



State of Israel

The Water Administration for the WB&GS

The Water Issue Between Israel and the Palestinians

February 2011

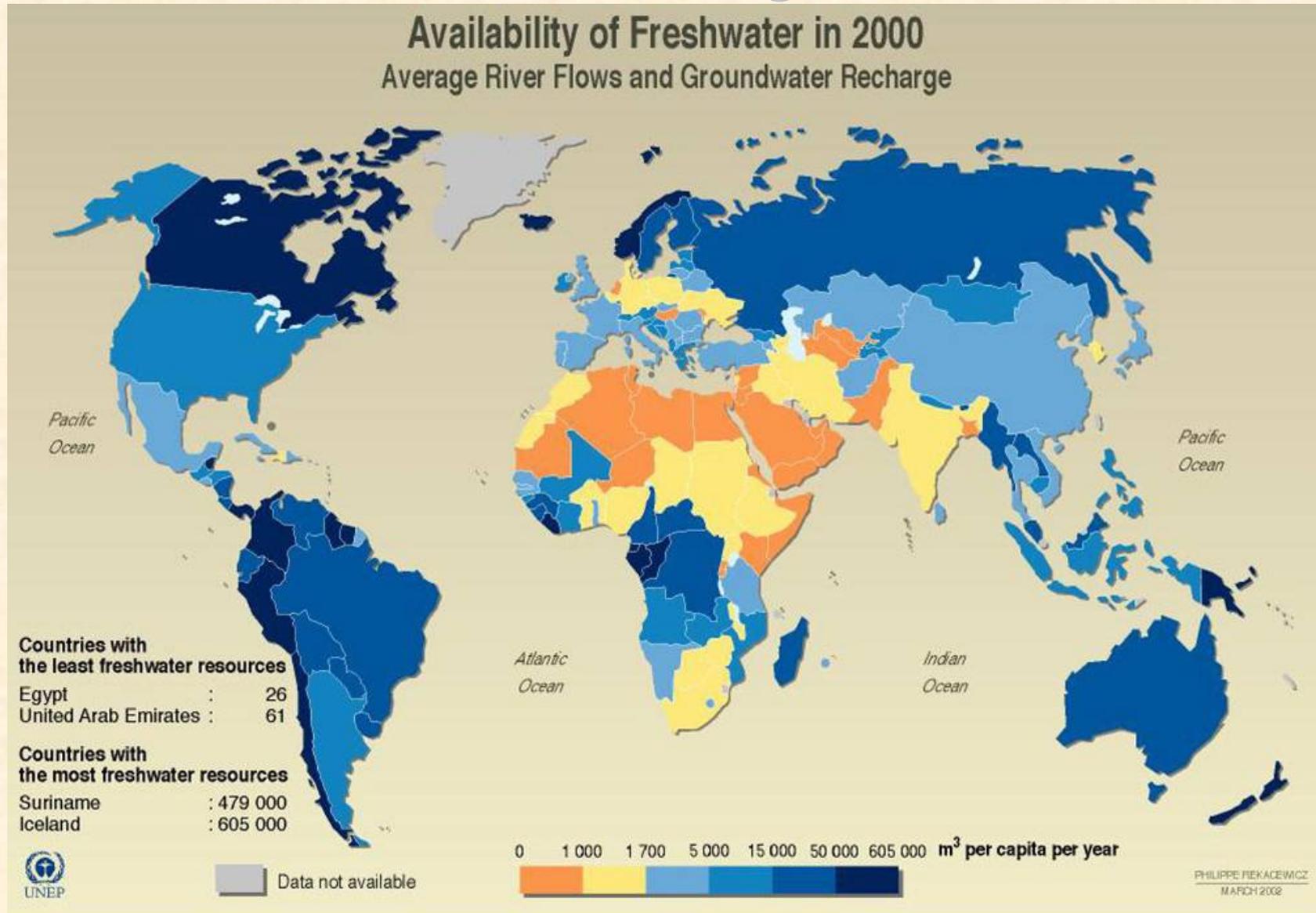
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The Water Situation in the World

The Extent of Water Shortage



Source: *World Resources 2000-2001, People and Ecosystems: The Fraying Web of Life*, World Resources Institute (WRI), Washington DC, 2000.

Access to Water and Sanitation (UN Reports)

Year	Water	Sanitation	
2000	1.2 b Persons	2.5 b Persons	<u>Do not</u> have access to adequate water supply system and sanitation.
2015	1.5 b Persons	3.0 b Persons	<u>Will not</u> have access to adequate water supply system and sanitation.

Drinking Water and Sanitation

The UN suggests that each person needs **20-50 litres of safe freshwater** a day to ensure their basic needs for drinking, cooking and cleaning.

Source: World Water Assessment Programme (WWAP)

More than one in six people worldwide -

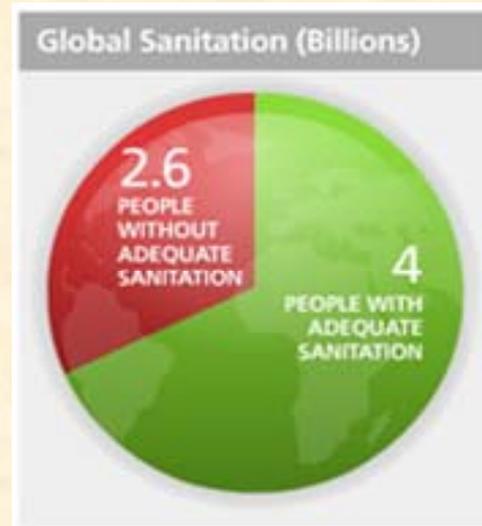
894 million - don't have access to this amount of safe freshwater.

Source: World Health Organization (WHO) and United Nations Children Fund (UNICEF) Joint Monitoring Programme on Water Supply and Sanitation (JMP)



Globally, diarrhoea is the leading cause of illness and death, and 88 per cent of diarrhoeal deaths are due to a lack of access to sanitation facilities, together with inadequate availability of water for hygiene and unsafe drinking water.

Source: JMP



Today **2.5 billion people, including almost one billion children, live without even basic sanitation.**

Every 20 seconds, a child dies as a result of poor sanitation. That's 1.5 million preventable deaths each year.

Source: Water Supply and Sanitation Collaborative Council (WSSCC)

In Sub-Saharan Africa, treating diarrhoea consumes 12 percent of the health budget. On a typical day, more than half the hospital beds in are occupied by patients suffering from faecal-related disease.

Source: WSSCC

Washing hands with soap can reduce the risk of diarrhoeal diseases by up to 47 per cent.

