



**State of Israel**

# **The Issue of Water between Israel and the Palestinians**

**March 2009**

## CONTENTS

Introduction.....	1
1. Water Agreements with the Palestinians .....	2
2. Implementation of the Agreements during the Period 1995-2008 – Review .....	4
3. Unapproved Palestinian Wells (in Breach of the Water Agreement) .....	10
4. Palestinian Sewage.....	11
5. Israeli and Palestinian Water Consumption during the Period 1967-2006.....	14
6. Fresh Water for Agriculture.....	20
7. Water Losses in the Supply Systems .....	20
8. Water Transfers between Israel and the West Bank .....	21
9. Principal Conclusions Regarding Implementation of the Water Agreement.....	21
10. The Common Mountain Aquifer and its Vital Importance to Israel's Water Economy .....	22
11. International Law Relating to Water.....	25
12. Water Rights as Perceived by the Palestinians .....	27
13. Coping with Water Shortages – Israel's Viewpoint .....	2

### List of Figures

Fig. 2.1 Water Supply to the Palestinians in the West Bank – According to the Water Agreement and in Practice .....	8
Fig. 2.2: Map Showing Wells Approved for Drilling by the Palestinians Since the Agreement .....	9
Fig. 3.1: Map Showing Unapproved Wells .....	10
Fig. 5.1: Total Consumption of Fresh Natural Water, 1967 vs. 2006 .....	15
Fig. 5.2: Per Capita Consumption of Fresh Natural Water .....	16
Fig. 5.3: Population .....	16
Fig. 5.4: Total Quantity of Fresh Water per Capita on Multiannual Average in Countries Bordering Israel .....	19

### Appendices

Fig. 10.1: Map Showing the Three Mountain Aquifer Sub-Basins and Quantities of Water that Could Potentially be Abstracted as Defined in the Interim Agreement.....	31
Fig. 10.2: Schematic Depiction of the Mountain Aquifer in the Judean Mountains Region..	32
Table: Water Supply by Israel to the Palestinian Authority – Obligations vs. Implementation (MCM).....	34
Table: Water Agreement – Obligation vs. Implementation (Major Commitments).....	35

# **The Issue of Water between Israel and the Palestinians**

## **Introduction**

The purpose of this document is to examine the issue of water between Israel and the Palestinians by presenting the existing water agreements and modes for implementing them, as well as stating the principles of both sides for coping with the shortage of water, currently and in the future. Major facts on the water sector of Israel and its neighbouring countries are also presented in this document together with a brief review of international law.

Most countries in the Middle East suffer from an ongoing shortage of water. The situation is felt most acutely in Israel, Jordan and the Palestinian Authority, and is worsening due to the decrease in useable water reserves as a result of pollution and climatic changes, as well as population growth and the rising demand for water.

Cooperation based on sustainable management, the application of advanced technologies for efficient water use, and the development of new water sources could help solve the problem of water shortages in the region as a whole.

Solving the problem of water scarcity in one country at the expense of another that shares a common water source is unacceptable and will only intensify tensions and difficulties.

Israel is interested in practical, imaginative and just agreements, as exemplified by the Peace Treaty it signed with the Kingdom of Jordan in 1994, with its extensive water clause, and the Interim Agreement it signed with the Palestinians in 1995. Israel is thus interested in arriving at a practical and fair permanent arrangement with the Palestinians as well as Syria and Lebanon.

Israel believes that it can transform the issue of water from a possible source of controversy and tensions with the Palestinians to a basis for understanding and cooperation. In order to achieve this, the sides must dwell less on theoretical, legal or ideological aspects relating to the sharing of existing water sources, and focus more on practical and effective planning and preparation for coordinated water resources management, aimed at increasing the availability

of water and supplying it to the entire population residing between the Mediterranean Sea and the Jordan River.

This document is a policy paper, prepared at the request of the Water Authority by a group of independent experts. The paper reflects the experts' opinions and will serve as the basis for continued discussions on the matters addressed therein.

## **1. Water Agreements with the Palestinians**

### **1.1 Declaration of Principles on Interim Self-Government Arrangements (DOP), 1993 – "Oslo Agreements"**

The Declaration of Principles contains both a general and a specific reference to the issue of water. In this framework it was agreed, for example (Appendix 3), that cooperation would exist on the subject of water, and proposals were formulated for conducting studies and programs on water rights for both sides.

Appendix 4 of the DOP relates to more practical aspects, such as the development of water infrastructure, desalination and general regional initiatives.

