



Economics aspects in Water Management in Israel

Policy & Prices

Gilad Fernandes: Deputy Director-general of Water Authority (Economics)

1. Legal Basis – The Water Law 1959

Water availability is insufficient for needs.

Water is owned by the public and managed by the Government (as trustee) for the benefit of the people and the development of the country.

Administrative control over all aspects of water use (Consumption, Allocations, Productions, Pollutions, ...).

The Water Law creates a balance between water scarcity and the need to provide water for the most important needs.

2. Physical Infrastructure – The National Grid

3. Institutional Infrastructure – The Water Authority



Water
Commission




Water
Authority

- Management of the whole “Water Chain”.
- Gathering of all regulatory bodies under one roof.
- Economical regulation of the “water market”
- Transfer of management authorities from Ministers to professional Water Board.
- Use of stable procedure to maintain public products, independent from governmental budget.



The overall goal of the Israeli Water Authority

Assure that water
will be sustainable, available, reliable, in the
required quantities, locations and
qualities.


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- ✓ Water Authority strengthened and regulation decreased
 - ✓ Water Authority provides efficient organizational solution: economic management of water system, supply and demand criteria, cancel allocation system
 - ✓ Water prices - express real cost
 - ✓ State of reservoir and supply area determine utilization limits
 - ✓ Stabilizing the water sector - the produced water resources are of steady production rate, the scope of utilization from natural resources depends on the status of the reservoir.

Water Authority responsibilities

- ✓ Guaranteeing water supply at fixed quality for drinking and industrial needs.
- ✓ Efficient integration of the water resources in the regional systems while referring to development and operation considerations.
- ✓ Desalinated water as the source for urban and industrial provision - an examined option - while detaching networks.
- ✓ Establishing an operation layout - operating all water resources according to the hydrological situation, their transfer and distribution to the consumers.



Economics Principles & Tariffs Policy

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1. Usable water from all sources - natural, salinated, desalinated and even effluents – are rare public resource and therefore should be regulated, using Hydrological operational and economical measures.
 2. The economic regulation is based on tariffs that cover the recognized costs of various water supply services, and therefore creates an efficient use of this resource.
 3. The economic regulation is subjected to sectarian and political agreements such as the agreement with the agricultural sector and the water supply agreements with Jordan & the PA.
 4. Unrealistic tariffs => Enhanced Demand => risk of water supply crisis.
 5. Realistic cost based tariffs => efficient allocation of water
 6. In the future – significant increase in water supply costs (Desalination) and therefore an increase in cost based tariffs

Economic Policy : Methodology for recognized costs of water suppliers

1. The Goal – creating a “transparent” methodology for analyzing recognized costs that enable an efficient supply of water .
2. Providing resources for infrastructures needed for water supply (separate component in the tariff, separate designated fund).
3. Defining normative expenses components (& profit) essential for providing services whilst enhancing efficiency.
4. Creating regulatory environment that enables non-discriminatory (consumers, competition).
5. Creating regulatory environment that encourage the use of efficient water technologies.
6. Representing the cost (and derived tariff) methodology alternatives to the Water Authority board (Inc. public hearing if necessary).
7. Implementing the Water Authority board decisions.

Potable water – production and transfer



1. Increase in Desalination => increase in production costs. Currently the annual production of Desalinated water is 290 MCM (20% of total potable water). In 2013 the annual production of Desalinated water will be 600 Mm³ (40% of total potable water).
2. Results:
 - Increase in water costs – Desalinated water cost about 60 to 80 US¢/m³
 - Investments in connecting the desalination plants to the national water grid.
 - Investments in adopting the transfer system (Mekorot).
3. Creating a regulation system for Mekorot (the main water supplier) that will enable an efficient investment plan.



Potable water – Agricultural sector

1. Decrease in allocated annual quantities - a decrease from 1000 MCM a decade ago, to 480 MCM today (the agricultural potable water tariffs are about 14 US¢/m³ lower than the supply costs).
2. Results:
 - Increased affectivity of potable water usage in agriculture.
 1. Increase usage of other waters – treated sewage water (400 MCM) drainage and salinated waters (250 MCM)
3. Increasing agricultural potable water tariffs to the average water supply cost (in 7 years span according to the agreement).



