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OPERATIONS AND MAINTENANCE  
TRAINING PROJECT

# DELAWARE TECHNICAL AND COMMUNITY COLLEGE (DTCC) COMPLETION REPORT

USAID OPERATIONS AND MAINTENANCE TRAINING PROJECT

**OCTOBER 2009**

This publication was produced for review by the United States Agency for International Development. It was prepared by OMT Subcontractor Delaware Technical and Community College (DTCC) a subcontractor to Prime Contractor, Chemonics International.



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**Contract No. EPP-I-00-04-00020-00**

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## EXECUTIVE SUMMARY

This report covers the four contractual assignments of the OMT Subcontractor Delaware Technical and Community College (DTCC) that were conducted during the months of November 2008 to October 2009. The four assignments were:

### 1. Policy Design Program:

In November 2008, two DTCC Specialists, Ms. Carla Stone, and Mr. Jerry Williams, and two resource specialists in water sector certification, Mr. Osama Amad, and Mr. Ghaleb Akari assisted the OMT project in formulating the policies and regulations required to establish a certification and training program for the water and wastewater treatment operators in Jordan.

Through multiple working sessions, water sector stakeholders in Jordan from the Water Authority of Jordan, the three water companies, and members of the OMT team drafted the initial version of the Operator Certification Policy. That policy was presented in a stakeholder workshop held on 19 November 2008 for review and comment.

### 2. Water and Wastewater Treatment Training Curricula Outlines:

In February 2009, two DTCC Specialists, Mr. Jerry Williams and Mr. Steve Rohm traveled to Amman to work on developing appropriate training curriculum outlines required to define the content of the certification training program. DTCC presented the supporting coursework used to prepare water and wastewater operations personnel for State certification exams in Delaware. The OMT Project and its Jordanian client found the Delaware model ideal for adaptation to the needs in Jordan. DTCC led a group of Jordanian technical experts in the adaptation and customization of training objectives and content to suit the training and certification needs of operations personnel in Jordan.

### 3. Water and Wastewater Treatment Certification and Testing Methods:

In July 2009, one DTCC master instructor, Mr. Steve Rohm, traveled to Amman to work with the OMT team on developing appropriate certification tests and methods for water and wastewater treatment operators.

A workshop emphasized the link between each learning objective and the test questions related to that objective, as well as the “dos and don’ts” of test question development.

Mr. Rohm also participated in a workshop to show the relationships between test development, program evaluation and instructional systems development. Mr. Rohm also worked with the team in refining the Water Operator Training Curriculum Outline that was developed during the second DTCC assignment.

### 4. Observational Study Tour for the Jordanian Certification Partners:

An Observational Study Tour (OST) was prepared and conducted during the week of October 19 – October 23 by the OMT project and DTCC. Six Jordanians representing the institutional partners involved in the certification program, the USAID COTR for the OMT Project, and the OMT Program Director participated in the OST. The major objective of the OST was to examine models of operator certification systems and certification policy by meeting with certification boards, counterparts and experts at the regional offices of the US Environmental Protection Agency, the state of Delaware wastewater regulatory agencies, and local water and wastewater facilities.

A follow-up meeting was held back in Jordan to review the tour, discuss the different observations based on experiences, and discuss the lessons learned. The group was introduced to a summary of the Certification Capacity Building Action Plan to be implemented by the different partners of the Jordanian Certification Program. The trip was considered a success by the participants.

## ACTIVITY REPORT I: POLICY DESIGN PROGRAM

As part of a United States Agency for International Agency (USAID) funded OMT program to assist Jordan with establishing a system to certify and recertify water and wastewater operators and to train and retrain operators to meet these certification requirements, Jerry Williams, Carla Stone, Osama Amad, and Ghaleb Akari traveled to Jordan to conduct four Working Sessions and One Workshop relating to Operator Certification Program Design and Policy Development.

Beneficiaries for these technical assistance activities included stakeholder representatives from Jordanian government agencies, Jordanian municipal water/wastewater companies, Jordanian private sector partners, USAID and other international donor agencies (Attachment).