### **1.2 Agreement on the Gaza Strip and the Jericho Area, 1994 – "Cairo Agreement"**

This agreement also relates to the question of water in the Gaza region. In the framework of agreement implementation, control over the water supply system in the Gaza Strip was transferred to the Palestinians, who assumed responsibility for management, development and maintenance of the water supply and sewerage systems. Not included were Israeli communities, mainly Gush Katif, where the wells, piping and storage reservoirs remained under Israeli ownership.

In 2005, as part of Israel's disengagement from Gaza, water supply systems that had served the Israeli communities, including 25 wells, storage reservoirs and a well-developed transmission system, were also transferred to the Palestinians. At the end of the process, all

water supply and sewerage systems in the Gaza Strip were under exclusive Palestinian control.

### **1.3 Water Supply and Sewerage Issues in the 1995 Interim Agreement (hereinafter the "Water Agreement")**

In September 1995, the Israeli-Palestinian Interim Agreement on the West Bank and the Gaza Strip (also known as Oslo II), including an extensive section (Clause 40) on the question of water and sewage, was signed in Washington. The agreement states that Israel recognizes the Palestinian water rights in the West Bank and that these would be discussed and finalized in the framework of a permanent arrangement. In addition, it was determined that the Palestinians would receive defined quantities of water based on existing uses. The "future needs" of the Palestinians were defined as 70-80 million m<sup>3</sup> (MCM) per year, in addition to the existing uses at the time of signing the agreement, namely, 118 MCM/yr. Of this additional quantity, 28.6 MCM/yr (including 5 MCM/yr to Gaza) would be provided during the interim period. It was emphasized that these additional quantities would be supplied principally from the unused eastern aquifer. Also recognized was the existence of a water shortage for both sides and the need to develop and create additional sources of water (principally from the eastern aquifer, but also from recycling of sewage effluent and desalination). It was agreed that no activities would be pursued that would lead to pollution of the environment, and that sewage would undergo proper treatment.

The principal water-related items in the Water Agreement are as follows:

- Israel recognizes the Palestinian water rights in the West Bank. These will be negotiated in the permanent status negotiations and settled in the Permanent Status Agreement relating to the various water resources.
- Both sides recognize the necessity to develop additional water for various uses.
- Both sides agree to coordinate the management of water and sewage resources and systems in the West Bank during the interim period, in accordance with the following principles: a. Maintaining existing quantities of utilization from the resources, taking into consideration the quantities of additional water for the Palestinian from the Eastern Aquifer and other agreed sources in the West Bank. b. Preventing the deterioration of water quality in water resources. c. Using the water resources in a manner which will

ensure sustainable use in the future, in quantity and quality. d. Adjusting the utilization of the resources according to variable climatological and hydrological conditions. e. Taking all necessary measures to prevent any harm to water resources, including those utilized by the other side. f. Treating, reusing or properly disposing of all domestic, urban, industrial, and agricultural sewage.

- The Israeli side shall transfer to the Palestinian side powers and responsibilities in the sphere of water and sewage in the West Bank.
- Both sides have agreed that the future needs of the Palestinians in the West Bank are estimated to be between 70-80 MCM/year.
- In this framework, and in order to meet the immediate needs of the Palestinians in fresh water for domestic use, both sides recognize the necessity to make available to the Palestinians during the interim period a total quantity of 28.6 mcm/year.
- In order to implement their undertakings, the two sides will establish a permanent Joint Water Committee (JWC).
- The existing agreements and arrangements between the sides concerning water resources and water and sewage systems in the Gaza Strip shall remain unchanged.

In order to implement the Water Agreement, an Israeli-Palestinian Joint Water Committee (JWC) was set up to which were subordinated joint supervision and enforcement teams (JSETs) with permission to move freely throughout the West Bank.

## **2. Implementation of the Agreements during the Period 1995-2008 – Review**

As stated, the JWC is charged with implementation of the Water Agreement. This committee has been working for the past 13 years almost without interruption, even during difficult periods of security problems. The committee meets on a regular basis and approves the construction and development of water supply and sewage installations throughout the West Bank. A scrutiny of the minutes of the committee's meetings shows that the committee approved nearly all the projects that were submitted for its approval, even beyond the obligatory ones included in the Water Agreement. The few projects that were not approved were those that were not in accordance with the Water Agreement, relating mostly to the drilling of new Palestinian wells in the northern and western basins of the Mountain Aquifer.

Some of the projects, including the drilling of water wells, have not yet been executed by the Palestinians because of their orders of priority regarding the utilization of funds from donor countries.

