WATER AUTHORITY

State of Israel

The Water Issue Between Israel and the Palestinians

Main Facts

February 2012

The Israeli-Palestinian Interim Agreement of September 28, 1995, signed in Washington, including the "Water Agreement" (Annex 3, Appendix 1, Article 40), clearly stipulates the manner in which the parties must act in the field of water in the West Bank.

This is an international agreement which was not only signed by Israel and the Palestinians but also witnessed by the United States, Russia, the European Union, Norway, Jordan and Egypt.

Both parties are bound by the principles set forth in this agreement.

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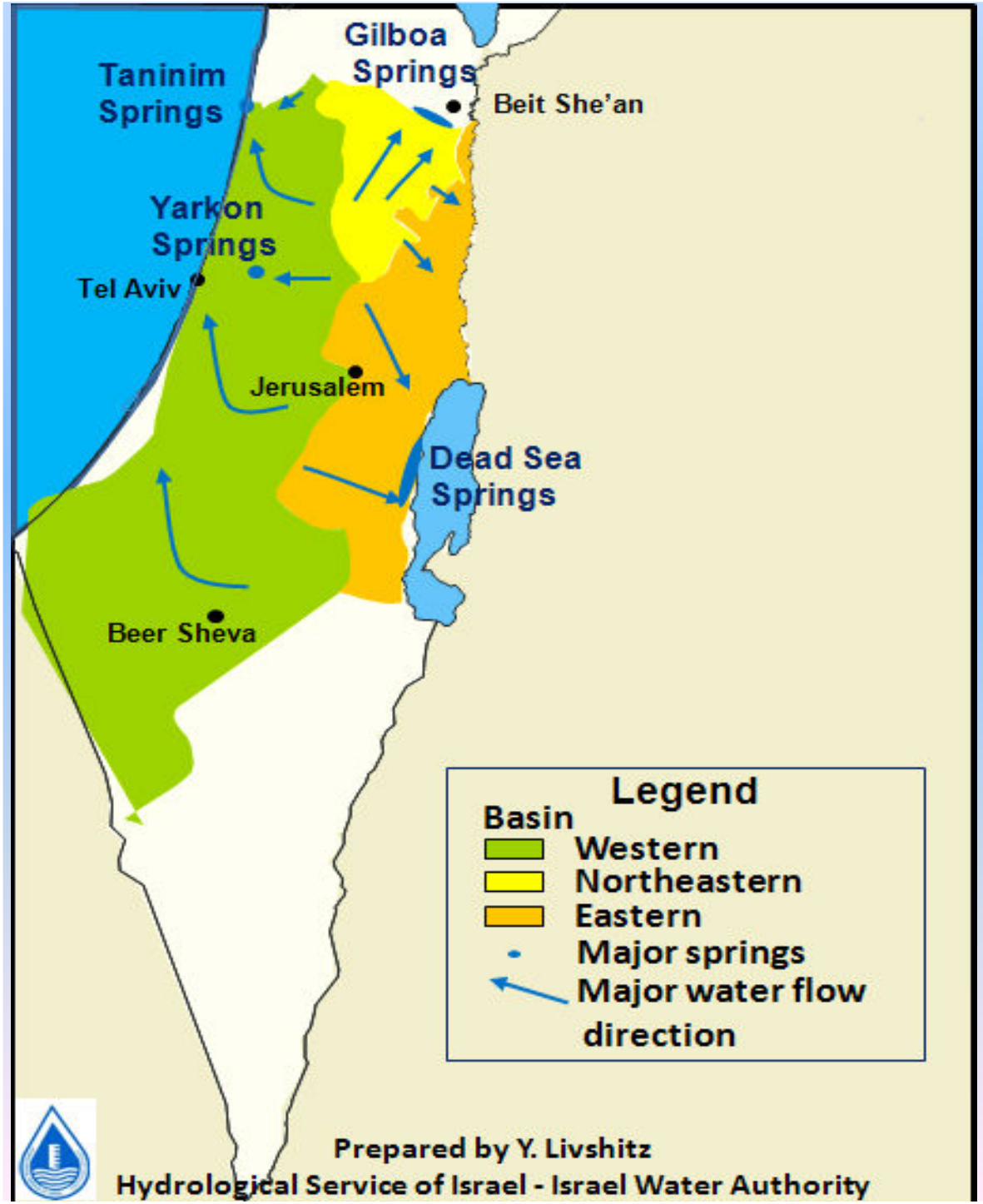
The Water Agreement

Main Points and Implementation

Main Points of the Water Agreement

1. **Palestinian Water Rights in the West Bank are recognized and shall be negotiated in the permanent status agreement.**
2. **Both sides recognize the necessity to develop additional water for various uses.**
3. **Maintaining the existing quantities of water utilization, while taking into consideration the quantities of additional water for the Palestinians from the Eastern Aquifer.**
4. **Future additional needs of the Palestinians in the West Bank are estimated to be between 70-80 MCM/year. Within this framework, both sides recognize the necessity to make available to the Palestinian (WB) during the interim period, a total quantity of 23.6 MCM/year (out of which 5 MCM for the Gaza Strip).**
5. **Each side shall take all necessary measures to prevent any harm, pollution, or deterioration of water quality of all water resources.**
6. **Both sides shall establish Joint Supervision and Enforcement Teams which shall operate, in the field, to monitor, supervise, and enforce the implementation of Article 40.**
7. **In order to implement their undertakings, the two sides will establish a permanent Joint Water Committee (JWC)**



