ENERGY1
TECHNICAL CONSULTANCY FOR ENERGY & UTILITIES

Water & Water treatment series

Advanced Non-Revenue Water Reduction & Management (NRW)

Learn intensive and comprehensive examination of water loss reduction techniques, state of the art monitoring and analysis tools, and how to execute real and lasting change within water organizations.

2nd – 4th Oct 2017 | Kuala Lumpur, Malaysia

In Collaboration with:

WEE Pros
Water. Energy. Environment

Member of German Water Partnership

Member of DWA
Clear Concepts. Clean Environment.

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Advanced Non- Revenue Water Reduction and Management (3 Days)

In Southeast Asia (SEA), 5 major challenges are identified in water utility sectors, comprising environmental and social challenges, high percentage of non-revenue water (NRW), underdeveloped water utility infrastructure, growing expenditure on water utility, and lack of investments. One of the major issues affecting water utilities in the SEA developing countries is the high percentage of non-revenue water (NRW). NRW loss is averaged at 40 per cent (subject to millions of dollars) due to longstanding issue such as leakages, burst pipes and theft.

The 3 days advanced course aims at enhancing the participant's technical and managerial skills for improving their operational knowledge in order to enhance the financial and environmental sustainability of the water utility.

This training course aims at familiarizing the participants with the main causes of the physical and commercial/ administrative water losses in the water utilities. It is also designed to provide technical solutions and possible opportunities to overcome the water losses particularly the administrative water losses in the billing and collection region and in the water systems. Adding to that, the participants will be trained on the International Water Association (IWA) concept for non-revenue water (NRW) management, establishment of DMAs, calculation of minimum night flow and water balance.

Our Advanced Non-Revenue Water Management is uniquely customized for tackling far-reaching water issues faced in Asia and around the globe. Our course is unique in a number of ways:

Tackling water loss and NRW issues from the utility's perspective:
Our water loss expert has worked within and with utilities to study and evaluate water loss, and promote and plan actions, often with few resources available, as expected from most water utilities, but with the vision of steady progress towards success in NRW reduction. Our approach is delivered with a keen sense of understanding the political, financial, and social pressures the utilities face every day.

Presenting a comprehensive view of a wide range of advanced NRW management specialties:
Our water loss expert has personally worked and contributed in the fields of engineering, metering, water auditing, training, monitoring, planning, management, leak detection, pressure management, and unauthorized water detection. We support and promote the methodologies laid out by the IWA Water Loss Specialist group, and present it in a comprehensive way that includes the latest advancement in metering and commercial loss reduction.

Training Course Methodology
This training program is lecture-based and customized to the needs of EWA, providing meaningful experience for major topics for management of administrative water losses. Daily sessions include formal presentation, prepared in the Power Point, interspersed with directed discussion and case studies. In addition to formal lectures and discussions, the delegates will learn by active participation through the use of self-assessment, group discussions, analysis of real-life case studies.

MASTER the necessary knowledge and complexities of:

- Using a systematic and a scientific approach for defining the specific needs and targets for any water system and be able to prepare a feasibility study and submit a proposal for funding.
- Establishing long-term monitoring and management of the water system while integrating data from CIS, GIS, SCADA, and MMS.
- Recommending and selecting basic and advanced solutions for reducing physical (real) losses / commercial (apparent) losses.
- Understanding the bigger picture and the current state of the art solutions.
- This course is based on international experience, and therefore offers workarounds and substitutes for high-income, low-income, continuous, and intermittent water supply conditions.
- This course will provide experienced professionals with the insights needed to determine feasible and applicable solutions among the many available commercially.
- This course covers a wide scope of topics, from leak detection to asset management. This will help expand the horizons and widen the scope of expertise to include advancements in GIS, asset management, advanced pressure modulation, AMI, and process analysis.

DURING THE 3 DAY SEMINAR participants will be invited to interact and perform calculations and draw conclusions. The examples given will not require intense maths.

- DMA design: Each group will be given a map and asked to design NRW management infrastructure.
- MNF analysis: Each group will be given monitoring data samples and asked to calculate different performance indicators.
- Commercial analysis: Each group will be given a hypothetical utility technical and financial data and guided through preparing a feasibility analysis and an improvement plan.

This program is intended for:

- Engineers who deal with customers and meter readers on a daily basis
- Senior and middle managers responsible for development of strategies NRW reduction from water utilities and local / municipal authorities / Water service providers.
- NRW Executive / engineers/ senior engineers
- Consultants
- Water and waste water engineering/services companies.
- Engineering firms
- Technology providers.