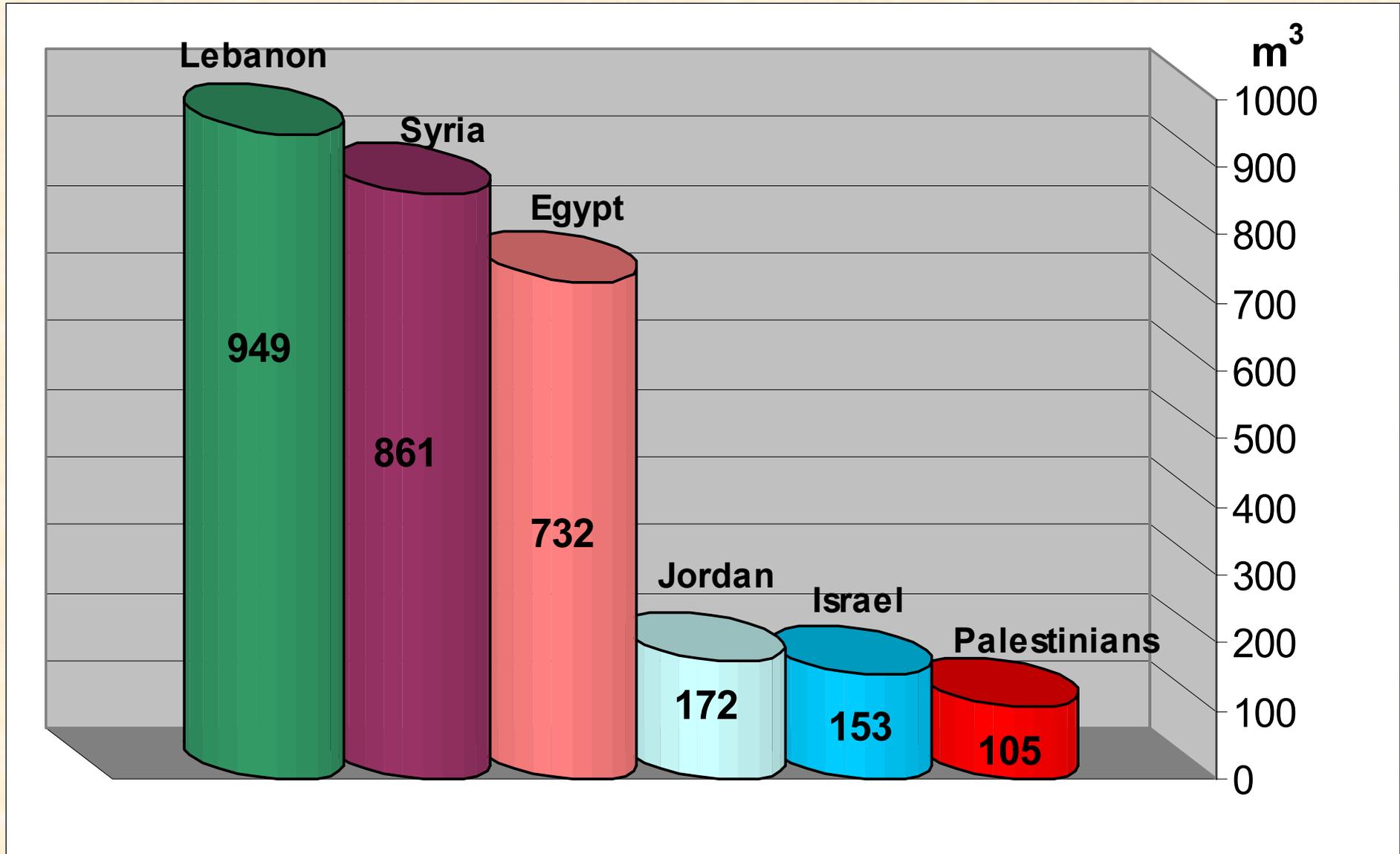
Source: WHO

The first ever global handwashing day was celebrated on 15 October during the International Year of Sanitation.

The Water Situation in the Middle East.

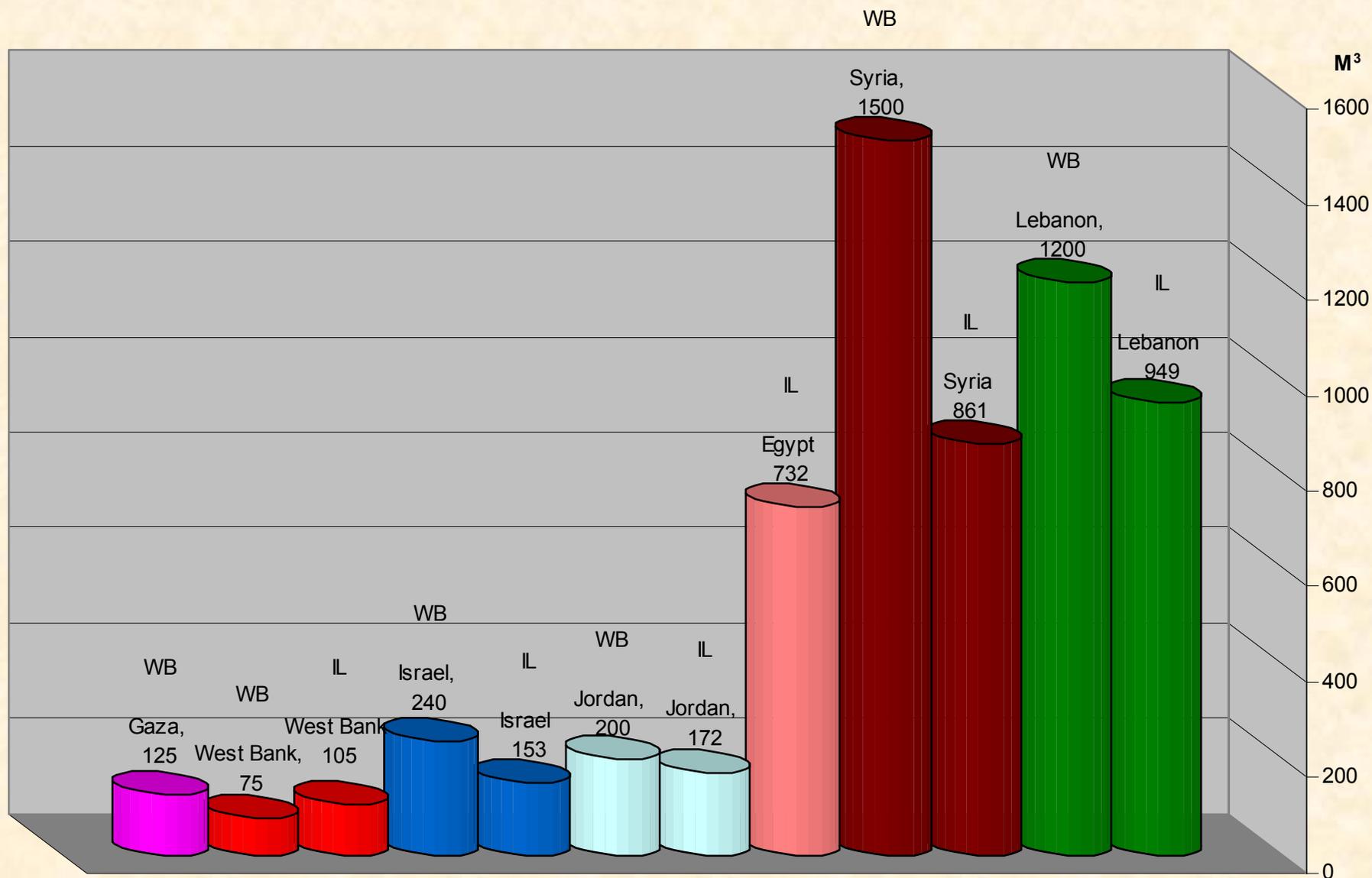
Total Quantity of Fresh Water per Capita on Multiannual Average in Countries Bordering Israel