These activities resulted in the following outcomes;

- Increased the Jordanian stakeholders' understanding of the necessity for water/wastewater operator certification.
- Consensus established among stakeholders as to the success factors for certification in Jordan; the requirements to develop and implement a successful certification scheme including a legislative/regulatory framework, education/training framework, stakeholder support; sustainability; and, the key certification policy issues necessary to implement a program in Jordan and the region.
- Communication facilitated among stakeholder representatives by providing a common terminology and shared vision for the certification of water/wastewater operators, regulations and policy.
- Selection of a model (General Cross-Training Model) for certification and training to be used in Jordan.
- A draft set of policy statements/articles for water/wastewater operator certification, recertification and training; legal framework in Jordan; and certification program administration and support.
- A draft certification policy document and related regulation to meet the guidelines established during the working groups and results workshop.

### **Goals and Objectives - Certification policy and regulations drafted in collaboration with stakeholders/counterparts**

- Increase general awareness of water and wastewater operator certification and its role in improving public health, the environment, facility performance and economics, and labor mobility
- Increase understanding among stakeholders of components of certification and the collaboration needed among stakeholders to achieve steps necessary to attain success
- Increase understanding of the economic, demographic and educational factors that influence the selection of a certification model and training under that model
- Increase understanding of the components of sustainability (self-financing)
- Determine the most appropriate model for operator certification in Jordan

- Develop consensus among stakeholders concerning the certification policy and the regulations needed to meet the policy's guidelines
- Achieve consensus among stakeholders as to the factors for success necessary in a certification policy

### **Tasks Accomplished**

The OMT Team conducted four Working Sessions with Jordanian stakeholders on Jordan Operator Certification Program Design and Policy Development. Each Working Session consisted of PowerPoint presentations from the OMT team, facilitated group discussions, and question and answer sessions.

All session participants received a copy of the PowerPoint presentations and a binder of reference materials (Attached) prepared by Delaware Technical & Community College (DTCC) that included relevant regulations for the licensing of operators of public water supply systems and operators of wastewater facilities, sample "need to know" criteria; sample applications for testing, licensing, pre-approval of training; and the descriptions for appropriate courses offered by Delaware Tech. Participants also received handouts capturing the previous day's results and conclusions.

- **Session 1: Components of a Successful Certification Program.** The team presented and explained the overall process of certification and steps to achieve success. These include: Regulatory/Legislative framework, educational/training framework, and stakeholder consensus. Three key models of certification used in the United States with their advantages, disadvantages, and the failure/pass rates associated with each model were presented. Training options associated with each model of certification used in the United States were explained to increase understanding of certification education classes, in-class tests, final examinations and re-certification requirements.
  - **Outcome:** At the end of the session, participants defined their goals for Jordan's certification programs. The OMT team captured participant inputs and organized them into Factors for Success. The participants agreed that the General Cross-Training Model would be the best training approach for use in Jordan.
- **Session 2: Design of a Certification Program.** To improve communication among stakeholders and establish a base for the policy development, OMT presented and defined terminology relevant to water and wastewater operator certification. The history of water/wastewater operator certification in the USA and Delaware was presented with emphasis on the driving legislative and environmental forces that resulted in the establishment of operator certification. As a model, OMT showed how training programs were developed in Delaware and why this training system has been successful and supportive of a thriving operator certification scheme.

- **Outcome:** By the end of the session, the participants understood relevant terminology of certification; were able to define the driving force/rationale for water and wastewater operator certification in Jordan; understood the relationship between a successful certification training provider and the achievement of a successful certification program. Based on Jordanian training and educational capabilities, the team were able to present training provider options that might be used in Jordan to meet certification goals and objectives
  
- **Session 3: Regulations: Components of a Successful Certification Program.** The OMT Team presented the components of the Delaware certification regulations, licensing requirements and classifications as a model. It included the authority and purpose of the certification program, the make-up and duties of the Board of Certification, the operator licensing requirements, and the classification of the facilities and the operators. The OMT team split the participants into two groups to study and comment on a set of draft Certification Policy Statements that had been prepared by an ad hoc group of concerned donor representatives and consultants. Each group presented its results, concerns and level of agreement with each draft policy statement. The OMT team recorded the discussions and the additions, deletions and modifications suggested for each draft policy statement.
  - **Outcome:** Participants demonstrated their understanding of certification policy issues. They made changes in and reached consensus on the set of draft Certification Policy Statements.
  
