3rd ACWUA Best Practice Conference and
3rd UNW-DPC/UN-HABITAT Regional Activity on Capacity Development for Water Efficiency

„Non-Revenue Water Management in the Arab Region: Solutions for Drinking Water Loss Reduction“

Rabat, Morocco, 20-21 January 2010

„Lessons-learned from World-wide Experiences on Water Loss Reduction”

Dr Jose Luis Martin-Bordes, Programme Officer, UNW-DPC
45 million m$^3$ of drinking water are lost in the world’s water systems every day!!

• … this quantity could serve nearly 200 million people
• 1/3 of the water is lost in developing countries
• 20-50% loss (even more in some cases) of produced water

In many of the 21 megacities (>10 million): 250-500 million m$^3$ are lost or not paid for…
International Workshop on Drinking Water Loss Reduction:
Developing Capacity for Applying Solutions
UN Campus, Bonn, Germany, 3-5 September 2008

60 participants, 19 cities from 16 countries

Arab region
Egypt : Alexandria & Sharkia
Jordan : Amman, Mabada
Palestine : Ramallah
United Arab Emirates : Abu Dhabi

Africa
Uganda : Kampala
Zambia : Lusaka

Central Europe & SEE
Bulgaria : Sofia
Germany : Leipzig & Ruhrgebiet
Hungary : Budapest

Asia
India : Gwalior
Iran : Tehran
Nepal : Lalitpur

Latin America
Brazil : Sao Paulo
Mexico : Mexico City
Nicaragua : Managua
Peru : Lima
International Workshop on Drinking Water Loss Reduction: Developing Capacity for Applying Solutions, Bonn, Germany
1st Regional Workshop on Water Loss Reduction in Water & Sanitation Utilities (Latin American countries)
2-4 November 2009, Leon, Mexico

25 participants, 9 cities from 7 countries

Participating Countries Latin America

Brazil : city of Sao Paulo
Chile : city of Santiago de Chile
Colombia : cities of Bogota and Medellin
Ecuador : cities of Quito and Guayaquil
Mexico : city of Guanajuato
Nicaragua : city of Managua
Uruguay : city of Montevideo
1st Regional Workshop on Water Loss Reduction in Water & Sanitation Utilities (Latin American countries), Leon, Mexico
2nd Regional Workshop on Water Loss Reduction in Water & Sanitation Utilities (South East Europe countries)
16-18 November 2009, Sofia, Bulgaria

100 participants, 20 case studies from 16 countries

South East Europe
Albania
Bosnia & Herzegovina
Bulgaria
Greece
FYR Macedonia
Montenegro
Romania
Serbia
Turkey

Rest of Europe
Austria
Cyprus
Czech Republic
Germany
Hungary
Malta
United Kingdom
2nd Regional Workshop on Water Loss Reduction in Water & Sanitation Utilities (South East Europe countries), Sofia, Bulgaria
OBJECTIVES of the INTERNATIONAL and REGIONAL WORKSHOPS

- **Exchange of experience and information**: successful examples on water loss reduction (WLR)

- Concentrate on the most promising approaches and development of institutional capacity

- Collect facts and figures and good case stories to increase awareness and attention by decision-makers and water managers on the issue of WLR

- Support the development of the countries potential in the problem definition and the search of applicable solutions

- **Disseminate and present the results** in different international fora

- Provide feedback to the members of UN-Water for the development of specific initiatives and programmes on WLR and water efficiency
OUTCOMES of the INTERNATIONAL and REGIONAL WORKSHOPS

Proceedings of the 1st Regional Workshop on Water Loss Reduction in Water & SanitationUtilities Latin American Countries
2-4 November 2009 Leon, Mexico
Editor: José Luis Martín-Borieda

Proceedings of the 2nd Regional Workshop on Water Loss Reduction in Water & Sanitation Utilities South East European Countries
14-18 November 2009 Sofia, Bulgaria
Editors: Reza Ardakanian, José Luis Martín-Bordes

Available at http://www.unwater.unu.edu
LESSONS-LEARNT from BONN INTERNATIONAL WORKSHOP
Africa, Arab region, Asia, Latin America, Europe and SEE

KEY MESSAGES

1. Make the **economic benefits of reducing water loss**, as a contribution to proper water system maintenance, visible to all stakeholders through training and capacity development.

2. Enhance human and **institutional capacity** towards valuation of water and improvement of **water efficiency**

3. Find and implement appropriate solutions in an **economic, climatic or cultural context**

4. Feasibility and economic sustainability of safe reliable water should be **communicated to managers and policy makers in charge**
CONCLUSIONS and RECOMMENDATIONS

1. The **water sector has to advise** the policy makers (training approaches for policy makers)

2. **Incentives would be needed**; water services are not “zero-business”, but also a commercial issue

3. Technical solutions would not be efficient without **capacity development** for appropriate application and implementation

4. A shift from a “culture of taking personal advantage” to a “**culture of collaboration and partnership**” will be essential to strengthen efforts to control mismanagement and to build up confidence in water management.
5. **Developing ownership** and corporate identity at the top management of water authorities and water supply companies, but also within the staff of water companies and among the consumers.

6. The role of business must not be restricted to delivering mechanical products, but the overall management of water systems need to follow an “efficient economic approach”.

7. Reluctance within governing bodies (at all levels) needs to be and can be resolved by **reliable information**. Increase pressure or **expression of demand** from international fora or through educational networks.

8. **Reforms of the water sector** should include the adoption of latest international standards and codes of practices, the implementation of highly advanced technologies and a consistent and gradual pattern to privatize the sector where necessary.
CONCLUSIONS and RECOMMENDATIONS

9. **Bilateral collaboration at national level** and support through twinning programmes of cities or water companies is an instrument for **sharing experience and developing awareness** of challenges and solution in the control of drinking water loss.

