wastewater	Egypt	Water Utility
17	Benisuef Water and Sanitation Company	Egypt	Water Utility
18	Alexandria Water Company	Egypt	Water Utility
19	Kafr ElShikh for Water & Wastewater	Egypt	Water Utility
20	Sharkia Potable Water & Sanitation Company	Egypt	Water Utility
21	Qena Company for Water and Wastewater (QCWW)	Egypt	Water Utility
22	Holding Company for Water and Wastewater	Egypt	Water Utility
23	Cairo Water Company	Egypt	Water Utility
24	Dakahlia Potable Water and Sanitary Drainage Company	Egypt	Water Utility
25	Assiut Water and Wastewater Company	Egypt	Water Utility
26	North and South Sinai Company for Water and Wastewater	Egypt	Water Utility
27	Sohag Water and Wastewater Company	Egypt	Water Utility
28	Red Sea Water and Wastewater Company - Hurgada	Egypt	Water Utility
29	Alexandria Sanitary Drainage Company	Egypt	Water Utility

30	North Lebanon Water Establishment	Lebanon	Water Utility
31	Beirut & Mount Lebanon Water Establishment	Lebanon	Water Utility
32	South Lebanon Water Establishment	Lebanon	Water Utility
33	Litani River Authority	Lebanon	Water Utility
34	Bekaa Water Establishment	Lebanon	Water Utility
35	Jericho Municipality	West Bank	Water Utility
36	Jerusalem Water Undertaking (JWU)	West Bank	Water Utility
37	Joint Service Council for Water	West Bank	Water Utility
38	Palestinian Water Authority (PWA)	West Bank	Water Utility
39	Sier Municipality	West Bank	Water Utility
40	Hodeidah Water and Sanitation Local Corporation	Yemen	Water Utility
41	Ibb Water and Sanitation Local corporation	Yemen	Water Utility
42	Local Water and Sanitation Corporation - Aden	Yemen	Water Utility
43	Al Baydha Water and Sanitation Local Corporation	Yemen	Water Utility
44	Water Supply and Sanitation Local Corporation-Dhamar	Yemen	Water Utility
45	Water and Sanitation Amran LC	Yemen	Water Utility
46	As-shihr water utility	Yemen	Water Utility
47	Sadah Water Supply and Sanitation Local Corporation	Yemen	Water Utility
48	Sana'a Water and Sanitation Local Corporation	Yemen	Water Utility
49	Bajil Water and Sanitation LLC	Yemen	Water Utility
50	Al Mahweet Water Supply and Sanitation Utility	Yemen	Water Utility
51	National Water and Sanitation Authority	Yemen	Water Utility
52	Bait Al-faqih Water and Sanitation Local Corporation	Yemen	Water Utility
53	Seiyun Local Corporation	Yemen	Water Utility
54	Abyan Local Corporation	Yemen	Water Utility
55	Al-Baydha Water Supply & Sanitation Local Corporation	Yemen	Water Utility
56	Sanaa Water and Sanitation Local Corporation - SWSLC	Yemen	Water Utility
57	Hajjah Water Supply & Sanitation Local Corporation	Yemen	Water Utility
58	Water and sanitation corporation	Yemen	Water Utility
59	General authority for water supply and sanitation projects	Yemen	Water Utility
60	TWSSLc	Yemen	Water Utility

61	Algerienne des Eaux - ADE	Algeria	Water Utility
62	Office National de l'Assainissement	Algeria	Water Utility
63	Ministry of Works	Bahrain	Water Utility
64	Electricity & Water Authority	Bahrain	Water Utility
65	Utilities Development Company W.W.L	Kuwait	Water Utility
66	Great Man-Made River Project, Sarir Wellfield	Libya	Water Utility
67	General company of water and waste water	Libya	Water Utility
68	Centre National Des Ressources en Eau (S.N.D.E)	Mauritania	Water Utility
69	National Office of Potable Water (ONEP)	Morocco	Water Utility
70	GALFAR Engineering & Contracting SAOG	Oman	Water Utility
71	Salalah Sanitary Drainage Services Co.	Oman	Water Utility
72	Haya water	Oman	Water Utility
73	National Water Company	Saudi Arabia	Water Utility
74	ACWA Power	Saudi Arabia	Water Utility
75	Gedarif State ,Ministry of Water , Irrigation &Dams	Sudan	Water Utility
76	Damascus Water Supply & Sewerage Authority	Syria	Water Utility
77	Public Est. of drinking water & waste water	Syria	Water Utility
78	Sonede	Tunisia	Water Utility
79	Thouraya	Tunisia	Water Utility
80	The National Sanitation Utility	Tunisia	Water Utility
81	Al-Ain Distribution Company (AADC)	UAE	Water Utility
82	Abu Dhabi Distribution Company - ADDC	UAE	Water Utility

ANNEX E. DETAILED ROCTP ROLLOUT PLAN AND SCHEDULE – 2015-2017

Annex E - ACWUA ROCTP Rollout Plan and Schedule (Template)																										
Expanded ROCTP Programs for Current Participating Utilities							2015			2016												MOU	Remarks			
Country	Utility	Operator Program	Level	Trainees	Trainer*	Training Location	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					
Jordan	Aqaba Water Company/South	Water Treatment	1																					*when possible assign local ROCTP and TOT graduates to reduce costs		
			2																							
			3																							
			4																							
		Water Distribution	1																							
			2																							
		Wastewater Treatment	1																							
			2																							
			3																							
			4																							
		Wastewater Collection	1																							
			2																							
		Utility Manager	1																							
		Training of Trainers (TOT)	1																							
		OJ PI Coaching for Managers	1																							
		Jordan	Miyahuna Water Company/Amman	Water Treatment	1																					
2																										
3																										
4																										
Water Distribution	1																									
	2																									
Wastewater Treatment	1																									
	2																									
	3																									
	4																									
Wastewater Collection	1																									
	2																									
Utility Manager	1																									
Training of Trainers (TOT)	1																									
OJ PI Coaching for Managers	1																									
Jordan	Yarmouk Water Company/North			Water Treatment	1																					
		2																								
		3																								
		4																								
		Water Distribution	1																							
			2																							
		Wastewater Treatment	1																							
			2																							
			3																							
			4																							
		Wastewater Collection	1																							
			2																							
		Utility Manager	1																							
		Training of Trainers (TOT)	1																							
		OJ PI Coaching for Managers	1																							