- **Session 4: Major Issues Affecting the Development and Sustainability of Operator Certification Policy in Jordan.** The team presented the major factors to be considered in developing a workable and sustainable operator certification scheme in Jordan including staff demographics and educational attainment; water/wastewater treatment facility type, size, location, number and concentration; funding requirements, support and international relationships. The components of sustainability (a self-financing program that maintains or exceeds the quality and quantity of training – after initial donor support is fulfilled), and how certification programs are successfully sustained in the USA were discussed. Sustainability options that Jordan may consider were discussed. The team facilitated a group exercise in which participants were asked to list the major issues affecting policy development and sustainability in Jordan and to rank the importance of these issues.
  - **Outcome:** Participants reached consensus on the issues and priorities in Jordan that will affect the development and sustainability of a local certification scheme. Participants urged the following actions:
    - Develop a regulation requiring mandatory operator certification and recertification

- Finalize Institutional Framework and MOUs with partners
- Form Board of Certification
  - Finalize certification regulations
  - Approve Operator Need-to-know criteria
  - Approve curricula (content/levels), courses and tests
  - Implement Train of Trainers Program
- Fast Track - Conduct pilot certification training and testing programs as soon as possible
- Develop a realistic Certification Program Sustainability Plan
- Finalize database of all W/WW facilities which include: Process, location, flow, operators
- Increase awareness of certification for operators and stakeholders
- Encourage companies to link incentives to certification

### **Policy Design-Results Workshop**

- 19 November 2008; 9 am to 2 pm
- Grand Hyatt Amman

### **Objectives:**

- Introduce OMT Project – Scope & Work Plan
- Build Awareness and Understanding of Operator Certification
- Define Certification Policy Framework for Jordan (Draft)
- Plan Next Steps

### **Proceedings:**

Munir Oweis/SG-WAJ – Welcoming Remarks

Ross Hagan/USAID – Capacity Building for W/WW Sector

#### **OMT Project**

- Overview - H. Sokoloff
- Institutional Framework - Progress - Aiman Bani Hani

#### **DTCC – W/WW Certification Program & Policy for Jordan**

- Part 1 – Awareness – ‘What is Certification?’
- Part 2 – Success Factors for Jordan/Region – Attributes derived from participant inputs

#### **DTCC Bulgaria Video**

- Part 3 – Proposed Policy Framework – Legal, Program, Administration, Support
- Part 4 Recommendations – Priorities; Actions

**Outcomes:**

- Awareness & Understanding raised regarding W/WW Certification & Training Programs
- Success Factors defined for a W/WW Certification & Training Program in Jordan
- Consensus achieved for Water and Wastewater Operator Certification Policy Framework for Jordan
- Recommendations for Program Implementation

## **ACTIVITY REPORT 2: WATER & WASTEWATER TREATMENT TRAINING CURRICULA OUTLINES**

### **Summary:**

This contractual visit was a venue for presentation of the supporting coursework developed by DTCC to prepare water and Wastewater operations personnel for State certification exams in Delaware. The course work is designed with progressive difficulty so that the potential candidate can prepare for the progressive skills needed to pass certification exams at four levels. The certification and training coursework has received international acclaim. Chemonics and their Jordanian client found the Delaware model ideal for adaptation and use in Jordan. Presenting the details of the training program was the focus of several workshops and meetings within the scope of this trip. We prepared the Jordanian water and wastewater officials to adapt the course objectives to suit the training and certification needs of operations personnel in Jordan.

### **Purpose:**

As subcontractor to Chemonics, present the Delaware Water and Wastewater Certification program in conjunction with the Delaware Technical and Community College Water Courses and Wastewater Course to Jordanian Water and Wastewater officials, appointed by the Jordanian Ministry of the Environment, for adoption and adaptation.

### **Background:**

This visit was the result of a previous trip in which the Delaware model of water and wastewater certification program and supportive coursework was introduced as a possible program to meet the Jordanian Ministry of the Environment's desire to create such a program. The result of the previous work created the need for the intensive follow-up visit.

