NRW reduction in urban water utilities
Experiences and challenges in the Mediterranean region
Center for Mediterranean Integration
Marseille January 22-23, 2013
Non Revenue Water

-Rocket Science or Micro Management?

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Zwolle, The Netherlands
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## Vitens Evides International

### Vitens + Evides

<table>
<thead>
<tr>
<th>Category</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turnover</td>
<td>€ 750 million</td>
</tr>
<tr>
<td>Connections</td>
<td>3.4 million</td>
</tr>
<tr>
<td>Shareholders</td>
<td>Local &amp; regional governments</td>
</tr>
<tr>
<td>Customers</td>
<td>7.8 million</td>
</tr>
<tr>
<td>Distribution network</td>
<td>59,500 km</td>
</tr>
<tr>
<td>Personnel</td>
<td>&lt; 2,000 fte</td>
</tr>
<tr>
<td>Non revenue water</td>
<td>± 5%</td>
</tr>
<tr>
<td>International Projects</td>
<td>Africa and Asia</td>
</tr>
</tbody>
</table>

![Map of the Netherlands with regions marked]
**Small Utility Support PPP**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Taizz - TWSLC (2007 – 2010)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taiz population</td>
<td>Approx. 850,000 people</td>
</tr>
<tr>
<td>Contract:</td>
<td>Public-Private Partnership between VEI and TWSLC</td>
</tr>
<tr>
<td>Budget</td>
<td>€ 1.1 million (capacity development 65%; investment component 35%)</td>
</tr>
<tr>
<td>Financer</td>
<td>Government of The Netherlands</td>
</tr>
<tr>
<td>Objectives</td>
<td>To strengthen the operational performance of TWSCL</td>
</tr>
</tbody>
</table>
| KPI’s (15% performance based) | *improve over energy efficiency – 20%*  
 *expand water production capacity - 30%*  
 *reduce Non Revenue Water – 30%*  
 *reduce outstanding debts – 20 %* |
Water services in Taiz

- Intermittent supplies (seasonal)
- Coverage of water services just 55%
- Substantial private water vendors
Summary of NRW findings

• Baseline NRW given was 45%

• **Data analysis** of the well fields revealed a systematic overestimation of production with 5%

• **Physical losses** - clearly obstructed by regular and severe water reservoir overflows. Installation of control valves reduced losses by 4%

• **Commercial losses** - within the conversion of water meter readings to billing & revenue collection illegal interventions were found ➔ firing of a financial accountant ➔ commercial losses down with 5%

• Overall NRW went easily down to ~ 30%
The caretaker approach for further NRW reduction

- Responsible for their own part of the network
- Individual performance affects the operational targets of the utility
- KPI’s monitored and discussed regularly
- Customer orientation: (handling complaints & provide information)
NRW not always the most sexy issue . . . . . .

New Sources of Water
1. New Dams
2. River Sharing
3. Rain Water Harvesting
4. Desalination
5. Icebergs
Phases in NRW reduction

I. Data collection & analysis
- Transform corporate culture: ownership & commitment NRW
- Collect, process and analyse reliable data on flows and consumption
- Establish IWA water balance (at central and DMA level)
- Identify intervention options and quick wins to encourage

II. Arrange organizational setting
- assign management responsibilities to zones
- appoint and roll-out care taker approach
- prepare for a Central Control Unit CCU
- Implement the entire NRW program

III. Specific support activities
- Logistic support caretakers (transport & stores)
- Train/coach zone accountants and caretakers
- Start on AM (data registration & validation)
- Toys: scada, flow and pressure data management
- Standards (SOP, store, billing and collection)

IV. Harvesting > 4 years after the start
Apparent losses
Real losses
Logistic support: storage (goods&date) and transport
Where to go from here?
It needs three to tango

1. An enabling governance is required for utilities
   1. Autonomous operations (minimize political interference)
   2. Give full responsibility and demand for transparency
   3. Performance management (regulation or benchmarking)

2. NRW reduction start within the organisation, not in the field
   1. Corporate strategy and culture to be set (incl. LTIP)
   2. Leadership & management competencies (MD program)
   3. Organisational structure: decentralised caretakers
   4. Process orientation: Plan \(\Rightarrow\) Do \(\Rightarrow\) Check \(\Rightarrow\) Act!

3. Commitment & competencies of human capital
   - What is in it for me? (performance assessment) and incentives
   - Capacity development (training, coaching, exposure, internships, exchange)
Leadership at management level

_It is easy to live after the world's opinion;

it is easy in solitude to live after your own;

but the great man is he who, in the midst of the crowd

keeps with perfect sweetness the independence of solitude_

Ralph Waldo Emerson
For sustainable change it needs

**Condition**

- Governance setting
- Organisational setting
- Human capacity development

**Focus**

- Enabling framework
- Strategy, policies, targets and organogram
- Knowledge, skills and experience
Within a 4 year project duration

Minor achievement within project period

NRW (%)
Quick wins within 4 years or sustained results?

Minor achievement within project period
It needs all department and sections to cooperate and participate in NRW reduction, otherwise . . . . .
Things go terribly wrong in many ways . . . . . .
Resumé

• NRW is a good indicator for the internal organisational strength of a water utility

• NRW reduction therefore needs to be internalised within the utility (good examples were presented yesterday from various locations)

• Partnerships can only be instrumental in NRW reduction if an enabling governance environment and organisational setting is in place to fully take on board the various CD interactions and interventions
The three partners for a tango

• A governance system that encourages performance management of water utilities (regulation/benchmarking) is quite instrumental for NRW reduction programmes

• Transformation of the corporate strategy, its culture, and organisational structure towards integrated NRW reduction needs skills and competences that not all water utility managers have inherited by birth

• Within these change processes the human factor needs more attention to mobilise capacity and keep spirit up high. This will ensure their full cooperation and commitment towards NRW reduction

➔ all the above needs skills expertise, and competences that may go beyond a classical well qualified and competent engineer!
NRW is as Romano Prodi once said:

“the closer you get to it
• the more difficult and dangerous it gets“