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DAY 1

Introduction

- Welcoming the participants
- Expected outcomes

Measuring and analyzing NRW

- IWA Water Balance
- DMA Design & Monitoring
- Minimum Night Flow Analysis
- Breaks and Background Leakage (BABE) Concepts for estimating physical (real) losses
- Pressure relationship to leakage and bursts, and the Fixed And Variable Area Discharge calculations
- Meter accuracy testing methods in-situ and in the test bench
- Economical Level of NRW
- Financial modeling of NRW reduction
- **Case Studies**

Case Study 1: The EU funded AQUAKNIGHT project implemented pilots in five countries: Italy, Egypt, Jordan, Tunisia, and Cyprus. Mr. Al Shafey led the work in Jordan, and IWA Water Loss implementation of good practices for analyzing the constituents of water loss before and after reduction. The project included the calculations of leakage, meter under-registration, and unauthorized consumption.

Case Study 2: Aqaba Water Economic level of NRW has been a unique study implemented by Alan Wyatt and Mohammed Shafei and based on the model first published by Alan Wyatt and RTI International. The financial analysis has been later implemented for securing funding for Aqaba Water NRW action plan. The financial analysis has been developed further by Mr.Shafei by performing field testing to better calibrate the financial model using the technical measurement of the lower bounds of leaks and commercial losses that can be reduced. The total budget of the action plan being carried out is over $20,000,000 that serve to reshape Aqaba City supply in technically and financially feasible ways into a leading utility in NRW management.

DAY 2

Effective reduction of leakage

- Leak detection under challenging conditions
- Integrating leakage reduction with existing infrastructure works
- Design specifications for optimal pressure management
- Automatic control and modulation of pressure using flow, critical point, and time modulation (example: i2O case study)
- Use of hydraulic modeling in pressure management, and the analysis of transients
- Leakage localization using modern online monitoring of leak sound and remote correlation using noise loggers
- Online hydraulic monitoring of water networks using GIS and SCADA applications (example: Innovyze case study)
- Integration
- Design specifications for Intermittent Water Supply conditions
- Customizing actions for rural areas

Case Study: Reducing leakage in Aqaba City has involved the creation of new design specifications that can be applied at the lowest costs to ensure the monitoring and reduction of leakage. The intervention includes locally customized leak detection surveys, pressure reduction to the lowest feasible limits, and other details use by Mr. Shafey in his work. Results of before and after, and design specifications and tips on applying these concepts across utilities in SEA.

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DAY 3

Effective reduction of commercial losses

- Customer meter selection, testing, maintenance, and management
- Administrative methods for reducing unauthorized consumption
- Advances in technical methods for detecting unauthorized consumption
- Reducing administrative losses and increasing reading and billing accuracy

Case Study: The SEMI project is a multi-million-dollar project for reducing and detecting commercial loss, in addition to physical losses. The SEMI project was based on detailed measurements and study of unauthorized consumption, meter errors, and real life conditions of water use at the customer side. The work of Mr. Shafey and experience shows the optimum final stage in applying this system from real life experience, and the intermediate steps that can be taken by utilities in SEA to perform financially feasible actions towards that goal.

Sustainable and institutionalized NRW management:

- Essential processes for sustainable NRW monitoring and analysis
- Essential processes for sustainable physical (real) loss reduction
- Essential processes for sustainable commercial (apparent) loss reduction
- GIS data and processes required for sustainable NRW management
- Customer data and processes required for sustainable NRW management

Case Study: Mr. Shafey was the principle investigator of a regional MENA NWC project for developing water utility diagnostic techniques and tools. The methodology investigates NRW management in water utility at the level of processes, monitoring, data systems, resources, and capacity to develop effective action plans that promotes sustainable NRW reduction. This methodology has been implemented in Jordan, Egypt, and Tunisia, and now being implemented in Lebanon with Mr. Shafey's work under the Arab Countries Water Utility Association (ACWUA). The methodology has been also been customized for African utilities and has been announced as an innovation of NRW reduction for the African Water Association (AfWA).

ENERGY1
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Energy1 is a sub-division of PETRO1 focus on provide trainings & technical Consultancy services ranging from Revenue losses reduction, Maintenance & reliability, spares parts optimization, electrical & electronics and business related activities in the Energy & Utilities industry. We had successfully made impact to energy & utilities professional mainly the top players in the South East Asia Region.