The JWC has four sub-committees:

Hydrological Committee: reviews requests for the drilling of water wells. This committee has to date approved the drilling of about 70 new water wells for the Palestinians as well as 22 observation wells (see Fig. 2.2), principally in the eastern Mountain Aquifer (of which only about half have been implemented by the Palestinians to date). It has also approved approximately 55 additional requests for upgrading of existing wells (there are about 500 legal water wells in the West Bank).

Water Works Committee: this committee has to date approved the laying of water supply pipelines along hundreds of kilometres, as well as the construction of tens of large storage reservoirs and pumping stations. It has also approved the extension and renovation of water supply systems to Israeli communities in the region.

Sewage Committee: this committee has approved the construction of numerous wastewater treatment plants. Even though the donor countries have expressed their readiness to fully fund the construction of wastewater treatment plants for all major Palestinian cities, only one such plant has been constructed on the Palestinian side (at El-Bireh).

Water Pricing Committee: this committee determines from time to time the price of water sold by Israel to the Palestinian Authority (which, according to the agreement, is to reflect the true full cost of water at the point of sale) and discusses ongoing problems in accordance with the Protocol Relating to Water Supply (also known as the Price Protocol) signed in the framework of the Israeli-Palestinian Joint Water Committee. Financial accounts between Israel and the Palestinian Authority have been routinely settled in an orderly manner for the past 13 years.

It should be noted that almost all the Palestinians' development programs in the domains of water supply and wastewater have been financed by donor countries; however, the funds are given on condition that the JWC approves the program.

The period of the Interim Agreement was originally determined as five years from the signing of the agreement. However, the two sides have continued to operate according to this Interim Agreement since the time of its signing to the present, even though more than 13 years have elapsed since the agreement was signed. Israel has responded to the needs of the Palestinians and has increased the quantity of water provided to them **far beyond that specified in the Interim Agreement.**

Israel offered the Palestinians the possibility of erecting a seawater desalination plant in the Hadera area, which would be constructed and operated for them by the donor countries, and which would supply water directly to areas in the West Bank. In addition, Israel proposed to the Palestinians the purchase of water for the Gaza Strip directly from the desalination plant at Ashkelon. The Palestinians are well aware of the need to develop a new major source of water (desalination), but are nevertheless not in a hurry to take steps in this direction.

Until the signing of the Interim Agreement, Israel's Mekorot Water Co. Ltd. was responsible for managing Israel's water works, while the Civil Administration that Israel had established in the West Bank was in charge of managing the Palestinian installations.

Following the signing of the Interim Agreement, responsibility for management and maintenance of the Israeli installations remained with Mekorot, but responsibility for the Palestinian installations was transferred to the Palestinian Authority. The installations supplying water both to Israelis and Palestinians remained under Israel's responsibility.

The Government of Israel at that time decided on a program to disconnect isolated Israeli communities in the West Bank from water works that were predominantly Palestinian. The program was carried out over a period of several years and in this framework new Israeli water works were constructed or existing installations expanded. The program eliminated the dependency of the Israeli communities on Palestinian management, but did not lead to a full separation between the Israeli and Palestinian systems. The water supply pipelines belonging to the Israeli systems include many connections to Palestinian villages and towns. The exact quantities of water delivered to the Palestinians are measured using meters; the monthly quantities are charged according to the rate determined in the Water Agreement (Price Protocol). Payment is made to Mekorot indirectly, through general accounting and

appropriate offsetting procedures between the Government of Israel and the Palestinian Authority.

As regards Gaza, it was agreed to transfer to the Gaza Strip an additional 5 MCM/yr from Israel's national system (at a price equal to the cost of desalinated water plus transport). The supply pipeline for this purpose was laid by Israel up to the border with the Gaza Strip. The connection inside the Gaza Strip has not yet been constructed by the Palestinians.