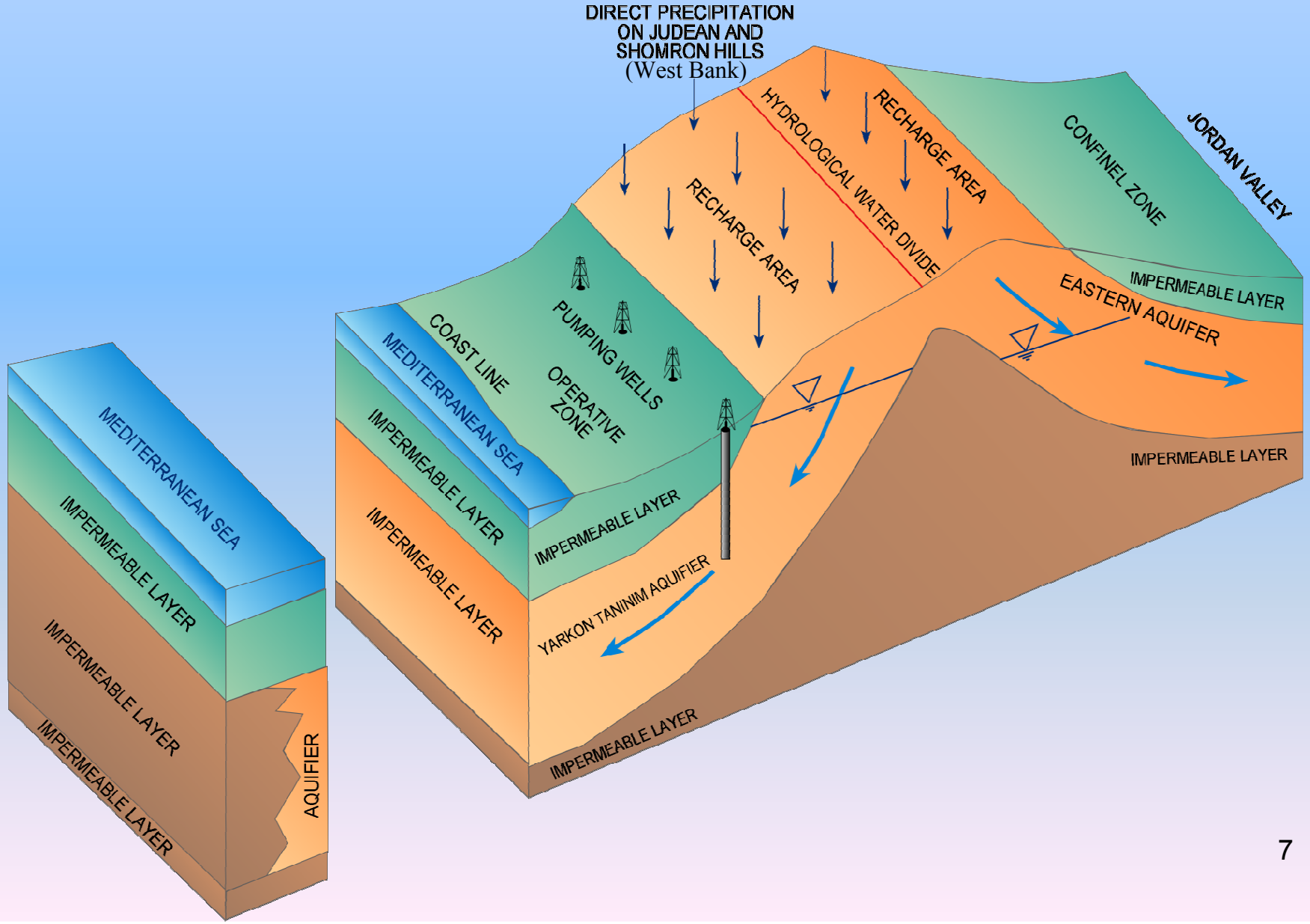
The Mountain Aquifer In Israel and the West Bank

The larger part of the mountain aquifer is located underneath Israel:

-**8,900** km^2 of the aquifer are located in **Israel**

- **5,600** km^2 of the aquifer are located in the **West Bank**

Schematic Cross Section of the Mountain Aquifer



Implementation of the Agreement

Israel fulfills its obligations according to the Water Agreement and beyond, as shown in the following:

1.Israel has made available approximately 70 MCM/year of water to the Palestinians in the West Bank during the interim period, even though the Water Agreement allocates a much smaller quantity of only 23.6 MCM/year (for the West Bank).

2.Israel supplies the Palestinians with 52 MCM of water which is far beyond its obligation in the Water Agreement (31 MCM).

The Palestinians constantly breach the agreement, as shown in the following:

1.The Palestinians continuously drill many unauthorized wells in the West Bank, in contradiction to the Water Agreement. Currently there are over 300 unauthorized Palestinian wells in this area, producing additional water on the account of Israel.

2.The Palestinians do not treat their sewage which flows freely in the streams and into Israel, contaminating the environment and the aquifer en route.

3.The Palestinians are not developing any new water source, either through sewage treatment, or desalination (also in contradiction to the Water Agreement).

Water Supply by Israel to the Palestinian Authority - Obligation vs. Implementation (MCM)

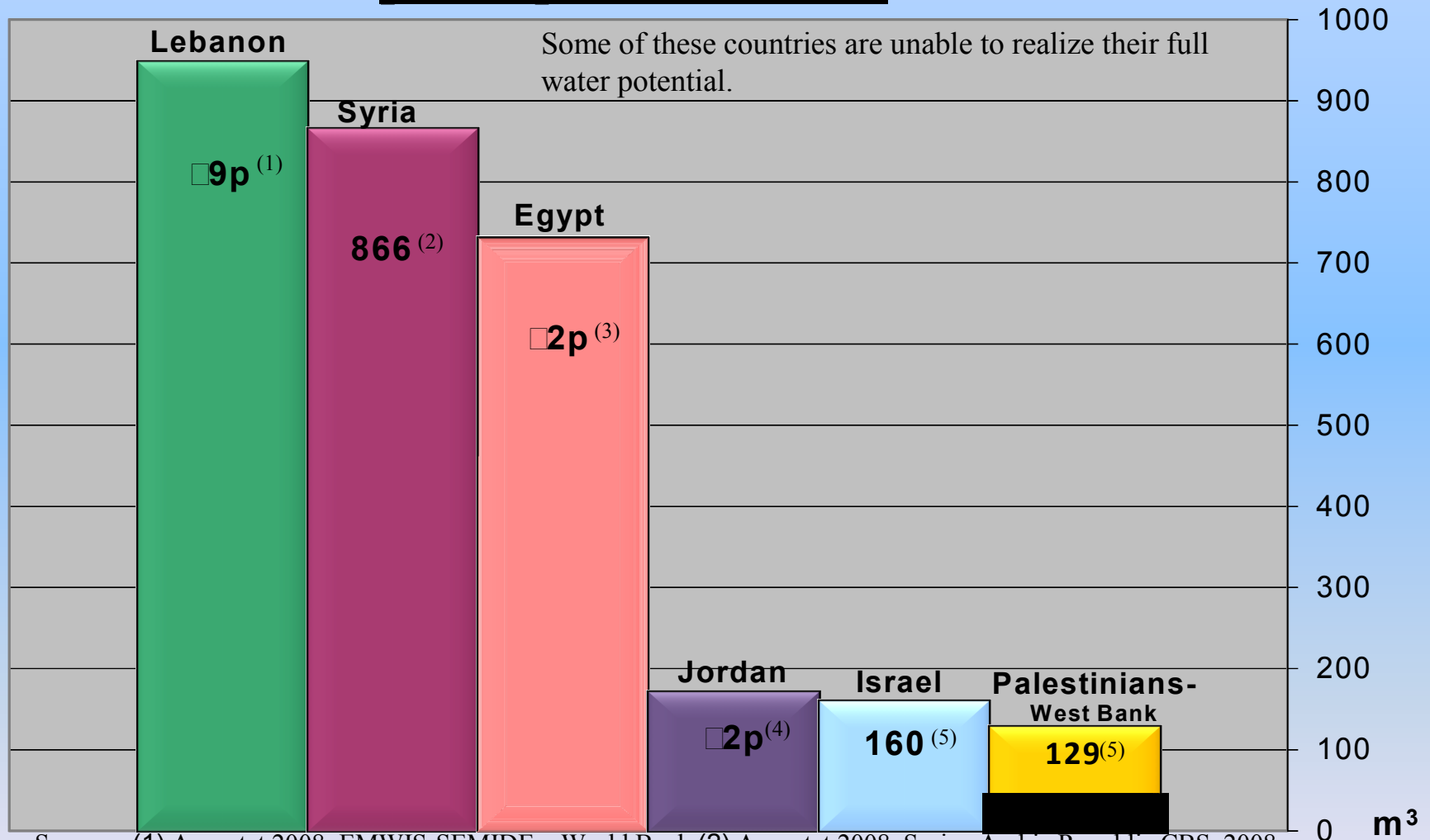
(In addition to the Palestinian production)