2007



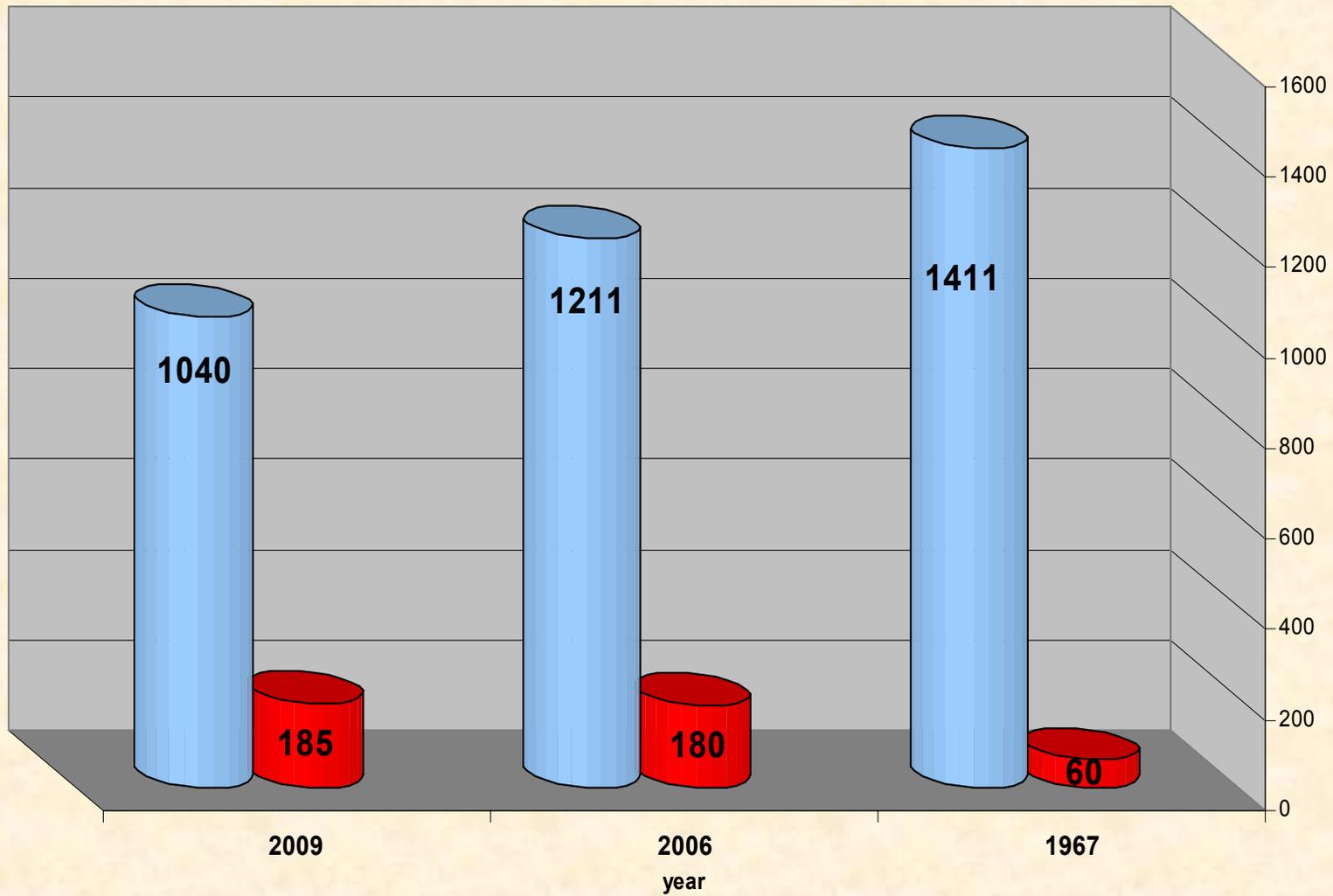
Total Quantity of Fresh Water per Capita on Multiannual Average in Countries Bordering Israel

Israeli Vs. World Bank Data



The Israeli Water Sector

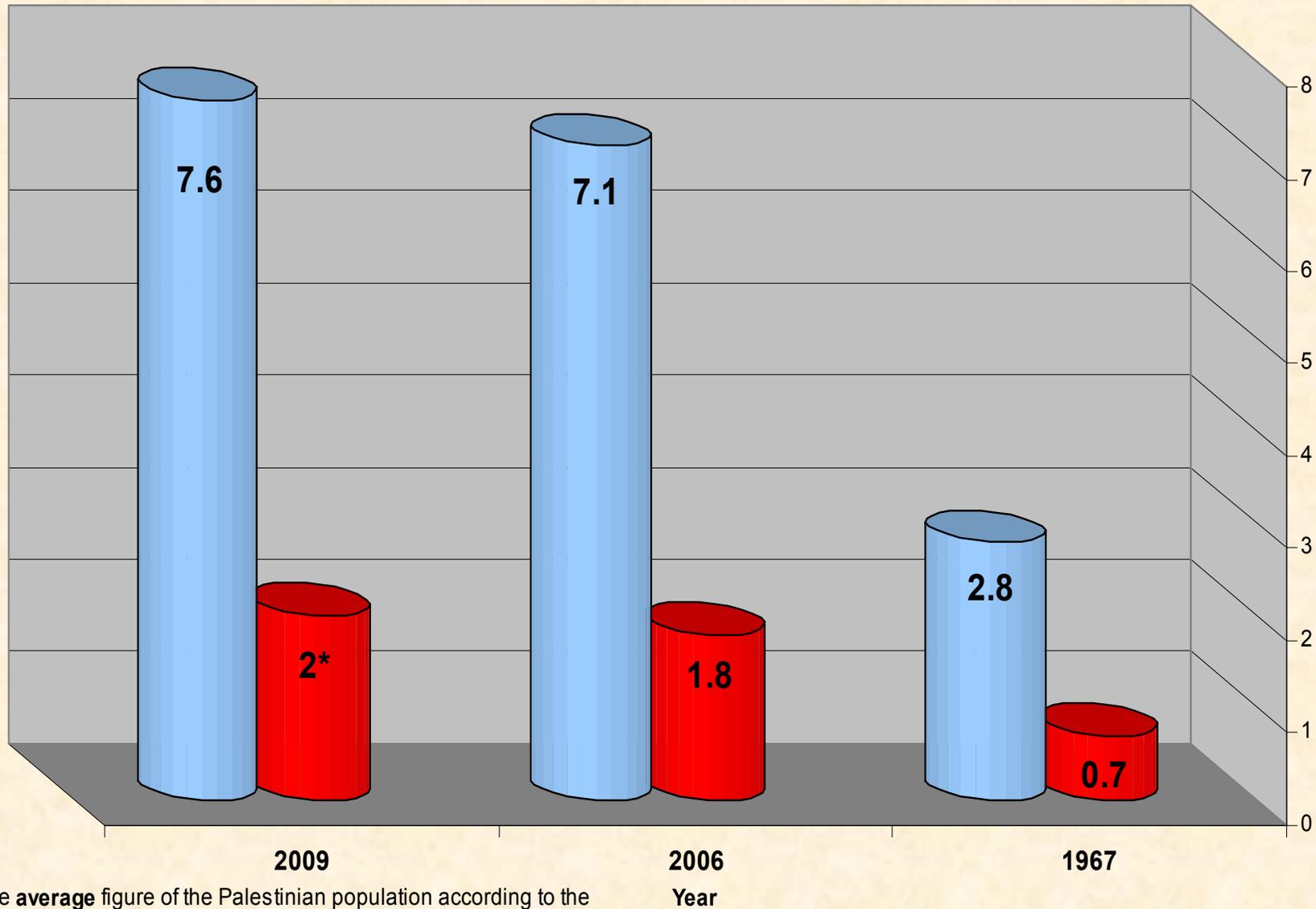
Total Consumption of Fresh Natural Water (MCM/yr) not including treated and desalinated water since it is not subject to disagreement



■ total water consumption by Palestinians in the West Bank

■ total consumption by Israel

Population (millions)

