Water in Israel: Public Health Challenges and Opportunities

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Water has been a challenge since Roman age - aqueduct in Caesarea
Major Climate threats to the water sector

- Long term decrease in natural recharge
- Inter-annual variability in natural recharge
- Climate extremes (floods and drought)

The National Program for Adaptation to Climate change was approved by Israel’s government in 2018.
Israel Water Sector - Visit Card

Annual Water Supply

~ 2.2 billion m³

Population: 9.05 million

200,000 Ha
irrigated fields

14,000 farms
Water Consumption in Israel - 2017
According to sectors

- **Agriculture**: 1249 MCM (55%)
- **Domestic**: 872 MCM (39%)
- **Industry**: 111 MCM (5%)
- **Nature**: 23 MCM (1%)
- **Potable**: 486 MCM (39%)
- **Recycled, Brackish and Floods**: 763 MCM (61%)

**Total: 2,254 MCM**

Supply to PA – 61 MCM (West Bank) + 5 MCM (Gaza Strip)
Supply to Kingdom of Jordan – 54 MCM
Manufactured Water: Transforming crisis into opportunity

- Desalination for drinking water
- Reclaimed waste water for agriculture
Over 50% of our drinking water is derived from Sea Water Desalination
## Drinking Water Challenges

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Targets</th>
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<tbody>
<tr>
<td>Low mineral content (Magnesium, Calcium, Iodine, Fluoride)</td>
<td>• Initiate Magnesium supplementation to Desalinated Water. (Calcium already added)</td>
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<td>WHO Report 2009:</td>
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<td>• Higher bioavailability of Mg from water than from food</td>
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<td>• 20% of Mg consumption is from water</td>
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<td>Adjustment of the water distribution system to varied water sources</td>
<td>• Developing a model that will assess and manage water blend at critical mixing points and at points of consumption.</td>
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Water distribution from varied water sources – Red Water Phenomena

The changes in the mixture of water supplied, which comes into contact with aging metallic pipes, creates a phenomenon known as “Red Water”: caused by the release of iron oxides (pipe rust).

Normally, after repeated rinses the phenomenon decreases in its appearance until it disappears.
Wastewater & Reclaimed Wastewater in Israel

![Graph showing the utilization of wastewater in Israel over time](image)

- **Sewage**
- **Treated Sewage**
- **Effluent Irrigation**

*Graph credits: Ministry of Health, Israel*
Agricultural water challenges

Treated wastewater in Israel is regarded as a financial resource and is mostly utilized for agricultural irrigation.

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<th>Action</th>
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<td>Compliance with &quot;Effluent quality standards and Wastewater Treatment Rules&quot; 2010.</td>
<td>Upgrading WWTP to tertiary treatment (Filtration and Disinfection) Today - 53% of treated wastewater is tertiary. Investment needed.</td>
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<td>Micropollutants /Virus/ Crypto Reduction: “Industrial Shafdan” treatment train (25% of total treated ww in Israel)</td>
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Israel has transformed crisis into opportunity.