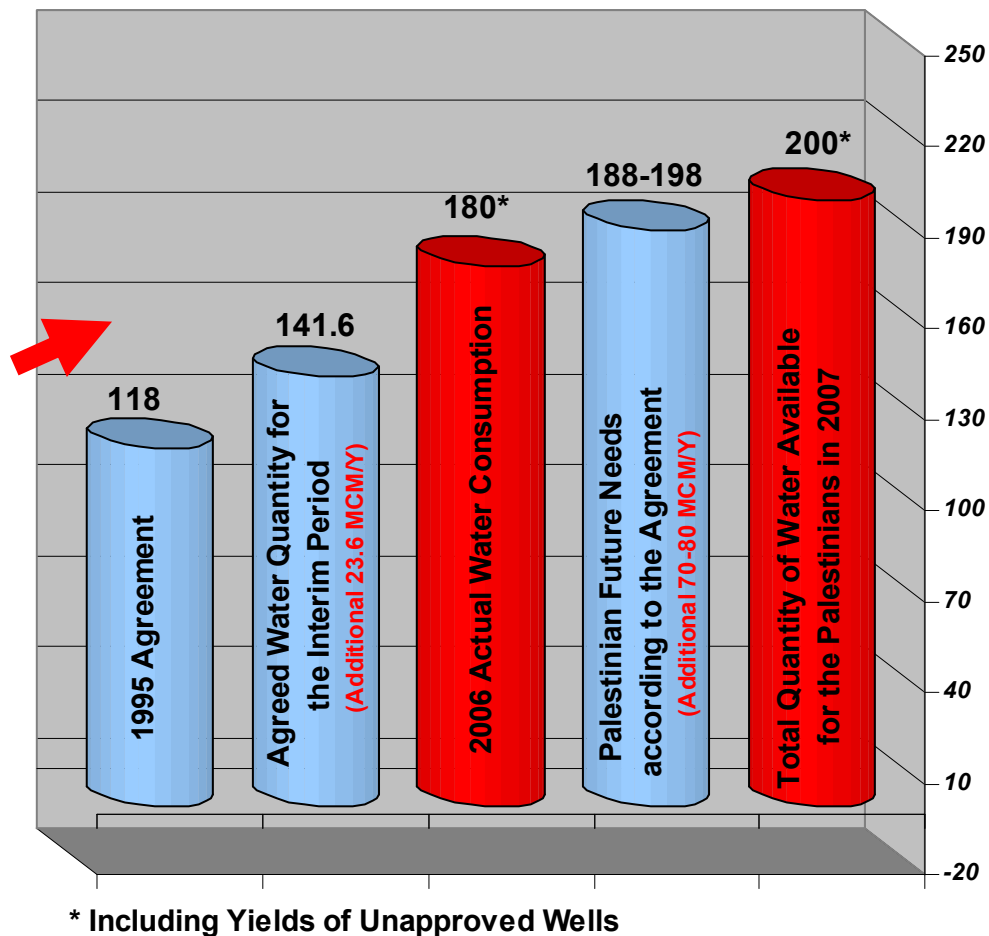
Development of water supply systems for the Palestinians has in the past decade been carried out on a very large scale, much larger than that stated in the Interim Agreement. This development has for the most part taken place after obtaining the approval of the JWC and with funding from donor countries.

The Water Agreement determined that water supply to the Palestinians would increase (during the period of the Interim Agreement) by 28.6 MCM/yr, of which 5 MCM/yr would be supplied to the Gaza Strip and 23.6 MCM/yr to the West Bank. It was agreed that this quantity would be in addition to the quantity consumed by the Palestinians in that year, namely, 118 MCM.

In other words, it was agreed that water supply to the Palestinians during the Interim Agreement period would in the West Bank increase by 20%. This quantity of water would be part of the quantity defined as the "**Future Needs**" of the Palestinians in the West Bank, i.e. **about 70-80 MCM/yr**, which would be provided in the framework of the permanent arrangement.

In practice, during the 13 years that have elapsed since the Interim Agreement was signed, water supply to the Palestinians in the West Bank has been increased by 60 MCM/yr (not including Gaza), i.e. by about 50%. Palestinian consumption has reached 180 MCM/yr (**118 MCM/yr** at the time of signing the agreement + **22 MCM/yr** added by Israel after signing of the agreement + **40 MCM/yr** from new Palestinian wells that were handed over to the Palestinians complete; there is also an additional quantity from wells that were upgraded under approval and the output of unapproved wells).