sn.	Region	1995 - Basis for Increments	According to the Agreement	Total Obligation	Actual Quantity Supplied to the Palestinian Authority in the West Bank												Supplied in 2010, in addition to Israeli Obligation
					1999	2000	2001	2002	2003	2004	2005*	2006	2007	2008	2009	2010	
1	Jenin	2	0	2	2.3	2.3	2.1	2.0	1.9	2.4	2.2	0.7	1.2	1.6	1.7	1.6	-0.36
2	Nablus & Salfit	1.9	1.6	3.5	3.8	3.5	3.7	4.1	4.2	4.5	4.6	5.4	6.1	6.7	6.6	7.1	3.62
3	Hebron & Bethlehem	11.7	1	12.7	14.7	14.8	15.1	14.9	15.2	16.2	15.8	19.7	19.8	19.7	20.9	20.8	8.11
4	Ramalah	7.2	0.5	7.7	10.5	11.6	12.2	12.8	13.6	14.4	13.9	14.4	15.2	17.0	16.2	16.9	9.19
5	Jordan Valley	5.07	0	5.07	5.9	5.1	5.5	5.3	5.2	6.1	6.2	6.1	6.7	6.9	6.1	6.2	1.09
6	Total	27.9	3.1	31.0	37.2	37.3	38.6	39.1	40.1	43.6	42.8	46.4	48.9	51.9	51.5	52.6	21.65

* In 2005, in the framework of disengagement from Gaza, Israel handed over to the Palestinians the three Dotan wells, producing about 2 MCM/yr. As of that year, this quantity of water is not taken into account in the amount supplied by Mekorot.

Multiannual Average of Fresh Natural Water per Capita in the Area

Multiannual Average of Available Fresh Natural Water per Capita in the Area - 2007*



Sources: (1) Aquastat 2008; EMWIS-SEMIDE – World Bank (2) Aquastat 2008, Syrian Arabic Republic CBS, 2008; Aquastat 2008 (3) Aquastat 2007; ESCWA (4) Aquastat 2008; ESCWA; M.O.I. W.B. (5) Israel Water Authority
(6) **49 MCM** supplied by Israel to the Palestinians in addition to the **196 MCM** allocated in the agreement

*** The World Bank reported (2007) that Israel has 240 MCM of water available per capita. It seems that only in the case of Israel, the World Bank included in its calculations also non fresh natural water sources such as desalinated sea water and treated wastewater.**

The Israeli and Palestinian Water Sectors – Main Facts

Key Data

1433 MCM is the multiannual average of Renewable Fresh Natural Water (RFNW), between the Jordan River and the Mediterranean Sea, for the period between 1993 – 2009 (+ 197 MCM of saline water), not including Gaza .

The amount of **available** RFNW **per capita per year** in **2010**

a. **150 m^3 for Israel** = **1170** MCM divided by **7.8** million residents

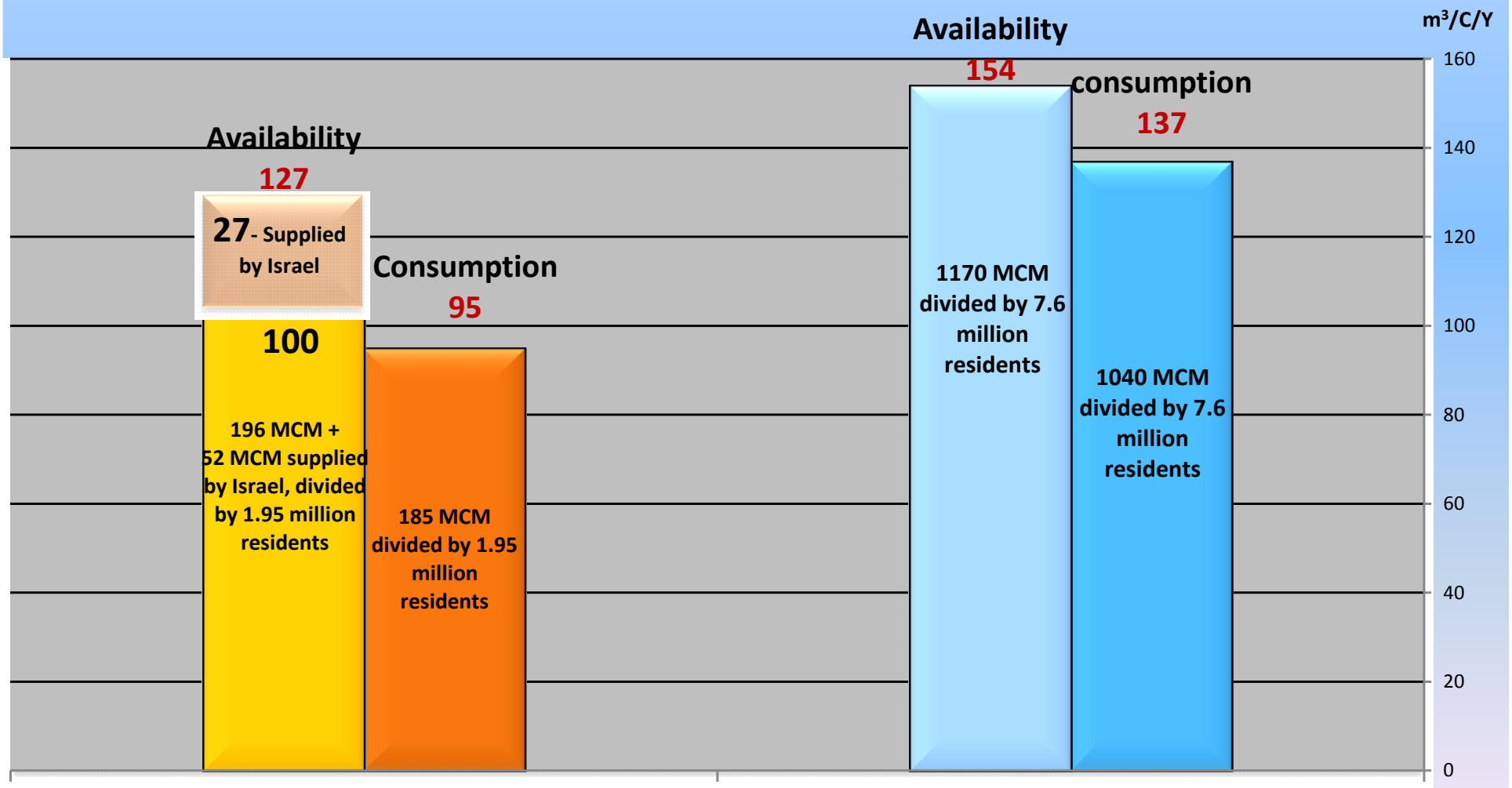
b. **124 m^3 for the Palestinians** = **248*** MCM divided by **2** million residents

* **196** MCM is the amount of water allocated to the Palestinians in the West Bank according to the Water Agreement + **52** MCM which is the additional amount supplied directly by Israel.