### **Tasks Accomplished:**

- Prepared specific presentations and documentation for delivery at several water and wastewater training workshops.
- Presented the Delaware Base Level Water and Water Endorsement course objectives to the appointed Jordanian Water officials at two workshops.
- Presented the Delaware Wastewater Training (Levels 1 – 4) objectives to the appointed Jordanian Wastewater officials at three workshops.
- Worked with the Water/Wastewater expert and Personnel/Training representative of Chemonics in restructuring all DTCC water courses into Levels 1-4 based on feedback received from Jordanian participants.
- Provided an interim training product for further Jordanian review and adaptation
- Conducted intensive explanation and review with the OMT staff on the use of DTCC student materials, tapes, etc. in certification courses.

**Tasks to be Accomplished:**

- Review and comment on the Jordanian adapted Water and Wastewater course objectives that will be prepared as a result of the above workshops and product development.

**Lessons Learned:**

- Jordan is small in comparison to many of its neighboring nations and parallels Delaware in respective size where a national trade certification program may be more easily managed.
- The Jordanian water and wastewater operators generally are composed of high-level professionals and minimally trained labor. Training and certification will create a middle tier of operators that will ensure a qualified workforce for Jordan's growing water and wastewater industry.

## **ACTIVITY REPORT 3: WATER & WASTEWATER TREATMENT CERTIFICATION AND TESTING METHODS**

### **Goals**

- One Delaware Technical & Community College instructor shall travel to Jordan for 8 working days plus 2 travel days for a total of 10 days to work with OMT management and the stakeholder/counterpart group on appropriate certification tests and testing methods.
- Delaware Technical & Community College personnel will also coordinate with OMT staff to plan the upcoming Observational Study Tour expected in Fall, 2009.

### **Summary of Tasks Accomplished:**

- Deb Horton, a consultant with Chemonics, held an Instructional System Design (ISD) workshop with the Chemonics /Al-Balqa' University team during the first part of the week. Howard Sokoloff asked Delaware Tech to incorporate some of this material into the workshop given by Steve Rohm. To that end, Steve Rohm met with Deb Horton to identify synergies between the two presentations and to determine the best way to reinforce critical concepts. The review resulted in a decision to reinforce the ISD material that focused on program and student evaluations. The objective was to help the team make connections between Delaware Tech's approach to test development and program evaluation and the ISD material learned earlier in the week.
- Based on discussions with Chemonics team members, Steve Rohm updated workshop material.
- Steve Rohm conducted a workshop on methods and approaches to developing certification and in-class tests.
- At the end of the workshop, participants were better able to explain how in-class and certification tests for water and wastewater operators are developed and administered. Additionally, participants learned monitoring and evaluation methods for program quality control.

### **Summary of Tasks to be Accomplished:**

- Meet with Chemonics staff to review material and identify approach to incorporate the Instructional Design Methods taught by Deb Horton into the DTCC presentation
- Based on discussions with Chemonics team members, update workshop material
- Conduct workshop on methods of developing and administering both in-class assessments and certification tests
- Review and Update Water Operator training curriculum prepared by Chemonics and provide feedback
- Plan upcoming Observational Study Tour

### **The participants included:**

- 1) Dr. Jamal Radaydeh, Al-Balqa' University
- 2) Dr. Bassim Abbassi, Al-Balqa' University
- 3) Dr. Saqer Salem, Engicon
- 4) Eng. Abdel Rahman Al-Omari, Engicon
- 5) Abdus Salam Kamal, Engicon
- 6) Stephen Rohm, OMT Project/Delaware Technical & Community College
- 7) Husni Olama, OMT Project
- 8) Majed Alqutaishat, OMT Project
- 9) Zaid Jabarin, OMT Project

### **Workshop Summary:**

- Steve Rohm presented Delaware Technical & Community College and State of Delaware Water and Wastewater Board processes that spanned student preparation, certification testing and the awarding of certificates. Critical areas highlighted include test security, statistical evaluation and evaluation of the program.
- Steve Rohm included information from Deb Horton's Instruction System Design protocol for program and student evaluation. Appropriate frequency and evaluation methods were discussed.
- There were a number of questions about the methodology for determining the actual content areas for training and certification
- Workshop evaluation forms were distributed. Four evaluations were returned (see attached.) The use of the evaluation form served two purposes; it provided an actual evaluation of the effectiveness and relevance of the workshop; it provided an example of how to obtain feedback from trainees to help improve the program.
- As per a request from the Chemonics team, Steve reviewed and amended the Water Certification objectives and curriculum outline based on input from Deb Horton.
- Based on discussion with Steve Rohm and Chemonics team members, detailed plans and goals for the Observational Study Tour were updated.

