

# Water demand management in the Mediterranean, progress and policies

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**PAPER**

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*Water Demand Management of the West Bank*

*Dr. Loay J. Froukh*

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**Dr. Loay J. Froukh**  
**Water Resources Planning and Management**  
[lfrookh@yahoo.com](mailto:lfrookh@yahoo.com)  
**Tel : 962-777312889**

**Palestine -West Bank**  
**MENA Region**

### **Abstract**

There are three primary groundwater basins underlying the West Bank (Eastern, Northeastern and Western Basins) as shown in map at end of this paper. Both the Northeastern and Western basins are shared between Israelis and Palestinians. The Palestinians have a limited access to the Northeastern Basin and strictly limited access to the Western Basin. In addition to the quantity of available water resources, the quality of water is emerging as a critical issue. Threats to ground water quality include disposal of untreated wastewater, increasing salinity due to agricultural activities and intrusion of native groundwater of poor quality.

Water demand management and conservation aims to conserve water, and as result improve quality and quantity by controlling demand. Effective policy requires an understanding of the worth of water and the actions surrounding its use. This involves the application of select incentives to promote the efficient and equitable use and allocation of water. Measures of water demand management and conservation are technological, behavioural, economic and institutional. Water demand management and conservation must combine appropriate measures while demonstrating a clear understanding of issues and constraints faced by the implementer and the constituents. Selected measures should address a broader water management strategy that clearly defines the human and financial costs, capacity of the institutions responsible and the resulting benefits of implementation.

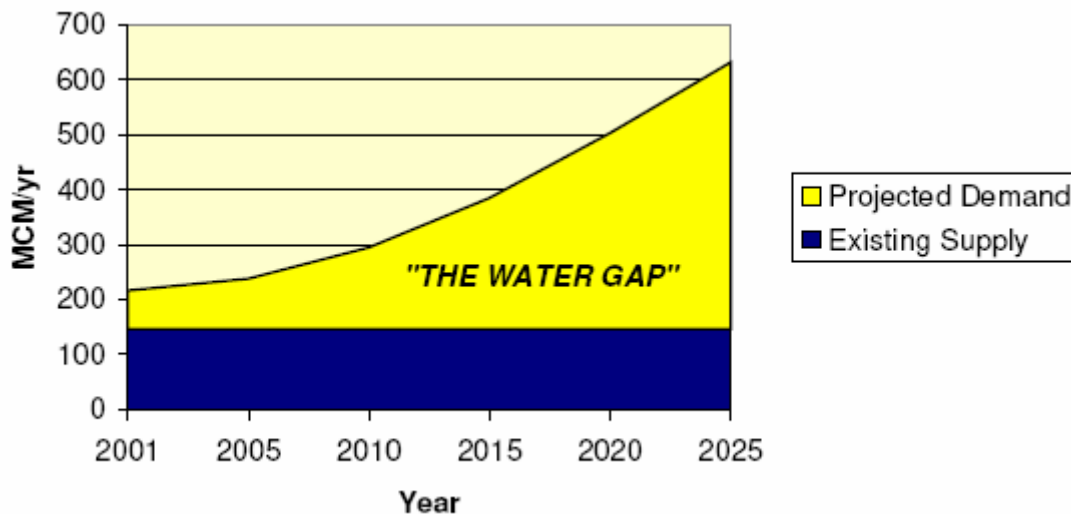
As resolution to political conflict is pursued, it is clear that water resources management issues remain at the forefront because of the transboundary nature of the hydrologic regime. Demand Management appears to be one of the main alternatives to control high increase in the demand until there is a political solution to the water issues with the Israel.

This paper will study the impact of the implementation of some of the demand management measures in the West Bank and explore some of the most significant groundwater management issues facing both the Palestinians and Israelis.

## Context

The primary objectives of demand management are to rationalize and control water use, reduce waste and increase efficiency and equity in view of the limited supplies. This paper addresses water demand management as an alternative approach for confronting growing water demand in the West Bank and until there is a political solution to the Palestinian Israeli Conflict.

The latest study on supply and demand in the West Bank has indicated that there is a gap of around 70 MCM between demand and supply for all sectors. This gap is expected to grow significantly if there is no other sources are developed and no further demand management is not implemented.



Water demand management tools can be grouped into three main categories;

- economic
- legislative and institutional
- capacity building and awareness

The economic tools includes concepts such as recovery, increasing the financial capacity of water utilities to operate and maintain their facilities, prompting regulated water market, and prompting a wider role for the private sector to invest in the water sector

The legislative and institutional tools consists of the rules and organizational arrangements for managing water use and demand, including water rights, priority of use, role and authority of the water regulator, water pricing, the protection of water quantity and quality, licensing, and conflict resolution procedures. These tools should be

complemented by mechanism to encourage coordination between various water agencies and enforcement bodies. They should also promote decentralization and participation of stakeholders so as to broaden role of the civil society in water management as water demand management strategies.

The capacity building and awareness tool seeks to manage water demand by increasing the awareness of end users and raising the capacity of rationale water demand and use. Awareness campaigns, extension services and specialized workshop are some of the tools employed for this purpose.