In reality the Palestinians in the West Bank produce an additional amount of water from the western and northern basins of the Mountain aquifer which is estimated at **17** MCM, beyond the amount allocated to them in the agreement, and on the account of Israel.

Note: Israel also supplies to Jordan about **50** MCM/y.

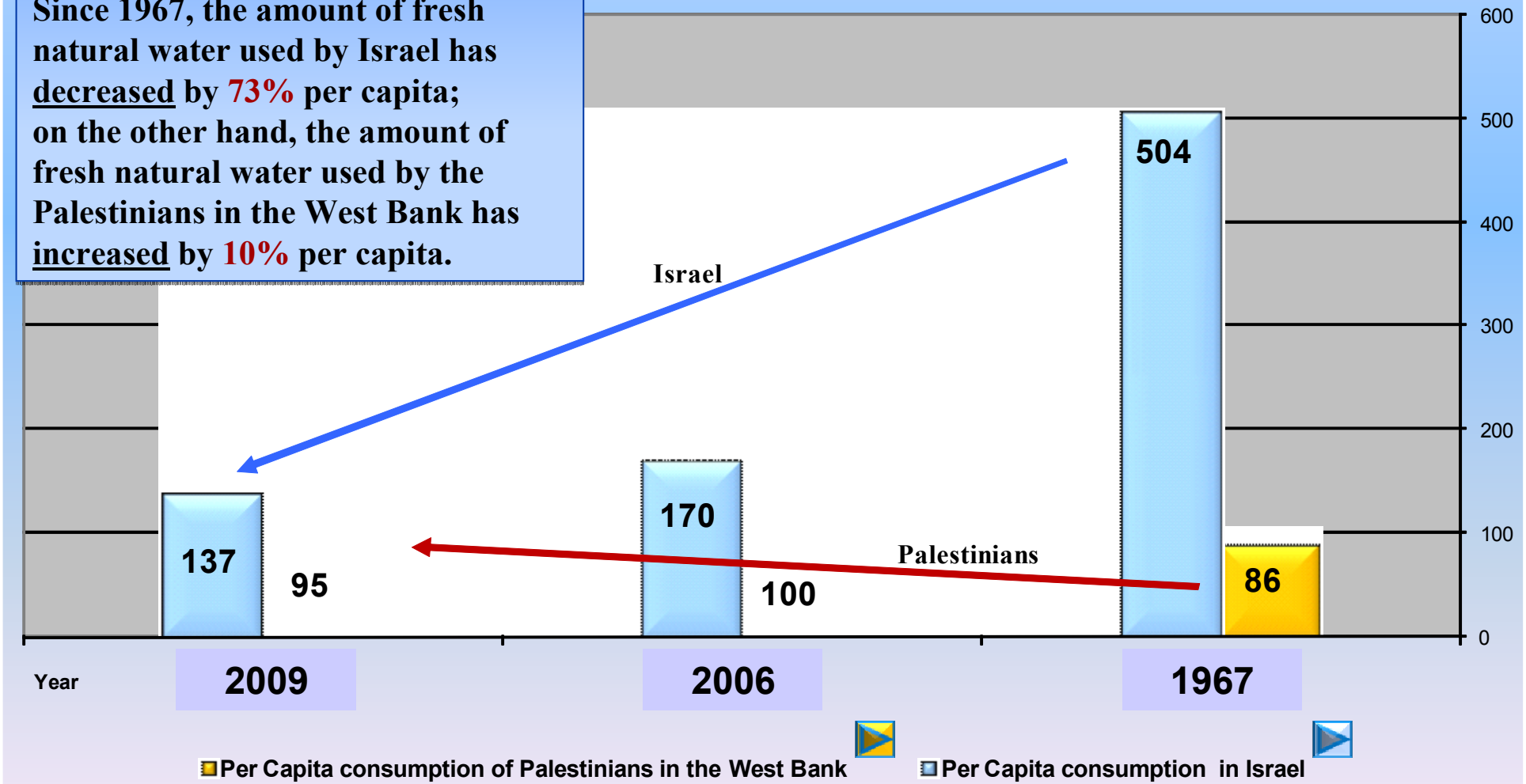
Availability Vs. Consumption of Fresh Natural Water in Israel and by the Palestinians in the West Bank - 2009 - m^3/Capita /Year



Total Consumption* of Fresh Natural Water per Capita (m³/capita/year)

not including treated and desalinated water since it is not subject for disagreement