- Metropolitan Waterworks Authority Thailand.
- Tenaga nasional berhad.
- San Fernando Electric Light & Power co, Inc
- Sarawak Energy
- SP Powergrid ltd.
- Power Seraya
- SMT Technologies
- Metropolitan Electricity Authority
- Star Energy Geothermal
- Perbadanan bekalan air pulau pinang
- Aliran ihsan resources berhad
- Visayan Electrical company
- Glow Company
- Suruhanjaya Tenaga
- Indah Water Konsortium
- Jimah 0&M
- Renesas Semiconductor
- Sandisk Storage
- Muehlbauer
- Dominant OPTO Technologies
- Finisar Malaysia
- Sanmina System
- Bose System
- Amkor Technology
- EDMI Electronics
- AUO SUNPOWER

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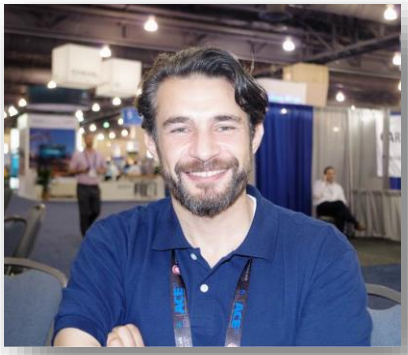
Programe Facilitator – Alshafey (NRW Expert)



Alshafey expertise:

Mr. Alshafey as WEE Pros water utility consultant specialized in NRW projects, network hydraulic design, project planning and implementation. During his career in Aqaba Water Company; he has been involved in all aspects of utility management, as well as leading DMA design, DMA implementation, leak detection surveys, meter testing, meter selection, pressure management, training of staff, and data collection and analysis. Mr. Alshafey was the lead in NRW related projects such as the USAID IDARA working with national partners, the EU Aquaknight project working with regional partners, the USAID NRW assessment and diagnosis project with ACWUA working with MENA partners, the M&E Meter Testing for Social Impact in Zarqa, developing the AfWA/ACWUA diagnostic tool for African utilities, and the Oxfam assessment of leakage detection and repair operations for Zarqa and Balqa in Jordan.

WEE Pros
Water. Energy. Environment

WEE Pros was founded by experts having more than 30 years of combined experience in water management and environment, their paths came across after joining the Integrated Water Resources Management (IWRM) master program for Arab & German Young professionals in 2008. The founders are strongly linked to water and environment sectors in Germany and MENA region. We believe in knowledge exchange and technology transfer in multicultural context to solve the vicious problems hindering the principles of sustainable development.
Our team provides integrated services & consultation in water, energy and environment (WEE) sectors aiming at developing sustainable management systems. We work hand in hand with utilities, donor agencies, institutions, public authorities and organizations that are developing and/or operating WEE projects, and seek good practices and innovative concepts to overcome facing WEE sectors.
WEE Pros team brings the benefit of a diverse knowledge working with public utilities, private sector local communities and international donor agencies. We help our clients in analyzing problems and offer adequate solutions.

WEE Pros teamed up with the International Office for Water (IOW) to provide long and short term experts supporting the activities of GIZ Water Palestinian Program "Human Capacity Building Development for the Palestinian Water Sector". The 12 months project aims to improve the capacities of the Palestinian water sector institutions with regard to planning, steering and regulation of water supply and wastewater management services.

German Water partnership (GWP)
WEE Pros is responding to a world full of complex and diverse challenges with innovations and also with our active connection in cooperation and networks. WEE Pros recognizes that working together make change and achievement. WEE Pros became member of the German Water Partnership (GWP). The German Water Partnership is a joint initiative of the German private and public sectors, combining commercial enterprises, government and non-government organisations, scientific institutions and water-related associations. The fundamental aim of GWP is to make the outstanding German engineering, know-how and experience in the water sector easily available to partners and clients all over the world.

German Association for Water, Wastewater and Waste (DWA).
WEE Pros GmbH is also a member of German Association for Water, Wastewater and Waste (DWA).

Some of WEE Pros Project References:

Client: International Office for Water (IOW)
Location/s: West Bank, Jordan
Through fund of GIZ Water Programme Palestine (WPP) supporting the Human Capacity Building Development aiming to improve the capacities of the Palestinian water sector institutions with regard to planning, steering and regulation of water supply and wastewater management services.