A SUCCESS CASE!

One city delivered the commitment to the MDG (reduction of un-served part of the population by 50%) well before 2015, **simply by reducing drinking water loss**, without connection to newly developed water resources.
LESSONS-LEARNT from 1st REGIONAL WORKSHOP MEXICO
Latin America Countries

KEY MESSAGES AND RECOMMENDATIONS

- Water Loss Reduction is achieved through investment in physical works and commercial and operational management

- Specific projects must be defined by type of loss, starting with the most profitable from the point of view of the financial feasibility of the water utility

Institutional: facilitating benchmarking between countries from the point of view of the users, state and operators, with the aim of sharing experience and guiding international indicators
LESSONS-LEARNT from 1st REGIONAL WORKSHOP MEXICO Latin America Countries

KEY MESSAGES AND RECOMMENDATIONS

Capacity Development:
• facilitating the exchange of staff (including engineers and technicians) among the water utilities in the region, with the aim of enabling the direct sharing of experiences

• the integration of the activities and processes of the water utilities, in particular the commercial aspects with the technical aspects and investment projects

• establishing a communication platform for water operators in the region (e-fora, courses,...)

Legislation: facilitating benchmarking between countries from the point of view of the constitution, laws, regulation,...
• laws and legislation related to water should be further influenced by the concepts of the technical experts
LESSONS-LEARNT from 2nd REGIONAL WORKSHOP BULGARIA
South East Europe Countries

KEY MESSAGES AND RECOMMENDATIONS

• Water utility companies generally have the equipment needed to measure and detect water losses, but this is rarely used due to lack of qualified personnel.

• Significant improvement in developing awareness of the importance of water loss activities as the most efficient way to procure “new” water supplies has been observed in the region countries in recent years.

• The main problem, on which attention should be focused in the near future, is self-administration support in establishing new legislation to simplify water utility companies charging their claims.
• District Metered Areas (DMAs), together with the SCADA system and records of customer water bills, are effective in determining and managing water losses and their components.

• Pressure management technology has advanced to the point where we can incorporate intelligence into the system to maintain pressures at optimum levels, in order to maximise the cost / benefit ratio, and allow pressure management to be the foundation for water loss reduction.

• Water that is lost through client-side leakages always ends up in sewage treatment facilities, instead of enriching the aquifer, as commonly assumed. In terms of financial cost, this means we have to pay double the cost of distribution network leakages, since this water is not only lost, but also treated as impure.
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„Non-Revenue Water Management in the Arab Region: Solutions for Drinking Water Loss Reduction“

Rabat, Morocco, 20-21 January 2010

30 lectures (20 Arab + 10 international)

Case-studies from:
Algeria
Egypt
Jordan
Lebanon
Mauritania
Morocco
Palestine
Syria
United Arab Emirates
Yemen

……

Germany
Greece
The Netherlands
Zambia

Organized by ONEP-IEA, Rabat, Morocco in cooperation with UNW-DPC and UN-HABITAT as their Third Regional Activity on Capacity Development for Water Efficiency

Non-Revenue Water Management in the Arab Region
Strategies to reduce unbilled, apparent and real losses of drinking water

First Announcement, Call for Abstracts and Exhibitors

Call for Papers
GENERAL CONCLUSIONS

A holistic approach is essential for WLR success. It needs to be promoted and encouraged within the water utility (awareness not yet strong enough)

Technical and technological aspects:

1. Short-term (technical level) operations & long-term strategies (design, planning and political decisions) should be complementary and coordinated

2. Financial viability relies on revenues, revenues rely on metering of water, maximize efficiency of metering (implementation of high accuracy water meters and minimization of metering process inaccuracies – human errors)

3. GIS is a useful tool to keep all data from technical side, knowledge management and up to the customer service

4. Reduce the peaks by strong users – pressure management is a must to cut down losses
GENERAL CONCLUSIONS

Financial and economic aspects:

5. WLR technologies are available, but some adaptation to regional conditions is needed.

6. WLR economic/financing tools are necessary at the early stage of WLR projects to define the optimum level (decision and optimization).

7. WLR technologies and financial tools are useful, but should be embedded in institutional developments and capacity building.

8. There are considerable surplus damages through WL, exceeding the value of the lost water.

9. Competition for technical solutions and investment (water loss reduction vs. desalination) – cost/benefit analysis is necessary.
GENERAL CONCLUSIONS

Administrative and regulatory aspects:

10. IWA standards for WLR are useful and should be adapted to the context Arab World, where there is a lack of meters and poor data quality and reliability – Arab language version would be useful

11. Regulators in the Arab World are still weak and should be promoted in regulating NRW (in other countries in Africa they play a major role)

12. Proper customer survey and good number of data are needed

13. Illegal connections is a topic in the Arab region is an important issue

14. Focus on the connections that are more cost-benefit relevant

15. Call center for leak identification /involvement micro-companies for fast reaction in water loss reduction

16. Skilled labor and technical staff (training
THE WAY FORWARD

1. The outcomes of this conference should find its way to the decision-makers and politicians who should know more about the potential benefits, but also the potential risks associated to the reduction of water losses.


2. Increasing efforts should be made to develop capacities within water utilities at different levels (technical, administrative, institutional management).

Training courses – Staff exchange programmes – Incentive programmes

3. Awareness raising campaigns on NRW and WLR for different target groups (general public, children, middle-managers, policy makers).

Information packages – Appropriate language – Dissemination channels