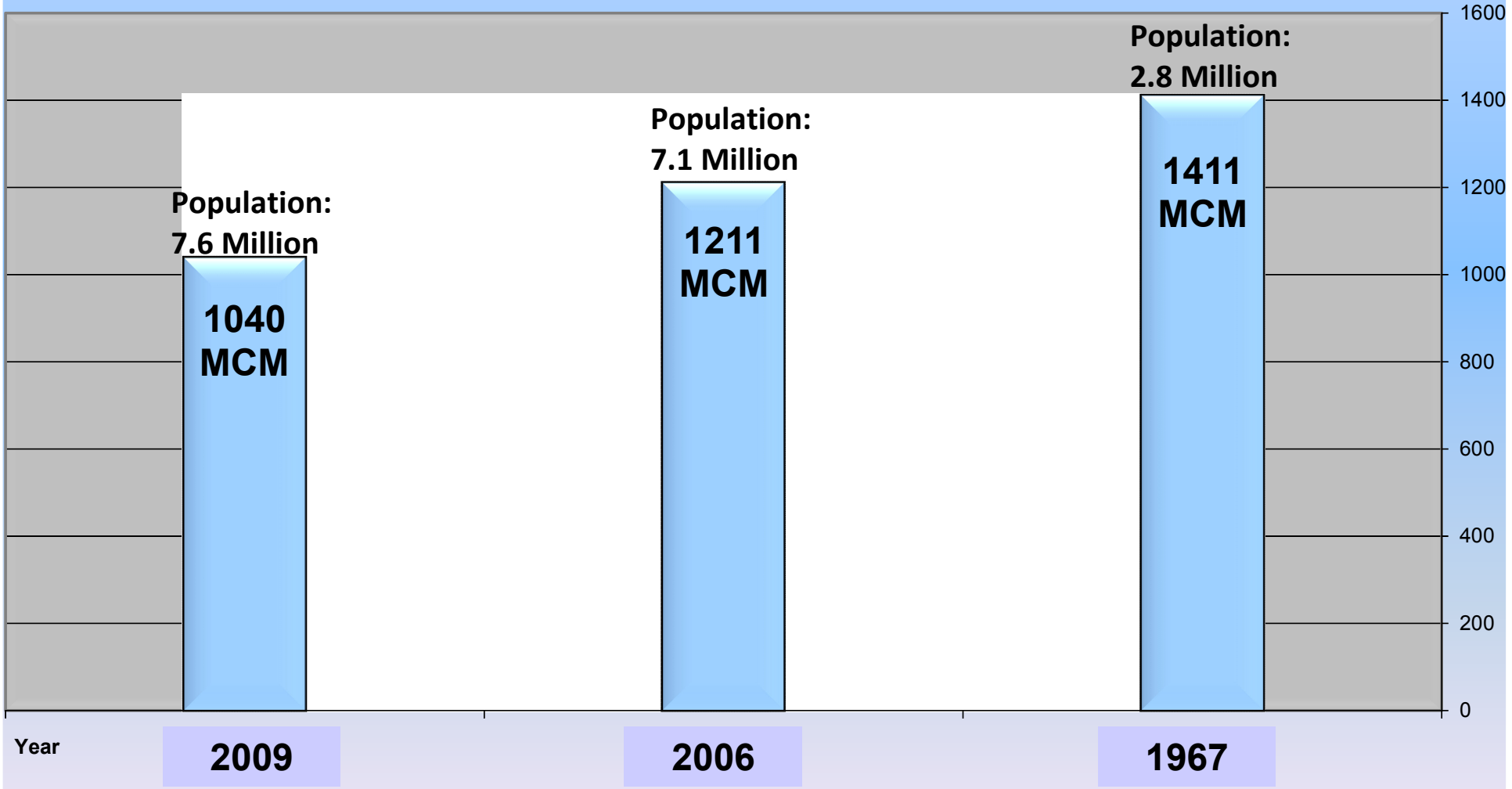
Since 1967, the amount of fresh natural water used by Israel has decreased by 73% per capita; on the other hand, the amount of fresh natural water used by the Palestinians in the West Bank has increased by 10% per capita.



* **NOT** availability.

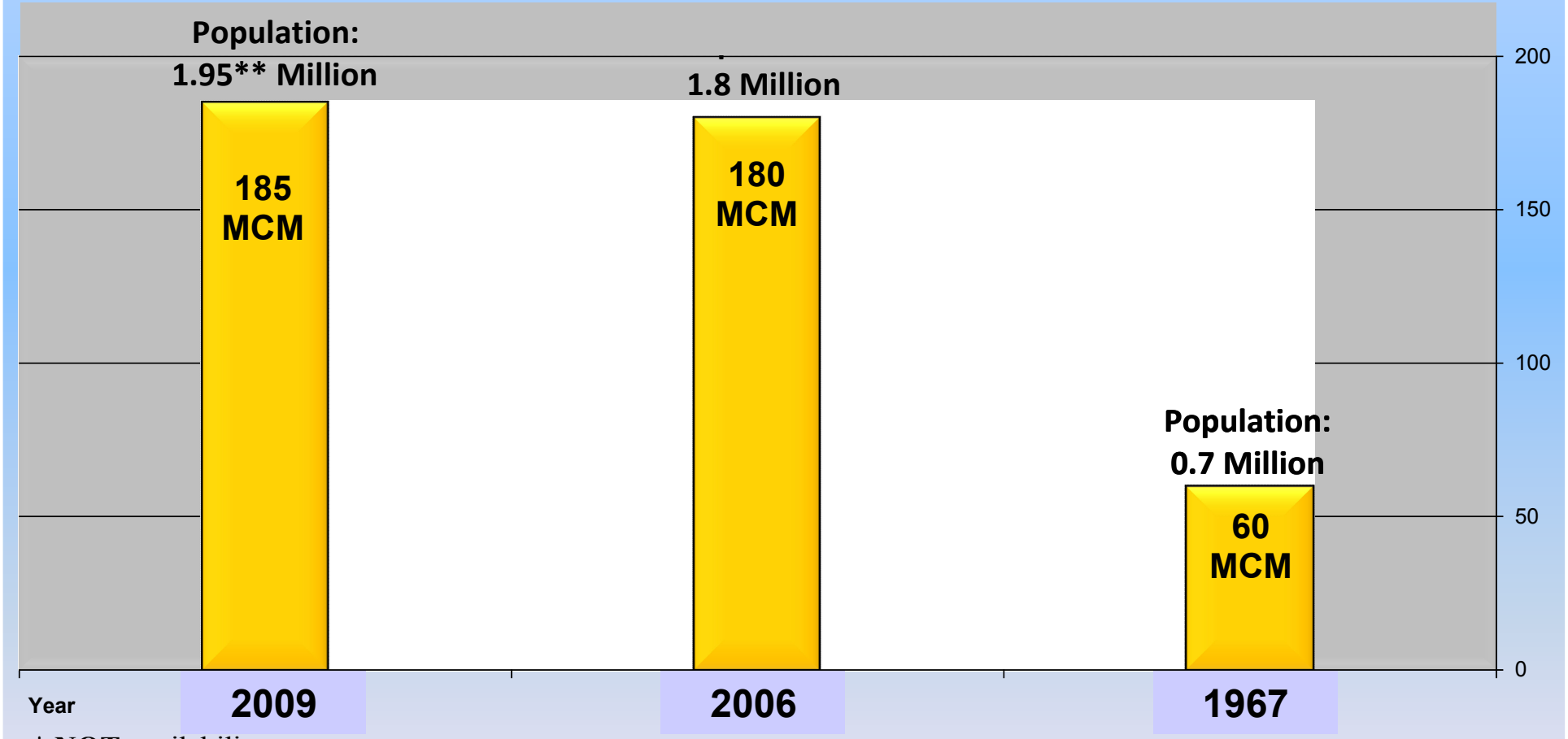
Total Consumption* of Fresh Natural Water (MCM/yr) - Israel

not including treated and desalinated water since it is not subject for disagreement



* NOT availability

Total Consumption* of Fresh Natural Water (MCM/yr) - Palestinians in the West Bank