### **Lessons Learned:**

- The curriculum and test development teams should continue to determine the differences between the Jordanian infrastructure and the Delaware infrastructure in order to successfully adapt the models, methods and materials developed with Delaware Tech.
- Just as Delaware uses a more specific approach to content areas, focusing only those relevant to our geology and methods, the Jordanians will continue to customize the content of their certification tests to focus on country specific issues. The materials provided by Delaware Tech will serve as a model that can be customized to meet the country's needs

**Next Steps:**

- Jordan Water and Wastewater Certification committee will use the Delaware model and experience as guidance in development of Jordanian certification, testing and licensing practices. Many of the critical elements are already contained in the draft document prepared with Delaware Tech during prior visits.

Some of the formal ISD processes discussed in Deb Horton's workshops and reiterated in the Delaware Tech workshop led by Steve Rohm will be incorporated into the current documents.

## ACTIVITY REPORT 4: OBSERVATIONAL STUDY TOUR (OST) FOR JORDANIAN CERTIFICATION PARTNERS

### Activity Background:

An observational study tour (OST) will be conducted for concerned participants from Jordan to examine: models of operator certification systems and certification policy by meeting with Certification Boards, counterparts and experts at the regional offices of the US Environmental Protection Agency; the state of Delaware wastewater regulatory agencies; and local water and wastewater facilities. They will also learn how a successful training center functions by visiting the Environmental Training Center at DTCC."

**OST Date:** Oct 19th – Oct. 23rd, 2009

**Participants:** 6 Jordanian from Certification program partners, 1 from OMT Project, 1 USAID OMT Project COTR, 1 from Chemonics

### Methodology

OMT designed the OST over 3 major stages in order to implement the OST process accurately;

- I. OST Action Plan Preparation Stage: OMT developed an action plan to monitor and prepare the OST to comply with USAID Training Procedures and a proposed time schedule as follows:

<b>Action</b>	<b>Date/ Due</b>	<b>By*</b>	<b>Notes</b>
Discussing USAID Training Procedures with KA	14 <sup>th</sup> June	MQ, EM	<b>Completed</b>
Finalizing the List of OST Participants	16 <sup>th</sup> June	MQ	<p>-within the meeting MQ and ABH with MWI SG , her Excellency delegated HRD Director (Z.Darwish) to name a candidate</p> <p>-ABH contacted Darwish many times and finally we arranged a meeting with him on Wednesday 17<sup>th</sup> Jun. <b>(Meeting is Done)</b></p> <p>-VTC GM is outside Jordan and ABH arranged to meet us on Sunday 21<sup>st</sup> Jun to nominate a candidate(delayed to another appointment will be on Thursday Jun.25 ) - <b>Done</b></p> <p>- We will continue #3 with the selected candidates from BAU,</p>