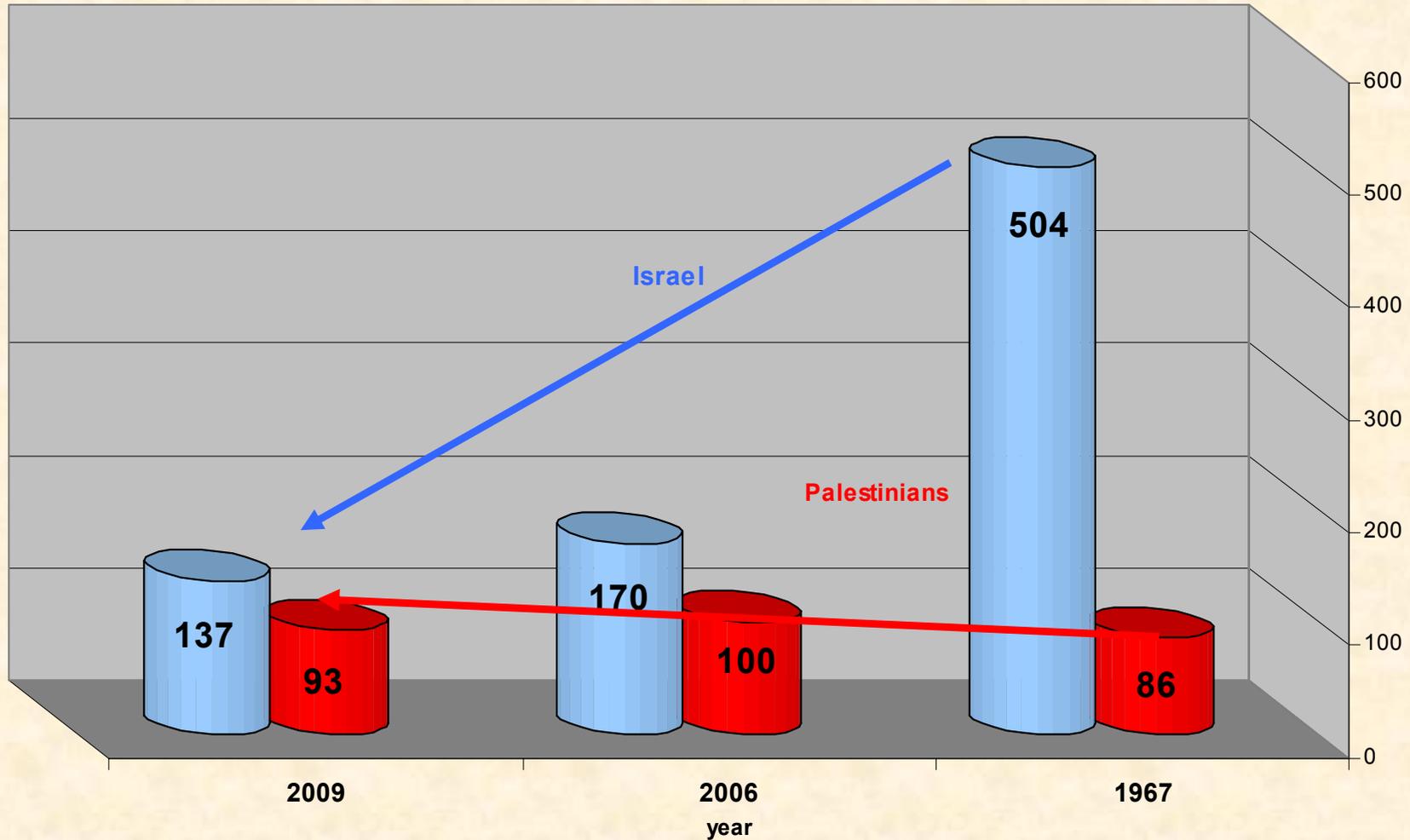


*2 is the **average** figure of the Palestinian population according to the Palestinian Central Bureau of Statistics (CBS) and the American-Israeli Demographic Research Group (Y. Etinger)

■ **Palestinian Population in the West Bank**

■ **Population in Israel**

Total Consumption of Fresh Natural Water per Capita (m³/capita/year) (not including treated and desalinated water since it is not subject to disagreement)

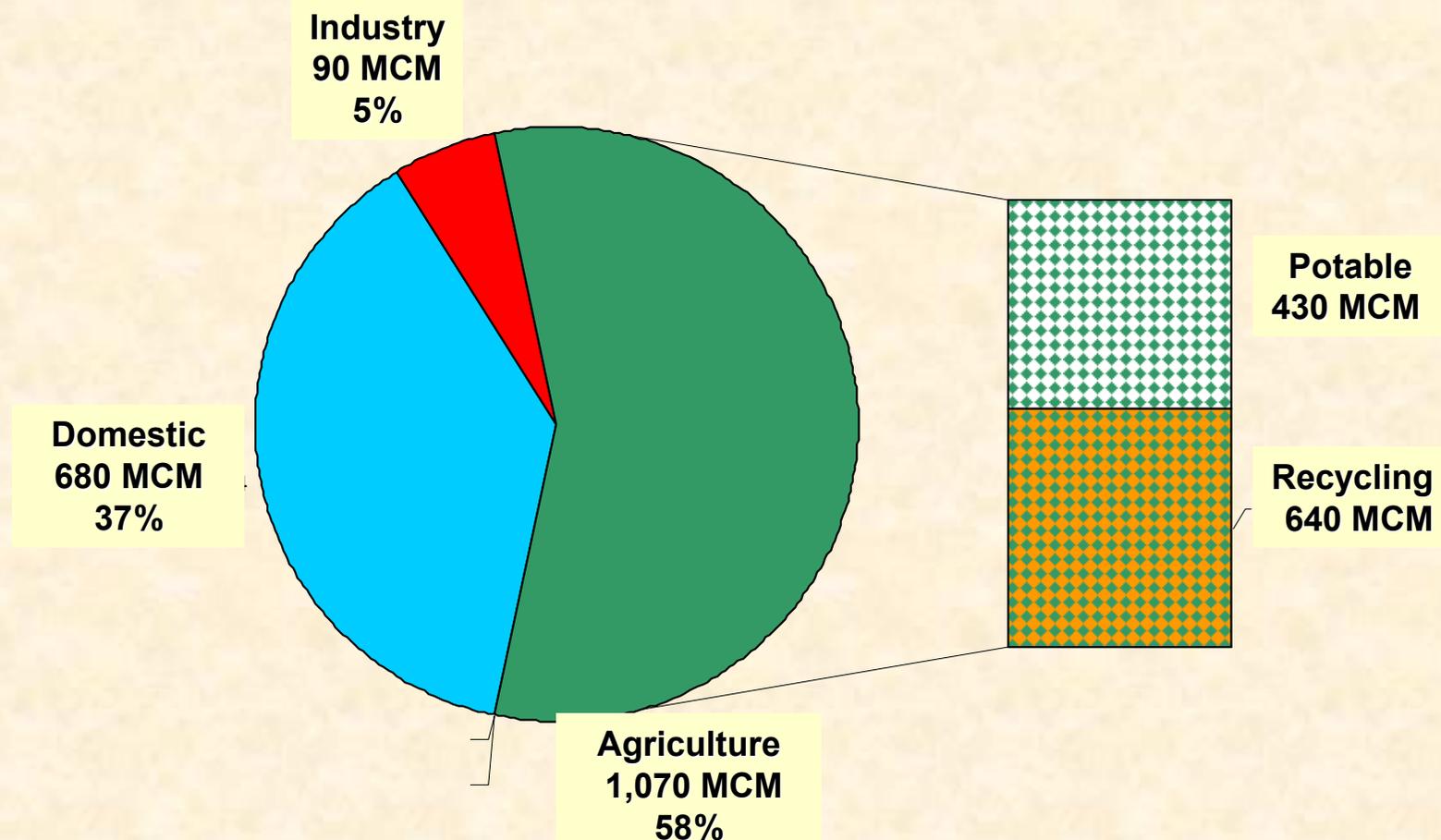


■ Per Capita consumption of Palestinians in the West Bank ■ Per Capita consumption in Israel