* **NOT** availability

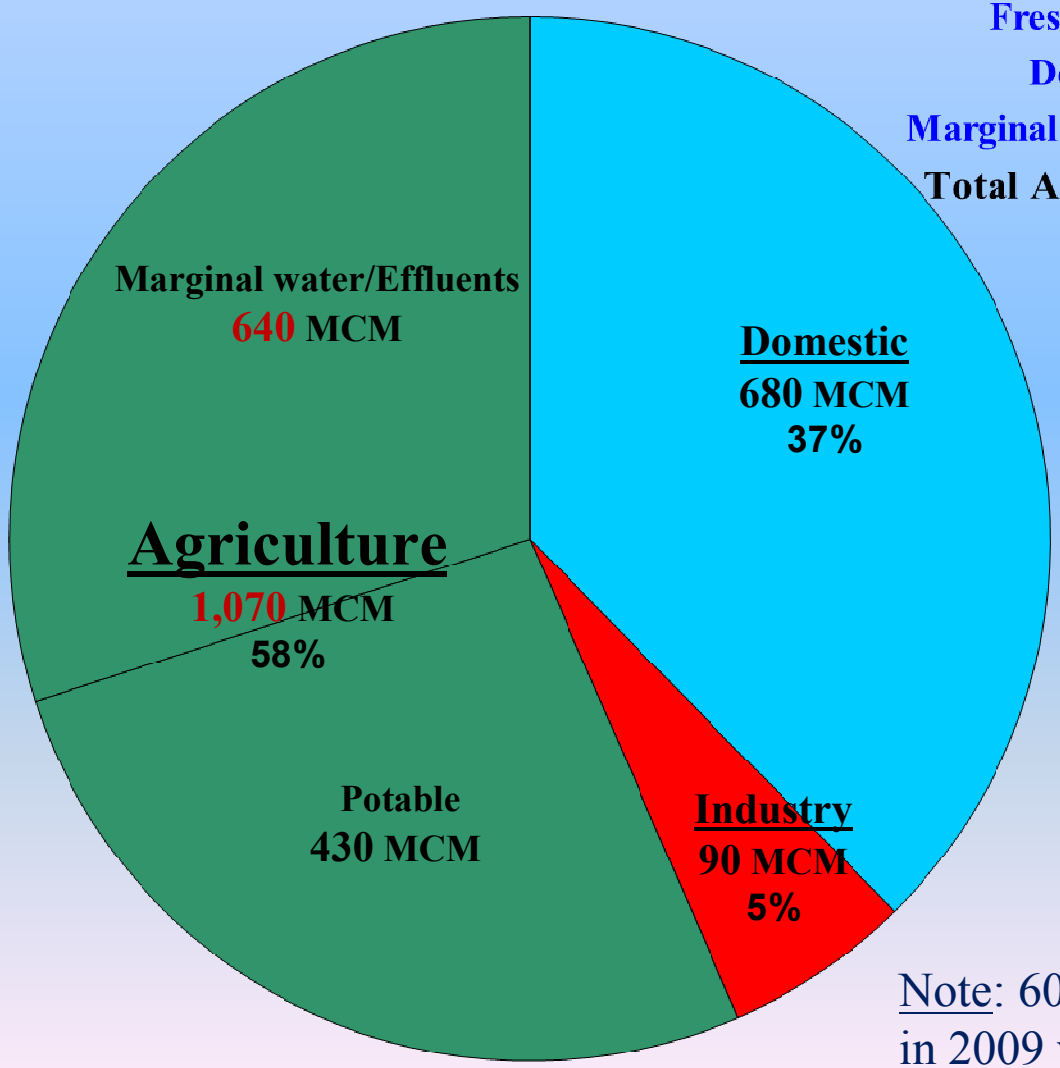
** 1.95 million is the **average** Palestinian population in the West Bank between the Palestinian Central Bureau of Statistics (CBS) and the American-Israeli Demographic Research Group (Y.Etinger)

Note: In 1967, only **10%** of Palestinian households were connected to water infrastructure. Today this figure had risen to **95%**.

Water Consumption in Israel - 2009

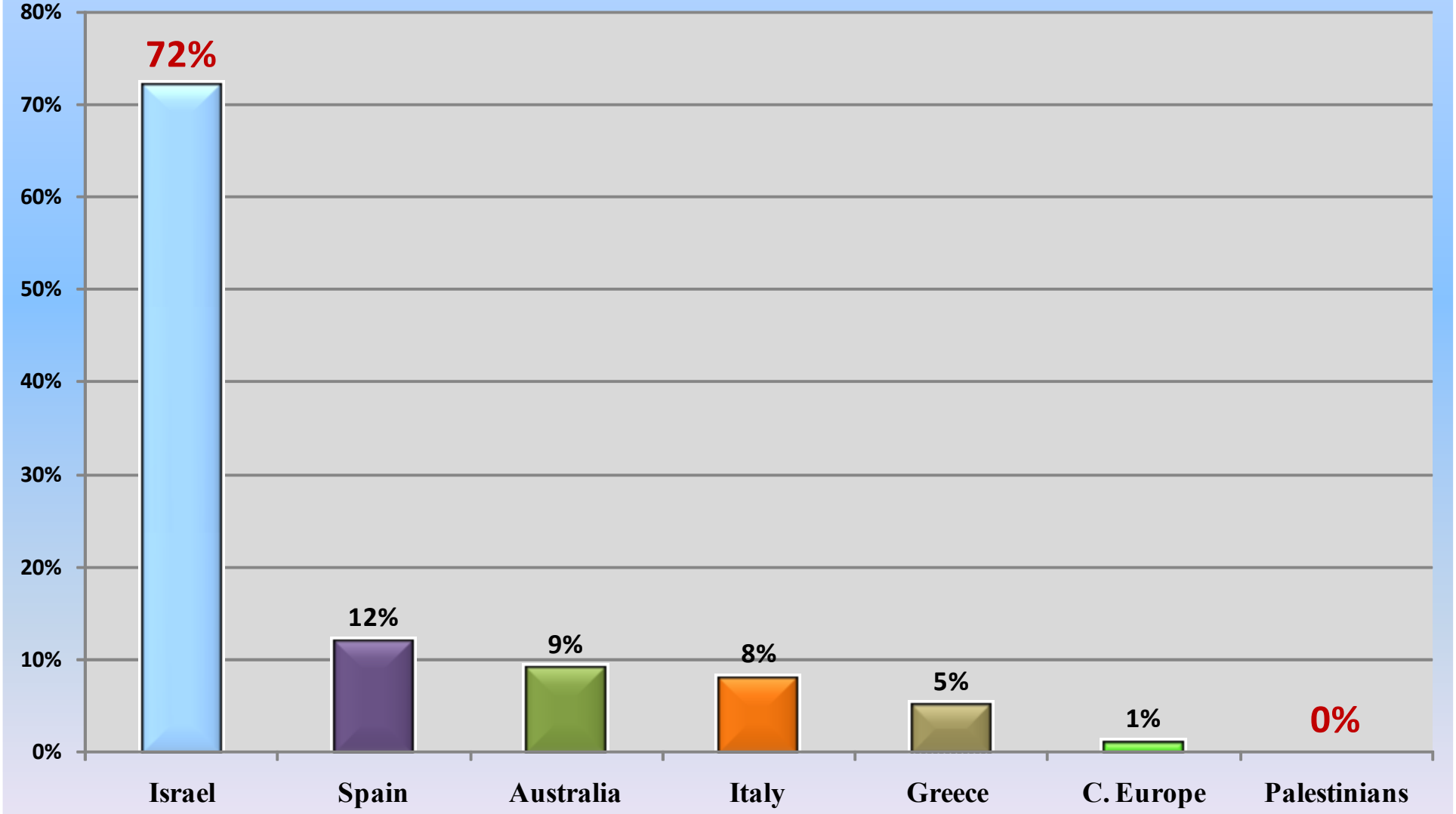
Divided into Sectors

Fresh Natural Water - 1040 MCM
Desalinated Water - 160 MCM
Marginal Water/Effluents - 640 MCM
Total Amount of Water - 1840 MCM



Note: 60% of the water used for agriculture in 2009 was non-potable water.