Client: Mercy Corps- Lebanon
Location/s: Bekaa, South Lebanon and Beirut, Lebanon
The overall aim is to identify the areas of the BWE & SLWE that require training in daily operations and maintenance, assistance in business management and strengthening of cost recovery mechanisms. These aims are at both theoretical and practical levels. The outcome of the study, which also includes recommendations, will be used to design a pilot program at the water establishments that addresses the identified issues. The study looked at theoretical and practical training needs for top and middle management and operational levels.

Client: Hydrophil GmbH
Location/s: Beirut, Lebanon
The project "Rehabilitation of Dbayyeh, Jbeil and Nahr Ibrahim WTPs" is part of the Technical Assistance of the Support Programme for Infrastructure Water Sector Strategies and Alternative Financing which is funded by EU and aims at supporting the water sector in Lebanon.

Client: Oxfam International
Location/s: Zarqa, Jordan
The main goal of this consultancy is to assess technical capacities of Miyahuna and WAJ in Zarqa and Balqa governorates and identifying the areas that require improvements in operations and maintenance of municipal water network. This goal is at both theoretical and practical levels. The outcome of the study will be used to design an integrated capacity building program covering staff and utilities technical needs.

Client: International Office for Water (IOW), France
Location/s: Sultanate of Oman-Muscat
Organizing Technical Study Tour on Water & Sludge Reuse Management

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Registration Form

Advanced Non – Revenue Water Reduction and Management	Early Bird Full 3 Days	Standard Price Full 3 Days
Per Delegate	SGD 1499 ( )	SGD 1699 ( )
3 or more	SGD 1299 ( )	

- Please note that all registrations must be made at the same time to qualify.
- Early Bird Promotion Deadline – 4th September 2017
- The above price is inclusive of 6% GST.

PROGRAM DETAILS
Venue: Kuala Lumpur
Date: 2nd – 4th Oct 2017

REGISTER NOW
CONTACT: kelvin
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( ) I would like to organize this training on-site and save at least 25% on the total course Fees! Please call +603 7727 3952 for more about our in-house training or email iht@petro1.com.my (Terms & Conditions apply)

Delegate Details

1. Name:_____Mr☐Mrs☐Ms☐Dr☐

Job Title: _____

Email : _____

Contact No: _____

Department:_____

2.Name:_____Mr☐Mrs☐Ms☐Dr☐

Job Title: _____

Email : _____

Contact No: _____

Department:_____

3.Name:_____Mr☐Mrs☐Ms☐Dr☐

Job Title: _____

Email : _____

Contact No: _____

Department:_____

Head of Department:_____

Invoice Attention to:_____

Company:_____

Industry:_____

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Postcode:_____ Country:_____

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Security Code: ☐☐☐ Expiry Date: ☐☐☐☐

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Payment Policy: Upon receipt of a completed registration form, it confirms that the organization is registering for the seat(s) of the participant(s) to attend the conference or training workshop. Payment is required with registration and must be received prior to the event to guarantee the seat. Payment has to be received 7 working days prior to the event date to confirm registration.

Venue: All of our training courses are held in 4 – 5 star venues.
The course fee does not include accommodation or travel cost. It's recommended to book the hotel room early as there are only limited room available at the discounted corporate rate.

DATA PROTECTION
The information you provide will be safeguarded by Petro1 that may be used to keep you informed of relevant products and services. We take it seriously when it come s to protection of our client data.

Cancellation & Substitutions: Upon receipt of a completed registration form, it confirms that the organization is registering for the seat(s) of the participant(s) to attend the conference or training workshop. Should you be unable to attend, substitutes are always welcome at no additional cost. Please inform us as early as possible. Payment is non-refundable if cancellation occurs 7 working days prior to event commencement. However a substitute is welcome at no additional charges. If cancellation occurs 5 working days prior to the registration date and there is no substitute, the organizer reserves the right to charge 50% of the total investment from your organization.

PETRO1 SDN BHD is not responsible for any loss or damage as a result of a substitution, alteration or cancellation/postponement of an event. PETRO1 SDN BHD shall assume no liability whatsoever in the event this training course is cancelled, rescheduled or postponed due to a fortuitous event, Act of God, war, fire, labor strike, extreme weather or other emergency.

Walk in Registration: Walk-in participants with payment will only be admitted on the basis of seat availability at the event and with immediate full payment.

Program Change policy: The organizer reserves the right to make any amendments and/or changes to the workshop, venue, facilitator replacements and/or modules if warranted by circumstances beyond its control.