Municipal water supply – Municipal authorities

1. The water supply system wasn't based on autarchic finance economy => ability to use water revenues for other municipal services.
2. The municipal authority as a customer (for instance in watering parks & gardens) doesn't pay a realistic tariff (Mekorot tariff, excluding dis.).
3. Creating incentives for new W&S corporations & creating a tariff basis similar to the municipal corporations.

Municipal water supply – Water & sewage corporations



1. Defining tariffs that reflect recognized water & sewage services costs
2. Using corporate revenues for maintenance & development of the municipal water system inc. additional investments in water distribution & sewage collection.
3. Construction/upgrading sewage treatment facilities.
4. In accordance to governmental policy – creating regional corporations for water distribution, sewage collection & treatment whilst enhancing economy of scale advantages.



Industrial water supply (inc. Hotels)

1. Corp./Municipal supply to industry (allocation of about 90 MCM) is supplied in a subsidized tariff – 50 US¢/m³ - lower than corp./municipal costs.
2. Some industrial customers (allocation of about 40 MCM) are connected directly to Mekorot and lower tariffs than other customers – infringement of non-discrimination principle.
3. In 4 years – similar tariffs to industry & hotels. Gradual increase in tariffs so full coverage of recognized costs will be obtained. Assuring equality among industrial customers.



Effluents & Shafdan water*

1. These waters are supplied at lower than cost tariffs :
 - Shafdan – (150 MCM) tariff of 27 US¢/m³ – cost of about 40 US¢/m³
 - Other effluents - (60 MCM) tariff of 24 US¢/m³ – cost of about 31 US¢/m³
2. The tariffs policy creates a distortion in agricultural potable water tariffs & decreases private sector incentives to invest in effluent return.
3. Intentions – increase tariffs to cover expenses and/or governmental grants for effluent return.

*Shafdan – main water treatment facility for Greater Tel-Aviv. Shafdan treated sewage is inserted to the sub-terrain and then pumped back-up in order to enable higher purification.

- Universal Tariffs (for sectors).
- Based on recognized costs.
- One part tariff Vs. Two Parts tariff
- Tariffs structure
- Natural monopoly Vs. Competition segments (DSW).
- Transparency – Public hearing

- Natural water supply costs range from 15 to 45 US¢/m³
- Seawater desalination costs at the distribution system range from 60 to 80 US¢/m³ (excluding connection to the main system).



- The average cost of the National Water Supply System is about 35 US¢/m³
- This cost will raise in the following years in 40%-50% (grate investments).

- Distribution costs range from 40 to 75 US¢/m³
- Based on recognized costs to every Corp.



Water Tariffs charged to the Corp./Municipality
– US\$ 1.15 per CM

W&S Tariffs to the Consumer (household,
1.7.2011):

US\$ 2.4 per CM First 7 cubic meters

US\$ 4 per CM Per Additional cubic meter

US\$ 1.35 per CM - Potable Water

In addition, sewage tariff- (varing, about 1US\$ per CM)

Treated Effluent:

20% less than Potable water tariff

Saline Water

550-700 mgcl/l - 15% less than Potable water tariff

above 700 - mgcl/l - 25% less than Potable water tariff

Inferior quality Water:

20% less than Potable water tariff



Potable Water

- US\$ 0.5 1st Tranche (50% of Allocation)
- US\$ 0..6 2nd Tranche (30% of Allocation)
- US\$ 0.75 3rd Tranche (20% of Allocation)

Treated Effluent


- US\$ 0..35 Dan Regional Treatment Plant (shafdan)
- US\$ 0..24 Others Treatment Plant

Saline Water

Gradual reduction from composite tariff for potable water based on Salinity Level

Summary :

Changes in the water sector management



- Development of the water sector based on a sustainable lasting plan while providing water in the required quality and reliability.
- Managing the water sector on economic foundations - demand versus supply - and replace the allocation system
- Managing the aquifers and self-production - gradual production toll - while linking the local systems to the national system
- Obtaining the major goal: reliable provision of qualitative water to the entire population