Water Consumption in Israel 2009

divided into sectors

Total Amount of Water- 1840 MCM

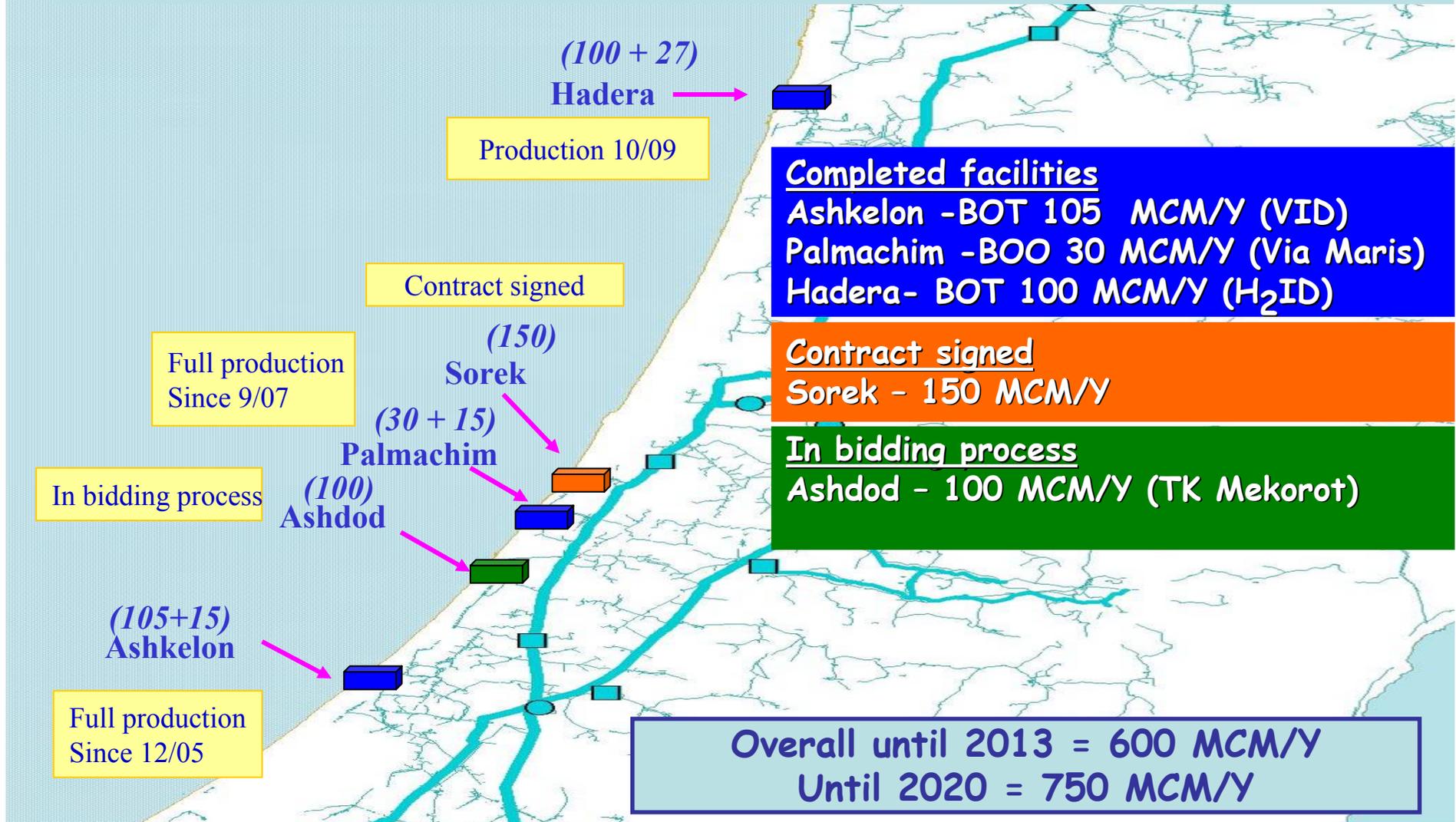


Total Amount of Fresh* water- 1,200 MCM

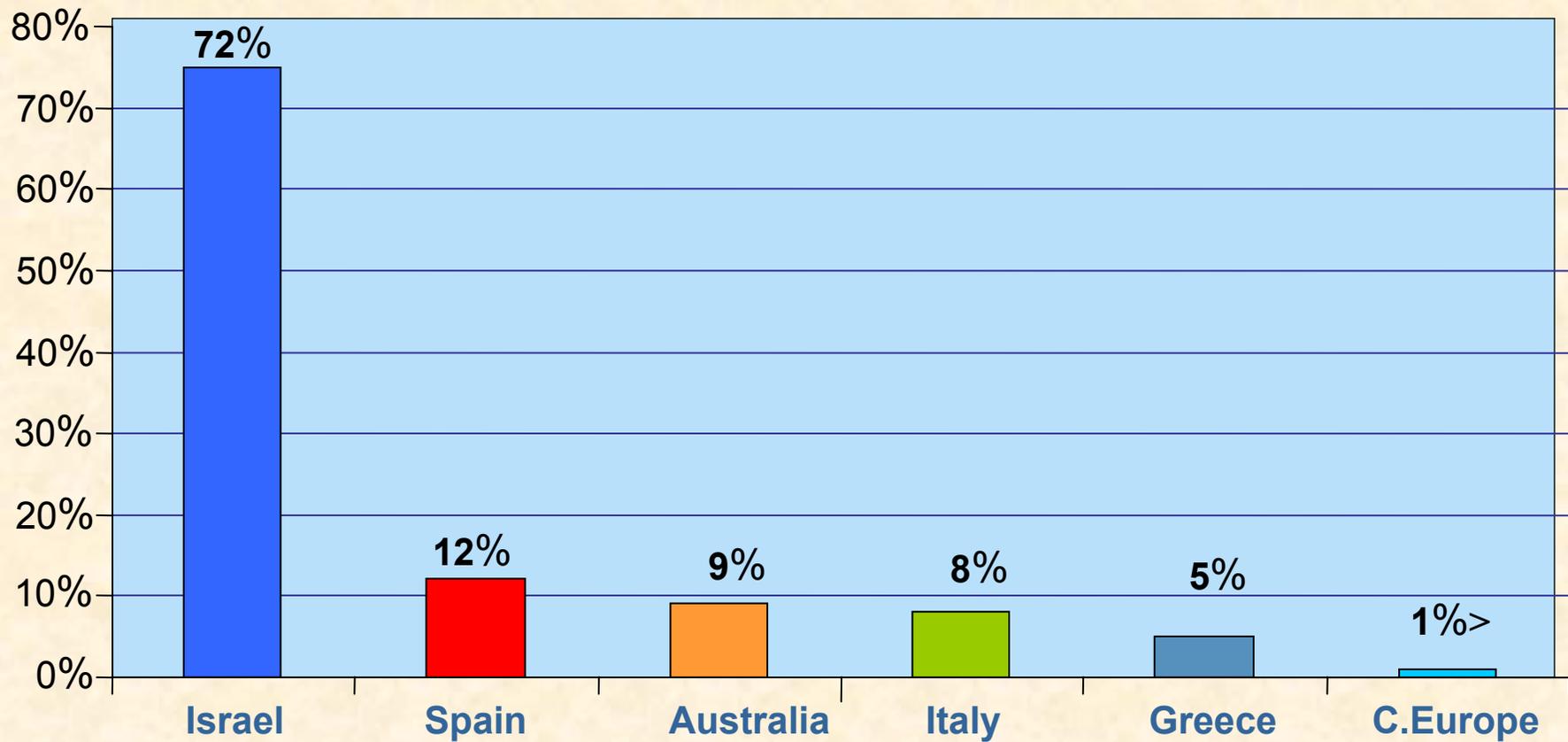
*Including desalinated water =160 MCM

Sea Water Desalination

Pursuant to government decisions (between the years 2001-2008) sea water desalination facilities are being built :