<b>Action</b>	<b>Date/ Due</b>	<b>By*</b>	<b>Notes</b>
			Miyahuna and WMZM in order to invest time  - MWI SG nominated Ziad Darwish <b>(21<sup>st</sup> Jun)</b>
<ul style="list-style-type: none"> <li>Collect copies of Participant Passports,</li> <li>Check for US citizenship , permanent resident and green card registration for participants</li> <li>Notice of Current work issued by Participants Employer</li> </ul>	18 <sup>th</sup> June	MQ	- Miyahuna, WMZM and BAU and participants <b>(completed on 17<sup>th</sup> Jun)</b>  - MWI Participant <b>(completed on 21<sup>st</sup> Jun)</b>  -Nominating VTC participant still pending upon the delayed mentioned above. <b>(Completed Jun. 28)</b>
Issuing security determination letter for participants	22 <sup>nd</sup> June	HO, MQ, EM	- In progress <b>(drafted 28<sup>th</sup> Jun)</b> - <b>Completed</b> by 8 <sup>th</sup> July
Fill out the checklist form for each participant	22 <sup>nd</sup> June	MQ, EM	-In progress <b>(drafted 29<sup>th</sup> June)</b> <b>Completed</b> by 8 <sup>th</sup> July.  -Overview progress with KA and provide here with Checklist form, copy of passports and security determination letter <b>(Completed by 9<sup>th</sup> July)</b>
Fill J-1 Visa (DS 157 or DS 158) application form by participants	23 <sup>rd</sup> June	MQ, Participants	- In progress <b>(9<sup>th</sup> July)</b> - <b>Completed by 28<sup>th</sup> July</b>
Agree the conditions of sponsorship for J-1 visa holders	24 <sup>th</sup> June	MQ, Participants	- In progress <b>(9<sup>th</sup> July)</b> - <b>Completed by 29<sup>th</sup> July</b>
Medical Waiver/Participants Commitment	24 <sup>th</sup> June	MQ, EM	- In progress <b>(9<sup>th</sup> July)</b> - <b>Completed by 29<sup>th</sup> July</b>
English Language Proficiency waiver	28 <sup>th</sup> June	MQ, EM	- In progress <b>(9<sup>th</sup> July)</b> - <b>Completed by 28<sup>th</sup> July</b>
Issuing letter to CTO by Chemonics to approve the OST Program and the participants with covering all the program expenses	28 <sup>th</sup> June	MQ,EM	- In progress <b>(9<sup>th</sup> July)</b> - <b>Completed by 27<sup>th</sup> July</b>
HAC insurance Enrollment	28 <sup>th</sup> June	MQ,EM	- In progress <b>(9<sup>th</sup> July)</b> - <b>Completed by 27<sup>th</sup> July</b>
Reviewing Progress with KA and arrange for Embassy interviews and issuance of DS-2019 form	30 <sup>th</sup> June	MQ, EM	- <b>Completed by 27<sup>th</sup> July</b> - Interviews arranged <b>to be on Tuesday 28<sup>th</sup> July and Wednesday 29<sup>th</sup> July ( completed and the Participants Visas were issued)</b>
<ul style="list-style-type: none"> <li>Provide Pre-departure orientation to</li> </ul>	13 <sup>th</sup> Oct	HO, MQ, EM, Participants	<b>Done</b>

<b>Action</b>	<b>Date/ Due</b>	<b>By*</b>	<b>Notes</b>
participants in order to present and discuss: the final OST Agenda / Schedule, Travel arrangements, answer participant's questions and any related matter arises.			
Traveling to US	17 <sup>th</sup> – 24 <sup>th</sup> Oct	HO, Participants	<b>Done</b>

\*NB: **MQ** (Majed Qutaishat), **EM** (Elham Musa), **HO** (Husni Olama), and **KA** (Kenana Amin-USAID)

## 2. OST implementation stage by DTCC:

### **Goals:**

The goal for this activity was for DTCC to host an Observational Study Tour for Jordanian representatives from the Ministry of Water, Ministry of Labor, Certification Training Organization, Al-Balqa' Applied University as well as several representatives from the Chemonics OMT project. By the end of the Study Tour:

- The participants will understand Delaware and Maryland models of operator certification systems and certification policy.
- Participants will understand methods of organizing, administering, recording, and marketing, a certification training program
- Participants will understand the interrelationships between the certifying bodies, the training organizations and the governmental agencies

### **Summary of Tasks Accomplished:**

- The following are the participants from Jordan and Chemonics:
  - Mr. Ziad Darwish Hafez Taqash
  - Mr. Samih Tawfiq Samih Al Amad
  - Mr. (Mohammad Khair) Awad Abdulla Irshaid
  - Mr. Riyadh Mahmoud Yousef Nassar
  - Mr. Ziad Salem Hussain Abu-Hamatteh
  - Mr. Bassim Eid Ibrahim Abbassi
  - Dr. Aiman Bani Hani
  - Mr. Husni Olama
  - Ms. Parasto Hamed