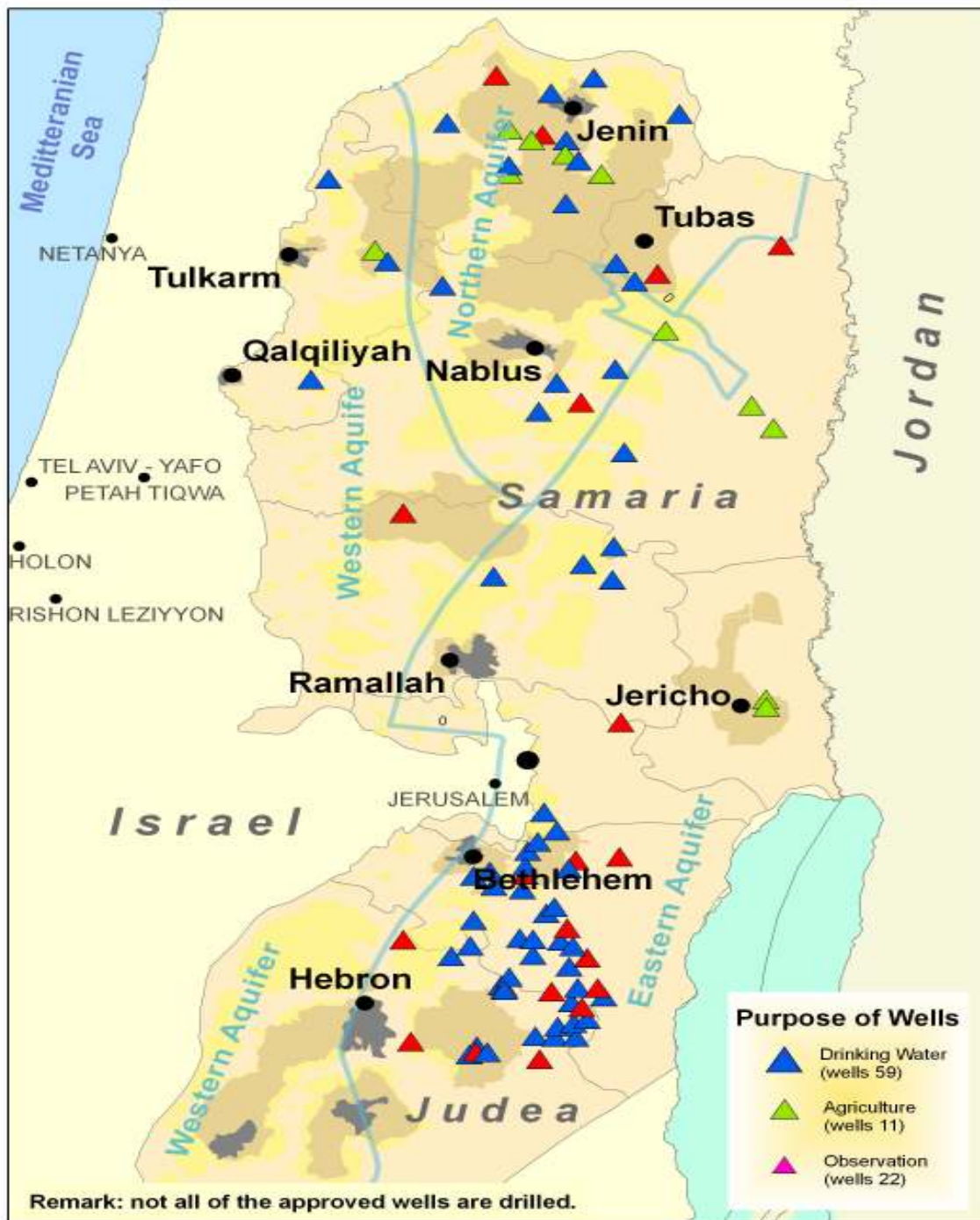
Fig. 2.1: Water Supply to the Palestinians in the West Bank – According to the Water Agreement and in Practice (MCM/yr)



The quantity of water transferred from Israel to the Palestinians through Mekorot is shown in the Appendices.

The JWC approved the drilling by the Palestinians of 59 drinking water wells, 11 wells for irrigation of agricultural lands and 22 observation wells. Also approved was the upgrading of 42 wells in the vicinity of Qalqilya and Tulkarm, and 13 wells in the Jordan Valley. Not all the approved wells have been drilled.

Fig. 2.2: Map Showing Wells Approved by the JWC for Drilling by the Palestinians since the Agreement