International Comparison of Wastewater Reuse Policy - 2007



* In 2010 **Israel's activities** to alleviate the water shortage include reuse of **80%** of its wastewater, whereas the **Palestinians' activities** remain **0**.

Palestinian Water Consumption in the West Bank - 2008

According to the Staff Officer for Agricultural Affairs reports (based on Palestinian reports concerning their agricultural GDP):

Agricultural Water Consumption: 92,393,378 M^3

Summarized Table:

Governorate	Total Consumption for Livestock	Total Consumption for Crops
Jordan Valley	150,640	**36,051,000**
Jenin	557,303	**11,515,500**
Bethlehem	322,680	**860,900**
Hebron	520,023	**4,090,000**
Ramallah	287,138	**430,400**
Nablus	377,386	**8,371,500**
Tulkarem	195,369	**13,885,750**
Qalqilya	92,291	**7,517,000**
Tubas	144,826	**5,974,500**
Surrounding Jerusalem	159,742	**71,100**
Salfit	75,730	**742,600**
Total	**2,883,128**	**89,510,250**

According to the Palestinian Water Authority (PWA) reports:

Domestic Water Consumption: 88,579,000 M^3

Table 37: Average Water Supply 2008			
Governorate	Total supplied (MCM)	Population	Supply Rate (l/c.d)
Jenin	6.432	264,667	67
Tubas	0.924	50,380	50
Tulkarm	9.745	163,434	163
Nablus	11.761	332,102	97
Qalqilya	5.207	94,051	152
Salfit	2.122	61,426	95
Jericho	3.609	43,101	229
Ramallah	14.79	287,193	141
Jerusalem	7.552	164,247	126
Bethlehem	9.744	182,340	146
Hebron	16.698	569,317	80
Totals	88.579	2,212,262	110*

* For the West Bank, a per capita water supply of 110 liter per day does not take into consideration the overall average percent of water losses (33%) ,i.e., unaccounted – for – water (UFW). When water losses are included, the supply rate per capita for persons served with a piped water supply becomes 73.7 liter per day. If one considers all the Palestinian who do not receive any water delivered to their residences, this rate of 73.7 l/c/d is even less.

***Source: The Palestinian Water and Wastewater Sector – Basic Needs and Development Ongoing and Proposed Projects by Governorates, October 2009**

Total Palestinian Consumption (Agricultural + Domestic): 180,972,378 M^3

Comments of the Israel Water Authority

Comments of the Israel Water Authority:

1. Various sources specify different figures concerning the size of the Palestinian population in the West Bank. The IWA has decided to calculate the **average** between two main sources: the Palestinian Central Bureau of Statistics and the Israeli –American Demographic Research Group (Y. Etinger); the average for 2009 is **1.95 million residents.**

2. The figures representing Palestinian water losses are extremely high - about 33% (including unaccounted for "stolen" water); water losses should be dealt with and significantly reduced before producing additional sources of water.

3. According to the table and abovementioned calculations, the domestic consumption is 124 liters/capita/day (88.6 MCM/365 divided by 1.95 million); taking into account the 10% water losses (reasonable figure) the Palestinian consumption is **112 liters/capita/day.**

4. The new Palestinian wells, which are currently being drilled, will add 10 MCM per year for domestic use. This means that the consumption per capita per day will amount to **138 l/c/d** (98.6 MCM/365 divided by 1.95 million residents.) Again, taking into account the 10% water losses the Palestinian consumption will be **124 l/c/d.**

5. **The total** per capita consumption of the Palestinians amounts to **93 m^3/capita/year** for all purposes(180.9 MCM/365 divided by 1.95 million residents) which means :**254 l/c/d** .

6. The total per capita availability of the Palestinians amounts to 196 MCM/year allocated in the Water Agreement, and an additional 51.5 MCM supplied by Israel. Thus, **127 m^3/c/y** which means **348 l/c/d** is available for the Palestinians (not the entire quantity is actually used.)