### **Implemented Demand Management Measures in the West Bank**

- Furthering their role as the regulator of the water sector, PWA had developed an integrated water resources management plan for the West Bank which achieves consensus stakeholder objectives, quantifies resources and demand, confirms strategic principles for sector development and identifies specific actions for achieving stated objectives
- The goals, objectives, standards, police and priorities identified and clarified in the integrated water resources management plan provides elements of a water strategy in the West Bank. This strategy is driven by the following principles;
  - o The water tariffs was set to cover the real cost of water providing the political, economic and security situation are improving.
  - o Sustainable management of water resources. This goal is a key principle which implies management actions in the development of West Bank water sector. Specifically, aquifer sustainable yields must be well understood and aquifer management plans defining well abstraction scenarios must be developed and implemented
  - o Reduction of water losses in the water infrastructure. A target reduction of physical losses to 20 percent of the gross water was identified in the integrated management plan. This principle includes improved metering, leak detection and network rehabilitation.
  - o Supply should meet demand, this principle implies that either to enhance water supply or to reduce demand. Supply actions such as internal resource development and importation of external resources can be considered along with demand management actions
  - o Wastewater, Brackish Water, and Water Harvesting Management, this principle will help in reducing pressure on available resources for domestic water where the treated wastewater or brackish water or harvested water will be used for Irrigation or industrial uses. This implies construction of urban collection, treatment, distribution and reuse and harvesting systems.
  - o Financial management, all actions taken or to be taken in the water management must be financially viable. A target full cost recovery for water sector projects has been set as a target. However, in the short term it may only possible to recover O&M costs providing that the political, economic and security situation in the West Bank is improving. This

principle implies development of a sound tariff structure and continued development of bulk and local service utilities

- Institutional, administrative and legislative development, this implies capacity building actions, development of service utilities, support regulations of the water sector.
- Even though the water resources management in the West Bank depends on the political situation, the water policy is still oriented to demand management.
- PWA has developed a visionary National Water Plan (which includes demand management plan) drafted and ratified a comprehensive National Water Law and organized a National Water Council charged with providing ongoing guidance to water sector development.
- Endorsement of privatization through start of several changes in the institutional and legal reforms in the Water Authority Mandate
- Update Water Legislation
- Implementation of Public Awareness programmers

### **Challenges facing demand management in the West Bank**

The challenges facing demand management in the West Bank can be categorized into;

- Political, most of water resources still under Israeli control. Due to unresolved conflict and due to Intifada the economic and security situation deteriorated which make it difficult to implement demand management actions (measures).
- Natural Challenges, water scarcity, only available source is groundwater, drilling wells is controlled by Israel and Israeli side taps Palestinian aquifers for settlements in the West Bank, transboundary water issues unresolved and Palestinians are not allowed to utilize their share from Jordan River.
- Social challenges, population growth, demand growth, and poverty increases especially due to Intifada and Israeli siege (Separation Wall) on West Bank Cities and towns.
- Economic challenges, implementation of water tariff reform, privatization, small capital market, and subsidies is facing major difficulties due to unresolved political situation and economic and security deterioration.
- Environmental challenges, water quality deterioration due to heavy abstraction from both sides and due to drop in recent drought.
- Legislative and management challenges, there is a need to update the legislation to incorporate demand management tools such as cost recovery, privatization, water market, and coordination of transboundary water resources issues
- Technical challenges, waste in supply networks, information shortages , etc
- Financial and human resources constraints.

### **Key Words**

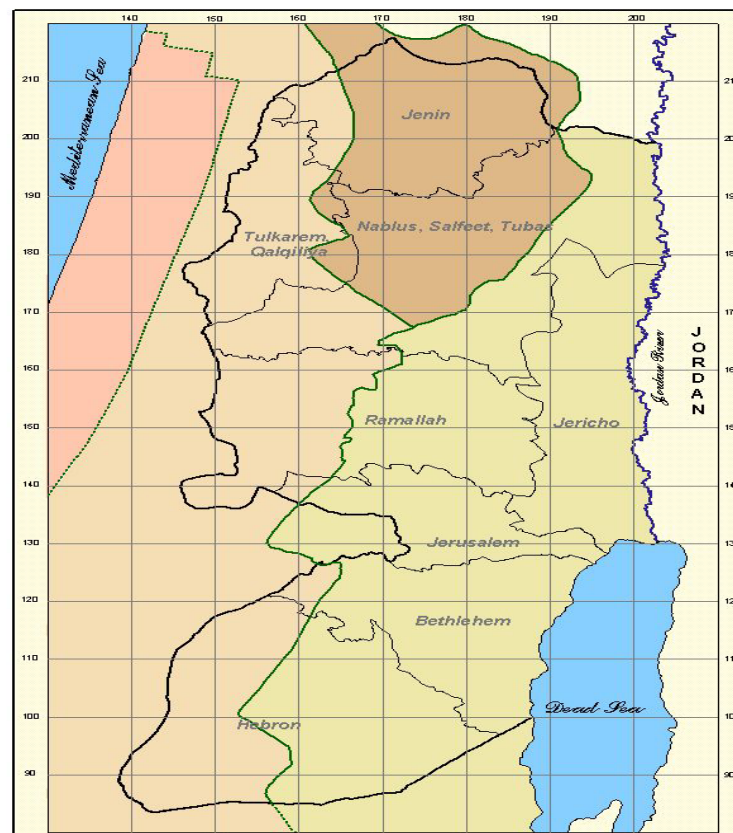
Demand Management, West Bank Water, Demand Management Measures, Transboundary Water, Integrated Water Resources Management, Palestinian Israeli Water Conflict, Water Quality.

## Bibliography

Loay Froukh holds Phd in Water Resources Planning and Management from Newcastle Upon Tyne University in the UK in year 1997. He has extensive experience in water demand and management related issued in the Middle East. He worked as group leader for the West Bank Water Resources Program fro 5 years (1999-2004). He published several papers on water resources and demand management. H

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West Bank Ground Water Basins