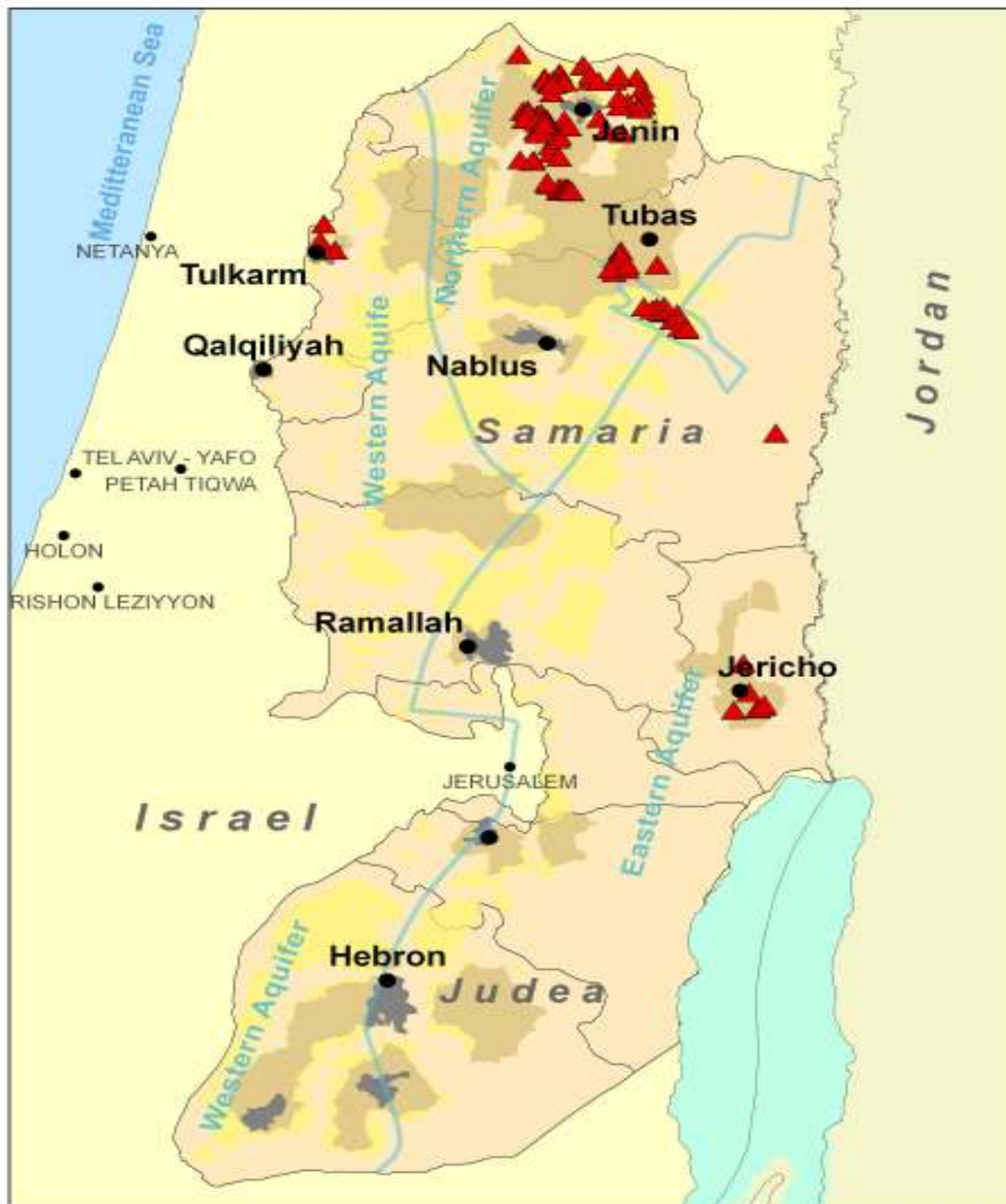


### 3. Unapproved Palestinian Wells (in Breach of the Water Agreement)

The Palestinians are violating the Water Agreement by drilling water wells in the Mountain Aquifer without the approval of the JWC – in particular from the northern basin in the area of Jenin and from the western basin in the vicinity of Qalqilya and Tulkarm. Since the signing of the agreement more than 250 unapproved wells have been drilled, from which the

Palestinians are abstracting about 10 MCM/yr (this quantity is included in the Palestinian consumption shown in Fig. 2.1). The agreement with the Palestinians states that their future needs will be supplied mainly from the eastern aquifer (see item 3a and Table 10 – eastern aquifer); however, the unapproved wells were drilled mostly in the northern aquifer and in areas A and B. This means that Israeli production in the northern valleys within Israel has been affected.

Fig. 3.1: Map Showing Unapproved Wells



Note: About 146 of the total 250 unapproved wells are shown. The existence of the others is known, but they are not indicated since their exact coordinates are missing.

The Palestinians are also making unauthorized "pirate" connections to the Mekorot water supply pipelines. Shortages of water are experienced in Hebron, Kiryat Arba, Bani Naim, Beita and additional villages, caused principally by the fact that water is being stolen by inhabitants of the Sair and Shuyukh villages for irrigating fields on the fringes of the Judean Desert that have never been irrigated in the past. The thefts have compelled Israel to lay a new water supply pipeline following a different route. Similar cases have occurred in other parts of the West Bank as well. Thefts of water from Israeli pipelines, carried out from both transmission mains and secondary lines, are estimated at 3.5 MCM/yr.

