Non-revenue Water Management in

National Water & Wastewater eng. Company (NWW)

[IRAN]

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Regional Workshop on “Non-revenue Water Management”,
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Area: 1.65 million sq. Km.
Population: 78 million
Climate Condition

Based on meteorological classification, Iran is located in the arid and semi-arid regions of the world. Annual rainfall ranges from less than 50 millimeters (mm) in the deserts to more than 1,600 mm on the Caspian Plain.
Mean global rainfall is 3 times of Iran.

Mean Iran evaporation is 3 times of the world.
Distribution of rainfall in Iran

30% of Rainfall

70% of Rainfall

75% Area

25% Area
Temporal distribution of rainfall in Iran

- 75% of Rainfall: Non-irrigation season
- 25% of Rainfall: Irrigation season
Iran annual rainfall (252 mm)

Evapotranspiration (292 billion qu. Meters)

Runoff (95 billion qu. Meters)

Infiltration (26 billion qu. Meters)

413 billion qu. meters
Share Water Consumptions in Iran

- 2% Industry
- 6% potable water
- 92% Agriculture
Background Information on the Utility

Urban Water Distribution Information In Iran (2013):

- No. of water and wastewater companies under NWW: **35 companies**
- No. of cities: **1,152**
- No. of connections: **14,376,000 con.**
- System input volume: **5,607,000,000 M³**
- Water network length: **141,410 km**
- Water transmission length: **27,000 km**
- No. of Water Treatment plant: **124 units**
- No. of pump station: **1,157 stations**
- %NRW: **24.7%**
## Status of Non-revenue Water and Water Loss Reduction

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inputs m³/year % of input</td>
<td>Total inputs m³/year % of input</td>
<td>Outputs m³/year % of input</td>
<td>Authorized billed consumptions</td>
<td>Water delivered to other networks (bulk sale)</td>
<td>Billed metered consumptions</td>
<td>Billed unmetered consumptions</td>
</tr>
<tr>
<td>Well</td>
<td>3046110815 54.3</td>
<td></td>
<td></td>
<td>4313986870 76.9</td>
<td>4221584901 75.3</td>
<td>122071840 2.2</td>
<td>3831848646 68.3</td>
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<tr>
<td>Qanat</td>
<td>18403933 0.3</td>
<td></td>
<td></td>
<td>92401969 1.6</td>
<td>20024296 0.4</td>
<td>72377674 1.3</td>
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<tr>
<td>Spring</td>
<td>164720621 2.9</td>
<td></td>
<td></td>
<td>550239838 9.8</td>
<td>163309242 2.9</td>
<td>120165803 2.1</td>
<td>266764793 4.8</td>
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<tr>
<td>Purchase of treated water</td>
<td>957271910 17.1</td>
<td></td>
<td></td>
<td>4293305392 23.1</td>
<td>364845504 6.2</td>
<td>46916387 0.8</td>
<td>5303665 0.1</td>
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<tr>
<td>WTP input</td>
<td>1348290839 24.0</td>
<td></td>
<td></td>
<td>743065553 13.3</td>
<td>726665889 13.0</td>
<td>5303665 0.1</td>
<td>15340547 0.3</td>
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<td>Other sources</td>
<td>72494144 1.3</td>
<td></td>
<td></td>
<td>726665889 13.0</td>
<td>312249785 5.6</td>
<td>1385707361 24.7</td>
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</tr>
</tbody>
</table>

### National Water and Wastewater Engineering Company (2013)

The Water Balance table is based on the NRW components and their ratio for the year 2013.
the amount of NRW percentage in Iran before and after Water Balance program and the future plan
Future Goals Related to Non-revenue Water and Water Loss Reduction

- **Implementing IWA Balance for rural water and wastewater companies**

- **The reduction of non-revenue water up to 15% (optimistic prediction)**
Efforts of the Utility to Reduce Non-revenue Water and Water Loss Reduction

- Implementing the IWA Balance Standard for involved cities
- Organize Specialized Training Workshop (350 man/hours)
- Organize training courses (5400 man/hours)
- Organize 35 regional companies workshops for urban managers (5700 man/hours)
- Develop web based system design for urban Water Balance
Efforts of the Utility to Reduce Non-revenue Water and Water Loss Reduction

- In progress projects leads to reduction losses systematically such as:
  - Leakage detecting at distribution networks
  - Rehabilitation process at distribution networks
  - Pressure control management
  - Replacement of failure meters
  - ...
Challenges of the Utility in Addressing Non-revenue Water

- *inadequate funds & finance*
  
- *Lack of action plans in order to encourage private sector for investing at reducing non-revenue water projects*
  
- *Access to high technologies for reduction losses*
Knowledge and Capacity Needs to Improve Non-revenue Water Management

- Develop economical & technical models for private sector attraction
- Upgrade methods in order to increase validity & reliability of data collecting
- Identify new feasible & economic technologies in this field
THANK YOU FOR YOUR ATTENTION