Reused Effluents 2007

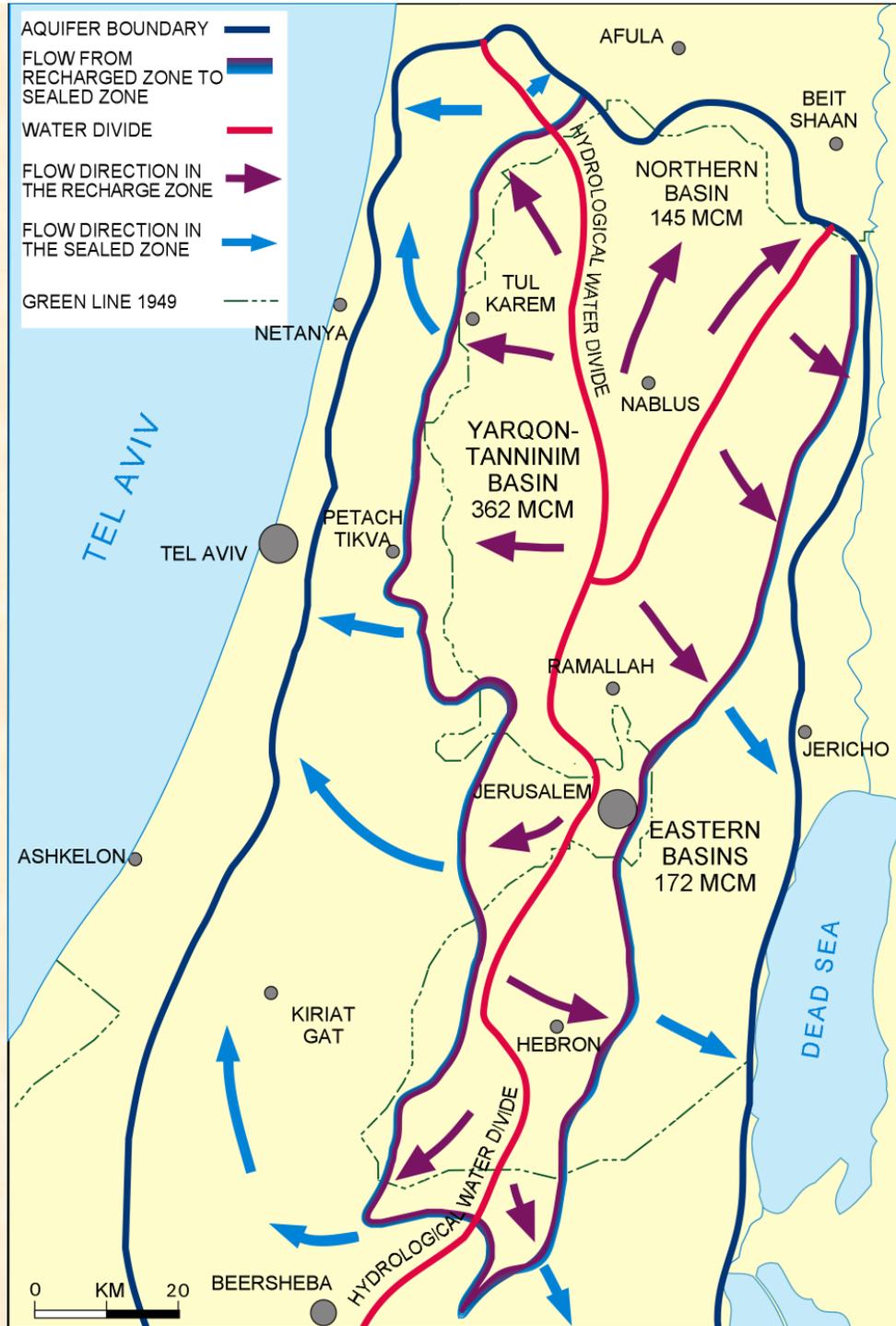


The Issue of Water between Israel and the Palestinians

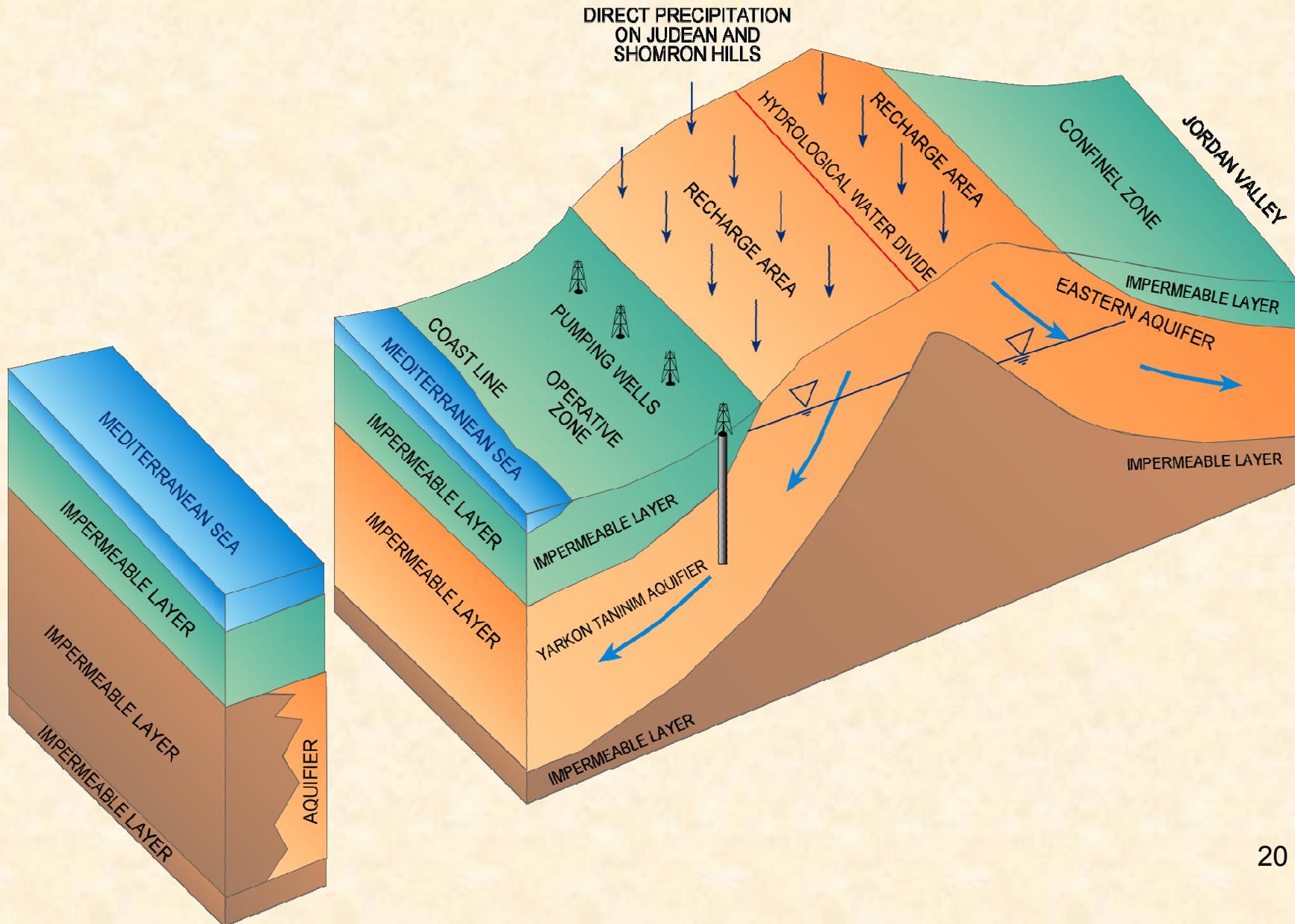
Main Principles of the Water Agreement

1. **Palestinian Water Rights in the West Bank are recognized and shall be determined in the Permanent Status Agreement.**
2. **The development of new water sources.**
3. **Maintaining the present 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)**