The Palestinians routinely state that the unapproved wells are affecting them as well and that they too are trying to combat the phenomenon. However, in fact nothing concrete has been done by them to stop the incidents, which constitute a serious violation of the Water Agreement.

Based on the Water Agreement, Israel has taken action, through the Civil Administration and supervisory teams that were set up in accordance with it, against this violation of the agreement. As a result, the phenomenon has been eradicated in Area C, which is under Israeli control, and has been confined principally to shallow wells in Area B (under Israeli security control and Palestinian civilian control) and Area A (under full Palestinian control).

In the Gaza Strip, where the Palestinians are in full control, over 3,000 unapproved wells were drilled immediately following Israel's withdrawal, causing a severe drop in water levels and seriously harming the quality of water in the Gaza Aquifer and the general Gaza water economy. This situation is ongoing and is even intensifying (there are many more unapproved than approved wells). The total damage caused is clear and is difficult to reverse. The phenomenon in Gaza has not been stopped and the only ones affected are the Gaza residents (although it may be reasonably assumed that without proper supervision and enforcement, even the Mountain Aquifer will eventually be severely affected).

#### **4. Palestinian Sewage**

Sewage discharged from Palestinian communities in the West Bank flows by gravity towards Israel, principally to the west but also to the south (from Hebron and neighbouring communities) and towards the east (from the Jerusalem area). The discharge of untreated

sewage is a danger to health, the environment and the water resources in the West Bank and Israel. The Interim Agreement holds the Palestinians responsible for treating their sewage. However, in contrast to the extensive activity evident in the field of water supply installations, no significant progress has been made with respect to Palestinian wastewater treatment plants and proper reuse of the effluents for agriculture, and this essential activity, which is a binding part of the Water Agreement, has been stalled for years. Most seriously affected are the Kishon, Alexander-Nablus, Modiin, Kidron and Hebron streams.

The absence of wastewater treatment by the Palestinians, and the parallel expansion of water supply works, has led to increasingly severe environmental pollution.

Hebron Stream, which flows towards the Beer Sheva Valley and flows to the Besor Stream, has become a polluted wastewater channel. Nearby Palestinian villages and Israeli communities suffer badly from polluted water, odours, flies and mosquitoes. Nablus Stream, which flows in a westward direction, has become a wastewater channel for Nablus, while in the downstream section; it also serves as a wastewater channel for Tulkarm. Flows containing wastewater from both sources debouch into the Alexander Stream, to the west of the so called "Green Line". The environmental hazards affect both the Israelis and the Palestinians. Many additional rivers have become wastewater channels for other towns and villages, from which untreated wastewater infiltrates the groundwater in the Mountain Aquifer, affecting its quality. Wells located in the downstream sections of the rivers are exposed to contamination originating from wastewater infiltration to the aquifer.

The result has been contamination of wells supplying drinking water, leading to their closure; examples are the Beit Fajjar well (owned by the Municipality of Bethlehem), three wells in the Jerusalem area (Ein Karem 13, 17, and Al Azzariya 1), and wells in the Jordan Valley area (Mitzpe Jericho well 6 and Naaran 2).

The quantity of wastewater generated by the Palestinians at present is estimated at about 52 MCM/yr. Of this, only about 4 MCM/yr is treated in Palestinian plants, and about 14 MCM/yr in Israeli plants. The rest of the wastewater, about 34 MCM/yr, pollutes the groundwater and the Israeli and Palestinian environment.

Apart from the wastewater treatment plant at El-Bireh, no new wastewater treatment plants have been constructed in the past decade. And even this plant is not maintained properly; its effluent is not used for agriculture, as planned, but is discharged to Wadi Qelt, contaminating it. The Palestinians are not advancing projects for wastewater treatment even though the donor countries (especially Germany, the USA and Japan) as well as the World Bank have expressed their willingness to allocate considerable funds (about US\$ 300 million) for the construction of these vital plants.

Although the Water Agreement obligates both the sides to treat their wastewater, the Palestinians apparently prefer to let their wastewater flow into Israeli territory, polluting the environment and the common aquifer. Israel is therefore compelled, against its will, to treat the Palestinian wastewater reaching it (the cost of treating Palestinian wastewater in Israel is offset from the funds that are owed to the Palestinians).

Most of the wastewater from Israeli communities in the West Bank is already undergoing treatment and in the near future all of it will be treated.

An examination of financial investments made by the Palestinians in wastewater treatment as compared with the total investments in water supply and wastewater installations illustrates the lack of interest on their part to treat wastewater.