### **Summary of Tasks to be Accomplished:**

- Provide participants with the opportunity to meet with Delaware Water and Wastewater Boards
- Attend a meeting with, and presentation by, a key representative of the United States Environmental Protection Agency (USEPA) Region 3

- Comprehensive tours of local water and wastewater facilities
- Meet with State of Delaware wastewater regulatory agencies
- Observe the operation of a successful training center by visiting the Environmental Training Center at DTCC.
- **Saturday, October 17 and Sunday, October 18th**
  - The participants arrived on Saturday, October 17, 2009. On Sunday October 18, 2009, they met with Mr. Jerry Williams, Chairman of the Environmental Training Department and Mr. Dave Ennis, Educational Training Specialist and received an informal tour of the Rehoboth area

- **Monday October 19, 2009** – Delaware Technical & Community College, Georgetown, DE

- Participants met with Dr. Ileana Smith, Vice President and Owens Campus Director. We discussed our mutual interest in both the environment and in encouraging a productive exchange between Jordan and Delaware Technical & Community College. Participants received a tour of the campus and returned to the Environmental Training Center.
- Participants were able to observe a “Valves” certification class in progress
- Representatives of Delaware Tech’s various support organization provided presentations on the administration, marketing, registration and budgeting of a certification training program
- The following questions were raised:
  - What drives creation of new courses? – Labor Market demands, new technologies and new regulations
  - How are new courses approved? – Developed through Delaware Tech and the course descriptions, outlines and objectives are reviewed by the various certifying boards for approval for continuing education credits
  - How do you know the training works? How do you define ROI? What are the measures? – The ultimate measure is higher quality drinking water, the interim measures include reduction in number and severity of plant violations, pass rates on exams,



Dr. Ileana Smith, DTCC VP & Owens Campus Director welcomes OST Participants



OST Participants reviewing with ETC Director certification administration, and registration.



OST Participants visiting the city of Wilmington Water Works Plant

- number of students completing the programs successfully
- How is tuition paid? Many students get funded through both government grants and publicly and privately funded scholarships. Partnerships with the largest local companies provides some funding

- **Tuesday October 20, 2009**– City of Wilmington – (the largest city in Delaware)
  - OST participants met with James Baker, Mayor of Wilmington and his Public Works Director.
  - Toured the city of Wilmington Water Works plant
  - Toured the city of Wilmington Wastewater Works

Met with Wastewater Superintendent Art Fagerstrom and discussions ensued regarding management of municipal facilities



OST Participants meeting with Wastewater Superintendent

- **Wednesday October 21, 2009** – Philadelphia, PA  
Environmental Protection Agency Region III Headquarters
  - Met with r. Jim Kern, Office of Infrastructure and Assistance
  - Addressed by Mr. Jim Newsom, Acting Deputy Administrator EPA Region III
  - Presentation by Mr. Jim Kern and by Mr. Robert Chomski, Deputy Associate Director for Office of Infrastructure and Assistance, explaining the role and authority of the Federal EPA. Mr. Kern detailed how the EPA both assists and interfaces with the State of Delaware Regulators (Delaware Natural Resources & Environmental Control) and with Delaware Technical & Community College. This has included special funds to assist Delaware Tech in developing additional trained and certified water operators.
  - Mr. Kern’s presentation indicated that Delaware is ahead of some of its neighboring states in the area of providing a comprehensive water operator training and certification program. He highlighted the benefits of the partnership between the EPA, DNREC, Delaware Dept. of Health and Social Services Office of Drinking Water and Delaware Tech
  - There was a great deal of interaction and questions regarding the impact of requiring training programs upon the labor force. While there was an initial drop in the number of operators, the workforce is strong.