JWC

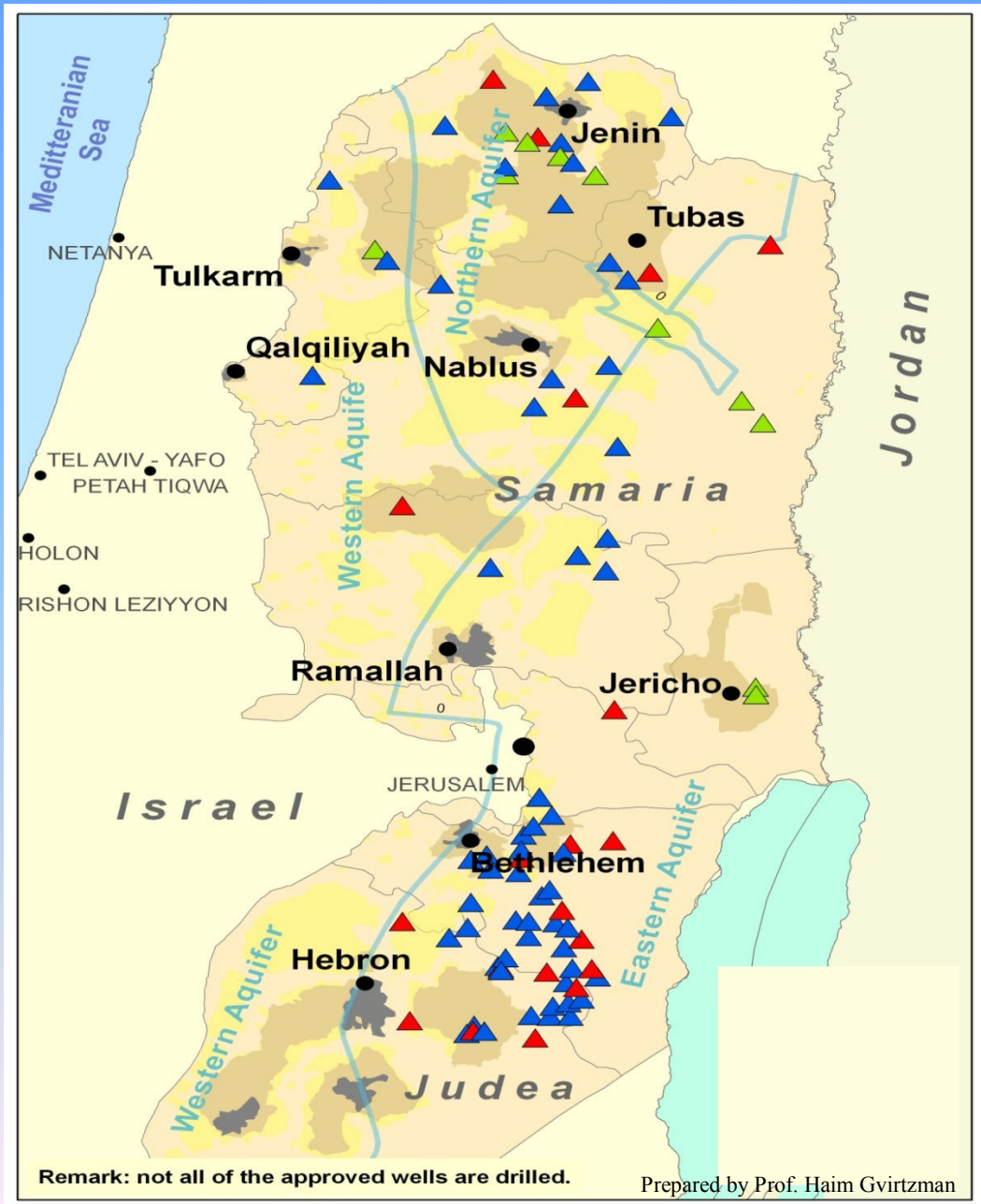
Israeli – Palestinian

Joint Water Committee

Activities of the JWC:

1. The JWC is co-chaired by the heads of the Palestinian and Israeli water authorities and includes representatives from both sides.
2. The Water Agreement between Israel and the Palestinians is the basis for cooperation between the two sides in the field of water and wastewater in the West Bank.
3. The JWC is the agreed joint body which was established to implement the Water Agreement.
4. The JWC has four sub-committees for water, wastewater, hydrology and pricing.
5. The JWC and sub-committees convene regularly; interaction between the sides is on a daily basis.
6. Most of the Palestinian as well as Israeli project applications which are brought before the JWC are approved. The few applications which are not approved are in contradiction to the Water Agreement.
7. The JWC initiated a fast-track mechanism for the approval of urgent projects within 21 days.
8. Currently there are many Palestinian projects which were approved by the JWC but not yet implemented, including 25 wells.

Palestinian Wells Approved by the JWC since the Agreement (1995)



Purpose of Wells (2011)

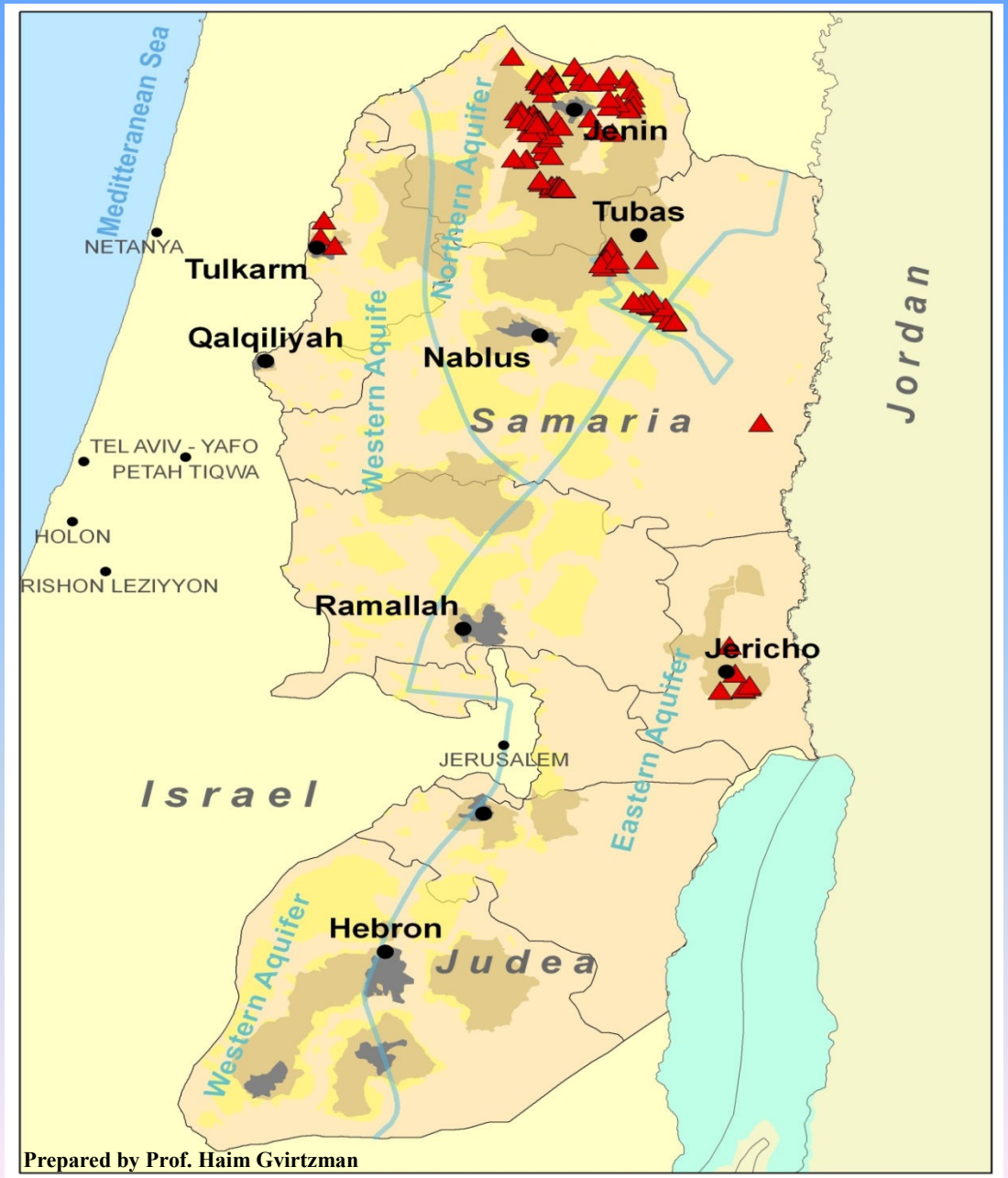
Drinking Water - **70 Wells**, (Incl. 13 substitute wells)

Agriculture - **11 Wells**

Monitoring - **22 Wells**

Note: in addition, **110** Palestinian wells in the eastern and western basins of the aquifer were approved for upgrade and rehabilitation.

Unauthorized Wells



Over 300 unauthorized wells were drilled by the Palestinians in the West Bank.
These unauthorized wells may ruin the shared aquifer as they almost completely ruined the one in Gaza and cause an ecological disaster.

The water extracted from these wells is on account of the authorized Palestinian wells.

Assessment

Adequate organization and management can significantly increase Palestinian water sector capabilities.

Based upon:

- Sustainability and management of water resources
- Water saving and reduction of water losses
- Treating and using all available water sources (sewage, flood and saline water)
- Producing new water sources - desalination
- Real water pricing

Israel's water sector is acting accordingly and it proved to be effective.