Mountain Aquifer



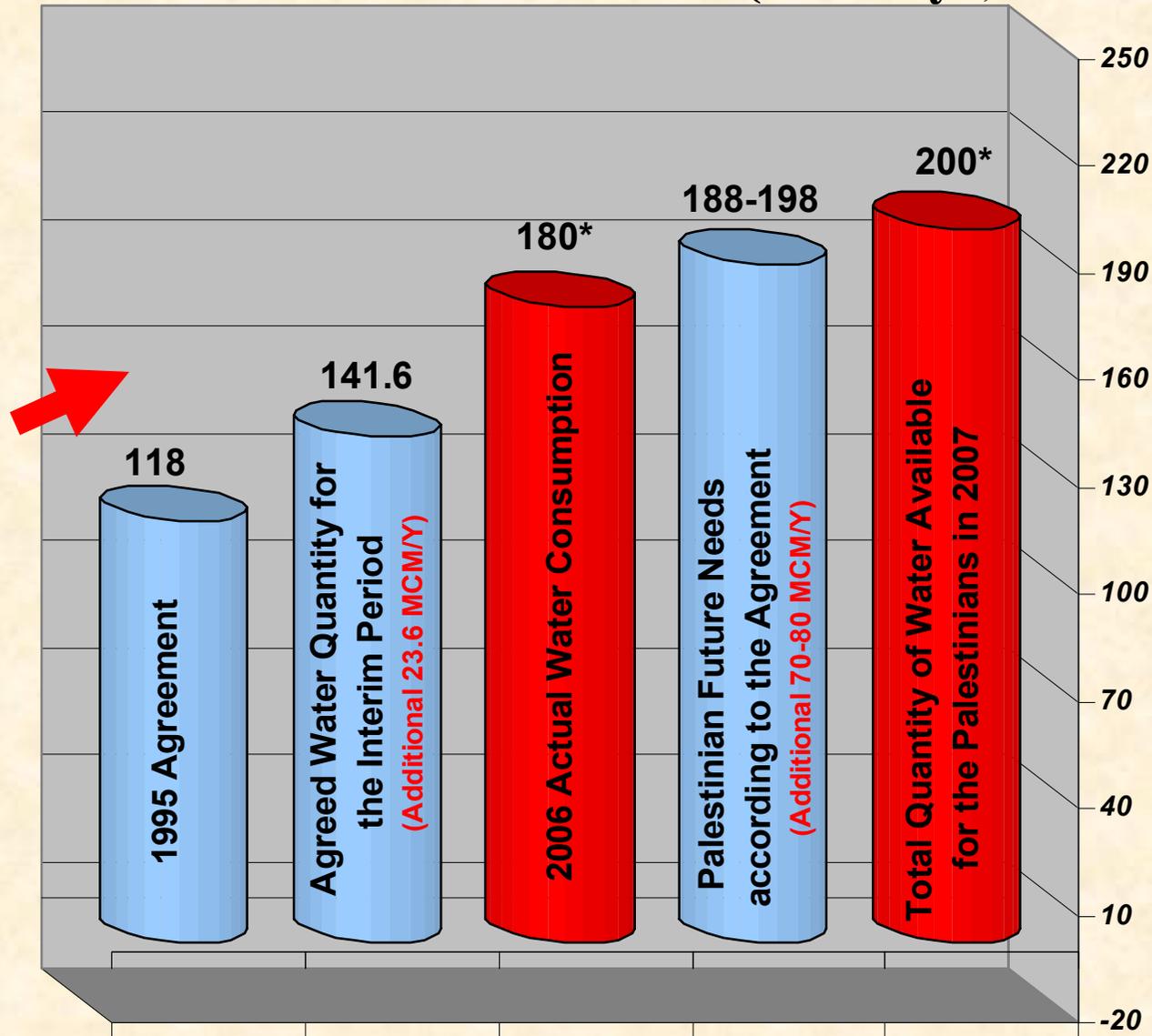
Schematic Cross Section of the Mountain Aquifer in the Judean Mountains Region



Implementation of the Agreement

1. Israel made available to the Palestinians over **70** MCM/yr during the interim period, even though it was agreed on a much lesser quantity of only **23.6** MCM/yr, (in addition to the **118** MCM/year which was consumed by the Palestinians at the signing of the agreement).
2. Israel has offered the Palestinians, a significant quantity of desalinated additional water (by building a desalination plant in Hadera for their use).
3. The Palestinians fail to treat most of their sewage, which has been contaminating the aquifer, and has been flowing freely into Israel.
4. The Palestinians are not developing new water sources through sewage treatment, or desalination (in contrast to the Water Agreement).
5. the Palestinians are drilling significant number of unauthorized wells.

Water Agreement - Commitments and In Practice (MCM/yr) - 2007



* Including Yields of Unapproved Wells

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

sn.	Region	1995 basis for increment	according to the agreement +	Total Obligation	Actual Quantity Supplied to the Palestinian Authority in the West Bank												Supplied in 2009, in addition to Israeli obligation
					1998	1999	2000	2001	2002	2003	2004	2005*	2006	2007	2008	2009	
1	Jenin	2		2	2.6	2.3	2.3	2.1	2.0	1.9	2.4	2.2	0.7	1.2	1.6	1.7	-0.4
2	Nablus & Salfit	1.9	1.6	3.5	2.8	3.8	3.5	3.7	4.1	4.2	4.5	4.6	5.4	6.1	6.7	6.6	3.1
3	Hebron & Bethlehem	11.7	1	12.7	13.9	14.7	14.8	15.1	14.9	15.2	16.2	15.8	19.7	19.8	19.7	20.9	8.2
4	Ramalah	7.2	0.5	7.7	8.9	10.5	11.6	12.2	12.8	13.6	14.4	13.9	14.4	15.2	17.0	16.2	8.5
5	Jordan Valley	5.07	0	5.07	4.7	5.9	5.1	5.5	5.3	5.2	6.1	6.2	6.1	6.7	6.9	6.1	1.1
6	Total	27.9	3.1	31.0	32.9	37.2	37.3	38.6	39.1	40.1	43.6	42.8	46.4	48.9	51.8	51.5	20.5

Notes:

1. Gaza Strip – Israel has undertaken to supply 5 MCM/yr from the Israeli system, a quantity that will originate from desalination in Israel. For this purpose Israel has laid a water supply line extending up to the border with the Gaza Strip, although works on the Palestinian side have not been completed. At present Israel supplies 5 MCM/yr, as per the previous commitment.

In addition, Israel has handed over to the Palestinians (in the framework of disengagement) 25 water wells and an advanced water supply system.

2. Jenin – Israel's obligation was to drill an additional well supplying 1.4 MCM/yr. The well, Jenin 4, is indeed yielding the above quantity and is being operated by the Palestinians. It is therefore not presented in the table.

* 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 framework of supply by Mekorot.

Palestinian Water Consumption in the WB - 2008

According to the Staff Officer for Agricultural Affairs reports & the Palestinian Water Authority (PWA) reports

Agricultural water consumption - 92,393,378 M³

Domestic water consumption - 88,579,000 M³

Total Palestinian consumption - 180,972,378 M³

Summarized Table:

Governorate	Total Consumption for Animals	Total Consumption for Agriculture
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

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.**

*** See next slide for IWA General Comments**

General Comments of the Israeli Water Authority:

1. There are various sources which 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 is **2 million persons**.
2. According to this calculation, the domestic consumption is **121 l/c/d** (88.5 M.C.M divided by 2 million.)
3. The figures representing Palestinian water losses are unreasonable (including "stolen" water); water losses should be dealt with and significantly reduced before producing additional sources of water.
4. The new Palestinian wells will add another 10 MCM per year. This means that the consumption per capita per day will amount to **135 l/c/d** (98 M.C.M divided by 2 million persons.) Taking into account the 10% of water losses (reasonable figure) the per consumption will be **121 l/c/d**.
5. **The total*** per capita consumption of the Palestinians is: **248 l/c/d** or **90 c/m/y**.
6. The total quantity of water which is available for the Palestinians amounts to more than 200 MCM year. Thus, more then **100 c/m/y** or **273 l/c/d** is available for the Palestinians (not the entire quantity is actually used.)

* 180.9 MCM per year.

Water Supply to Communities in the West Bank - updated 28.3.10

All Communities and Population			Communities and Population without a Regular Water Supply System		
Number of Communities	Regular supply	Population	Color- Persons	Number of Communities	Population
372	Yes	2,412,664	0-1000	32	13,538
67	No	118,997	1000-2000	16	16,943
439	Total	2,531,661	2000-4000	12	46,822
16	in connection process	48,683	4000-10000	7	41,694

Out of all the communities and population that are not connected to a regular water supply system, only **8 communities with a population of 2003 are in area C**

Comments and Clarifications

The majority of the abovementioned details were received from the Civil Administration in the WB - it was processed and completed by the Israeli JSETs, Staff Officer for Water Affairs and the head of the water unit - Zidan El Hirni

The quantity of the entire population, as well as the population specified for each community, is 25% larger than the real quantity.

In **32** communities out of the 67 mentioned above, there are only **13,538** inhabitants; most of these communities are small and most of their houses were built illegally.

In the remaining **35** communities there are **105,459** inhabitants.

The list of communities which are not connected to a regular water supply system includes 12 communities, with 37,443 inhabitants, which are in a high priority to be connected to the system; once they are connected, only 32,871 inhabitants in 39 small communities will not have a solution.

It is assumed that there are other small "hirbets" that are not connected to a regular water supply system; however, ~~they~~ they are not considered to be communities and their houses, if there are any, were built illegally.