- **Thursday, October 22, 2009** – Dover, DE (State’s Capitol)
  - Met with members of the Delaware Water and Wastewater Boards at the DNREC office. These are the certifying bodies for the various levels of water and wastewater operator. In attendance from Delaware:
    - Mr. Glenn Davis DNREC, Division of Water Resources and Board member for Wastewater Operators
    - Mr. Peder Hansen DNREC, Division of Water Resources and Board member for Wastewater Operators
    - Mr. Ed Hollock, Program Administrator Department of Health, Office of Drinking Water and Board member for Water Operator Certification
    - Mr. Terry Pinder, Department of Health Drinking Water Office and Administrator for the Certification of Board for Water Operations
    - Mr. Katie Wirick DNREC, Division of Water Resources and Administrator for the Certification Board for Wastewater Operators
  - All board members described the close working relationship and cooperation between the Certification Boards and Delaware Tech. They emphasized that one of the main reasons for success of the Operator Certification programs in Delaware is the close coordination between the various departments of the state government and Delaware Tech.
- The OST participants toured the state Legislative Hall. In the Senate Chamber Senator Harris McDowell III, who is also Chairman of The International Council of Delaware, presented them with Tributes from the Delaware Senate.



OST Participants met with members of the Delaware Water and Wastewater Boards at the DNREC office.

- Met with Mr. Jerry Esposito, President of Tidewater Utilities. Mr. Esposito and several of his senior staff members provided a thorough briefing on how their private utility works as a water supplier and wastewater management group within the Delaware system.
- The Tidewater management team and the OST Participants then traveled to a community near Rehoboth, DE for a 2-hour tour the new small community-based wastewater treatment plant.



OST participants visiting Tidewater Utilities

- **Friday, October 23, 2009** – Delaware Technical & Community College
  - Presentation of “Introduction to Wastewater Treatment” by Mr. Joe Mulrooney.
  - Presentations by, and discussions with State of Maryland Water and Wastewater Board technical personnel, Mr. Lee Haskins, Mr. William Robinson and Mr. Steve Rohm
  - “Introduction to Washington, DC Suburban Sanitary Commission” by Wastewater Superintendent, Mr. Osama Amad.
  - Toured Environmental Training Center special labs and Onsite outdoor demonstration lab.
  - Overview of recertification courses with Mr. Steve Rohm
  - Overview of contract training and Asset Management with Mr. Bob Norcross and Ms. Carol Woodruff



Attending a presentation on “Introduction to Wastewater Treatment”



State of Maryland W&WW Board presentation

### **Lessons Learned:**

- Extensive discussions regarding the mechanics of setting up and administering certification programs helped to identify next steps for the Jordanian system
- The approaches to certification in Delaware need to be adapted to the Jordanian systems which have a complex management
- Motivation and ROI to encourage participation in these programs in Jordan may require a combination of regulations, rewards and penalties

### **Next Steps:**

- Identify and draft additional regulations regarding the process of certification
- Develop infrastructure to implement and maintain ongoing updates to certification requirements

### **Certification happenings:**

Newsletter for Licensed Wastewater Operations in the State of Delaware (Volume I, Issue 4, Page 3), Mentioned the Jordanian visit to DTCC and present a summary about OST.(See appendix A)

3. OST follow up Stage: On Tuesday 3rd of November , OMT Project held a wrap up meeting to OST participants in presence of USAID OMT project COTR to:
  - Discuss the inter-relationship between Certification and HR/Training/Administration before and after the OST (brain storming Session)
  - Discuss and review the OST lessons learned
  - Present the draft of Capacity Building Action Plan to the certification partners to set a scheduled plan to discuss it with the partners (OST Participants) in order to start the implementation phase jointly.
  - USAID OMT Project COTR suggests having a second OST after starting the capacity Building Action Plan implementation in order to refresh and enrich the participants' knowledge and familiarization to the Certification systems in US.

**Recommendations:**

In reference to the OST in October 2009, and the follow up meeting discussion, OMT Project recommends the following:

- Consider the OST lessons learned to be one of our major tasks to be achieved
- Arrange scheduled meetings with participants to review the Capacity Building Action Plan to start the implementation Phase with focusing on their knowledge in certification systems they got it from OST - DTCC.
- Consider the suggestion of USAID OMT Project COTR that mentioned in Stage three, by sending the Partners participants to have another OST to developing their familiarization and knowledge on Certification Systems to enrich their experience and performance.
- Keep this report as a guide/reference for preparing the OST Training in the future to be more efficient.

### **List of References:**

The following documents are available, and can be requested from the OMT e-mail address: [info@omt-jordan.org](mailto:info@omt-jordan.org)

- OMT Policy Framework
- Water Curriculum Outline
- Wastewater Curriculum Outline
- OST Materials (Handouts)