

Energy Efficiency in the Water Sector– learning from international experiences and practices



Seminar and Study Tour in Germany on the occasion of the Wasser Berlin International 2013

Summary of the evaluation

In general

Participants appreciated the exchange with other participants and with the German experts. The topic of Energy Efficiency and Renewable Energies was rather theoretical before the seminar, but got much more practical through the lectures at the seminar and at the fair, talking to representatives of different manufacturers but also to colleagues from other countries. The extent and possibilities of reduction of the energy consumption was astonishing. New technologies were discovered at the fair (e.g. compact UV disinfection) and the range of suppliers for equipment for water and waste water utilities was enlarged for many of the participants.

The concept of life cycle costs was new for many in contrast to only looking at investment cost.

The importance of training in Energy Efficiency and Renewable Energies was mentioned at many occasions, as there is a large gap in all utilities – not only for technicians and engineers but it was deemed important to raise awareness for this topic at all levels. E-learning as one of the efficient ways of training was acknowledged.

Technical aspects

The importance of energy efficiency was stressed

- at design stage
 - considering **ISO 50001** (full name: ISO 50001:2011, *Energy management systems – Requirements with guidance for use*) is a specification created by the International Organization for Standardization (ISO) for an energy management system. The standard specifies the requirements for establishing, implementing, maintaining and improving an energy management system, whose purpose is to enable an organization to follow a systematic approach in achieving continual improvement of energy performance, at implementation/operation stage
 - putting emphasis on pump selection
 - checking possibilities to use renewable energies
- at implementation/operational stage
 - cascading pumps (i.e. using several fixed speed pumps and run them to satisfy demand and have e.g. only one with variable speed drive)
 - first concentrate your efforts on the big, energy consuming pumps (check continuously the efficiency, update pump specifications, set minimum pump efficiencies in your specifications)
 - review contracts with electricity companies
 - introduce energy audits

The importance of accurate and appropriate data was stressed. This demands reliable measuring equipment. The fair was a good occasion to discuss measuring equipment, its reliability and re-calibration.

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How to proceed?

From the discussions with the participants, several possible ways to take further the topic “Energy Efficiency and Renewable Energies in the Water Sector” came into consideration:

- **ACWUA “Energy Efficiency Working Group”?**

Should it be a sub-group of the Technical Working Group? Only a few people of the TWG could identify it as their task to push the topic forward in the coming years?

- **Create an “Energy Platform” on the ACWUA website**

The Energy platform could evolve from the Berlin seminar and study tour and try to draw in all the energy responsible persons of ACWUA utilities. Several functions could be fulfilled on it:

- Collection of Good Practices from the utilities
- Editing a newsletter (2-monthly) on Energy Efficiency issues (relevant results of the respective working group, new developments, entries/examples of utilities on their work in energy efficiency, announcement of training courses as f2f and e-learning on the topic,...)
- Question and answer services
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- **ACWUA develops an energy audit guideline**

The guideline can be based on experiences in Jordan and Tunisia and take into account the new **ISO 50 001**. It will be designed as a support for utilities, which want to develop own energy audit procedures. These guidelines can entail appropriate KPIs (Key Performance Indicators) and suggestions for benchmarking procedures.

- **Training courses for Energy Auditors**

Many countries (e.g. Morocco, Tunisia, Jordan,...) complain the lack of qualified local energy auditors and the lack of competence within their own utilities. F2f trainings, possibly combined with preparation and after-care as e-learning components would support the establishment and qualification of energy auditors.

- **Training courses for pump design and operation**

Pumps and motors are the crucial elements in energy consumption for water utilities. Many utility engineers must be familiar with energy efficiency pump design/selection and their efficient control. The same holds true for the operational level to run pumps efficiently. The emphasis should be on f2f courses – a preparation and after care with e-learning can be imagined.

(Whenever energy efficiency is mentioned, it always contains the use of renewable energies where appropriate)