Israeli–Palestinian Cooperation

Activities of the JWC:

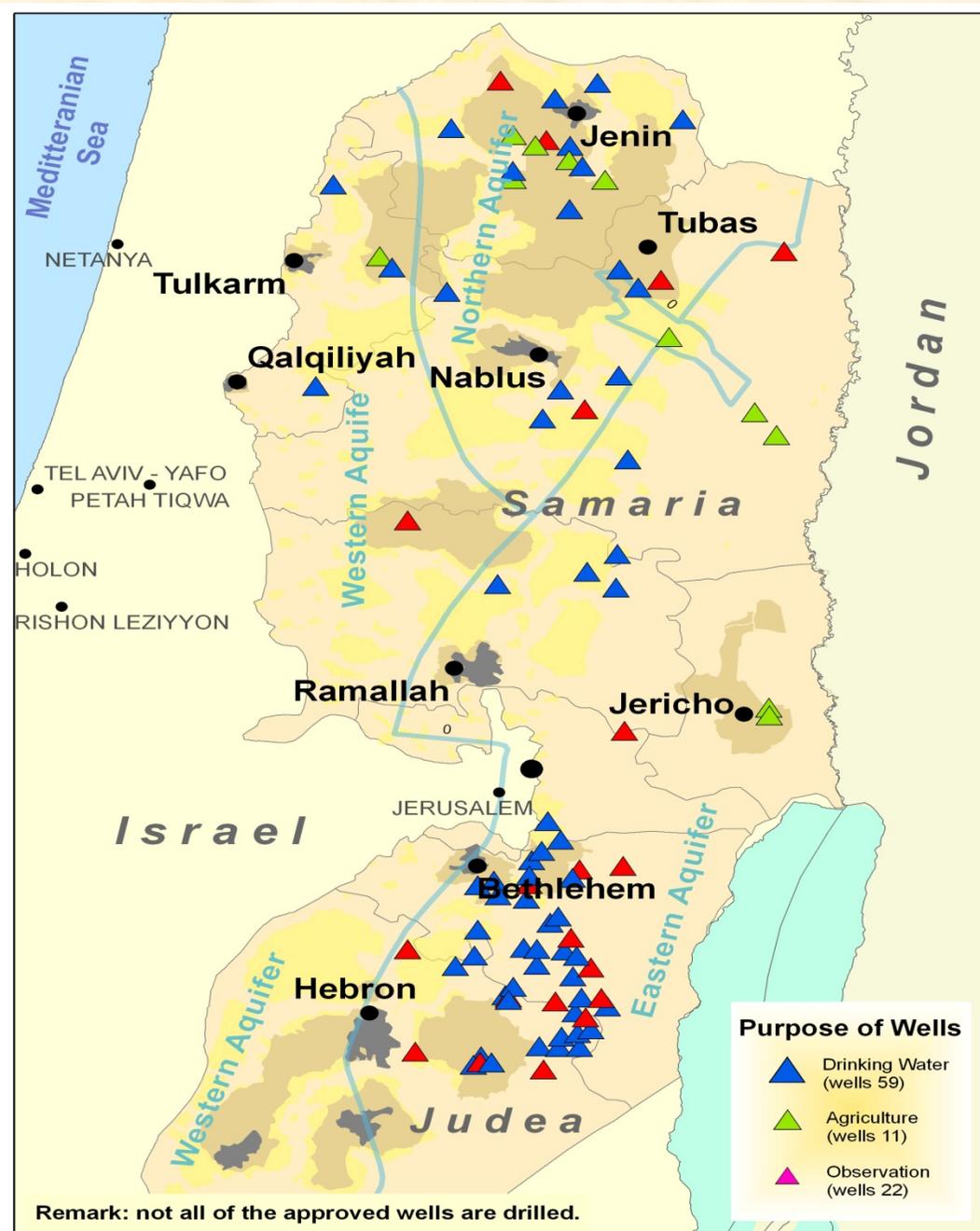
- 1. The Water Agreement between Israel and the Palestinians is the basis for the regular cooperation between Israel and the Palestinians in the fields of water and wastewater in the West Bank.**
- 2. The JWC is the entity which was established to implement the Water Agreement.**
- 3. The JWC, chaired by the heads of the water authorities of both sides, includes representatives from both sides.**
- 4. In the framework of the JWC, there are four sub-committees for water, wastewater, hydrology and pricing.**
- 5. The JWC and sub-committees are convened regularly and the interaction between both sides is on a daily basis.**
- 6. Most of the Palestinian as well as Israeli project applications which are brought to the JWC are approved. The few applications which are not approved are in contradiction with the Water Agreement.**
- 7. Currently there are many Palestinian projects which were approved but not implemented due to lack of funding.**

Water Agreement – Obligation vs. Implementation (Major Commitments)

Commitment		Status of Implementation (2008)	
Article 40 Clause	Nature of Commitment	by Israel	by Palestinians
7a1	An additional 1 MCM/year to the Hebron and Bethlehem area.	An addition of 8 MCM/year was provided	
7a2	An additional 0.5 MCM/year to the Ramallah area	An addition of 9.8 MCM/year was provided	
7a3,4	An additional 1.6 MCM/year to the Salfit and Nablus area	An addition of 4.8 MCM/year was provided	
7a5	An additional 1.4 MCM/year to the Jenin area	Israel drilled “Jenin 2” (1.4 MCM/year) for Palestinian operation	
7a6	An additional 5 MCM/year to the Gaza Strip	Israel installed the pipeline up to the Gaza Strip border	
7b1	An additional 2.1 MCM/year to the Nablus area (new well)	Israel authorized the drilling	The well has been drilled
7b2	An additional 17 MCM/year from new wells to be drilled by Palestinians in the eastern aquifer and other agreed sources.	Israel authorized the drilling of 70 wells with an estimated extraction capacity of more than 50 MCM/year	approx. half of the approved wells were not yet drilled or operated by the Palestinian side
	The total Israeli commitment to supply water <u>directly</u> to the PWA in the West Bank stands at 31 MCM/year (3.1 additional water supplied under the agreement + 27.9 supplied at the time of signing the agreement).	In fact, Israel supplies 51.8 MCM/Year directly to the PWA in the West Bank which is 20.8 MCM/year more than the commitment	30

Commitment		Status of Implementation (2008)	
Article 40 Clause	Nature of Commitment	by Israel	by Palestinians
6-7	It was agreed that a quantity of 28.6 MCM/year shall be added to the Palestinians for the interim period (In addition to the 118 MCM/year which was consumed by the Palestinians at the signing of the agreement).	Additional amount of water made available for the Palestinians: 23.9 MCM/year supplied directly by Israel (20.8+3.1) 3.5 MCM/year by authorized wells- Jenin, Nablus 50 MCM/year estimated yield of 70 authorized wells Total: 77.4 MCM/year	
Sched. 8 1(b)	Prevention of illegal drillings	No illegal drillings	There are more than 250 Palestinian illegal drillings mainly in the Northern West Bank
3(f.)	Prevention of pollution by wastewater “Treating, reusing or properly disposing of all domestic, urban, industrial, and agricultural sewage”	Most of the sewage from Israeli settlements is treated at least at the secondary level and Israel is working to upgrade and expand the systems	Most of the Palestinian sewage is not treated. Out of 52 MCM of Palestinian sewage - 4 MCM is treated in the West Bank, 14 MCM is treated in Israel and 34 MCM is not treated at all and therefore polluting the environment.

Wells Approved by the JWC for Drilling by the Palestinians since the Agreement



Purpose of Wells

- ▲ Drinking Water (59 Wells)
- ▲ Agriculture (11 Wells)
- ▲ Observation (22 Wells)

Assessment

Proper organization and management of the Palestinian water sector, as done* in Israel, will solve the Palestinian water problems

*

- Sustainable policy and management of water resources
- Water savings and reduction of water losses
- Treating and using all available water sources (sewage, flood and saline water)
- Producing new water sources - desalination
- Real water price

Note: the funding will be by donors



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Prof. Haim Koren is the Director of the Division Ministry of Foreign Affairs of Israel; University of Haifa.