The Palestinians report that in the period 1996-2002, funds from donor countries were invested as follows (Palestinian Water Authority, 2003):

Item	US\$
Wells, reservoirs, transmission mains and distribution lines	200 million
Routine maintenance	80 million
Internal sewerage systems	130 million
Construction of institutions and training of personnel	30 million
Stormwater diversion	60 million
Total	500 million

Of the US\$ 130 million earmarked for sewerage systems, only about US\$ 25 million has been invested in the El-Bireh wastewater treatment plant. This means that of the total US\$ 500 million donated, only 5% has been invested in the construction of wastewater treatment plants. Additionally, during the period 2002 to 2007, hundreds of millions of dollars were invested in various projects, with the exception of wastewater treatment. Clearly, the construction of internal water supply networks only increases the generation of wastewater and the extent of pollution. Programs (approved by the JWC) exist for treatment of the wastewater, while funding has been offered by the donor countries for the cities of Nablus, Tulkarm, Jenin, Salfit, Ramallah, Kidron, Hebron, Central Gaza Strip, and others; the Palestinians are nevertheless not advancing the construction of these projects. It is important to bear in mind that treated wastewater can be used for irrigation of agricultural areas, thus releasing fresh water for municipal use and significantly increasing the quantity of water available for drinking.

In late 2003 a Memorandum of Understanding (MOU) was signed by the JWC defining the mode of wastewater treatment and the conventional standards. At the request of the Palestinian side, the MOU was worded such that it would allow them to reach a high level of wastewater treatment gradually. Thus were allayed the Palestinians' concerns (high cost from the outset and the lack of experience and expertise in operating the high quality plants) which had been the basis of their claims regarding the delay in construction of wastewater treatment plants. The hold-up in construction of wastewater treatment plants is nevertheless still explained by the difficulty in reaching the high quality standard required of the effluent (treated wastewater).

## **5. Israeli and Palestinian Water Consumption during the Period 1967-2006**

This section discusses the total and per capita consumption of "**fresh natural**" water by the Israelis and Palestinians.

**Total consumption refers to all uses – residential, agricultural and industrial.**

The focus is on "**fresh natural**" water, which is the source of controversy between Israel and the Palestinians, and **not on desalinated or treated water**, which each side can produce and which is not a controversial issue. (**Through desalination, wastewater treatment and**

stormwater impoundment, Israel has increased its overall water availability to about 2,000 MCM/yr; the Palestinians can naturally also act in this direction.)

a. In 1967, consumption in Israel amounted to 1,411 MCM and the population stood at 2,776,000.

**This is equivalent to 508 m<sup>3</sup> per capita per year.**

b. In 2006, total consumption in Israel was 1,211 MCM, and the population was 7,117,000.

**This is equivalent to 170 m<sup>3</sup> per capita per year.**

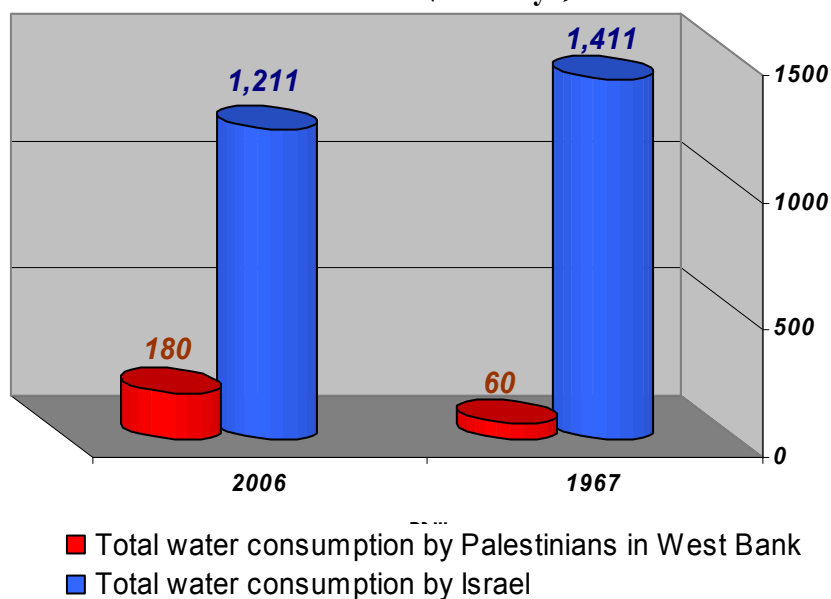
c. In 1967, Palestinian consumption in the West Bank amounted to 60 MCM, and the population stood at about 700,000.

**This is equivalent to 85.7 m<sup>3</sup> per capita per year.**

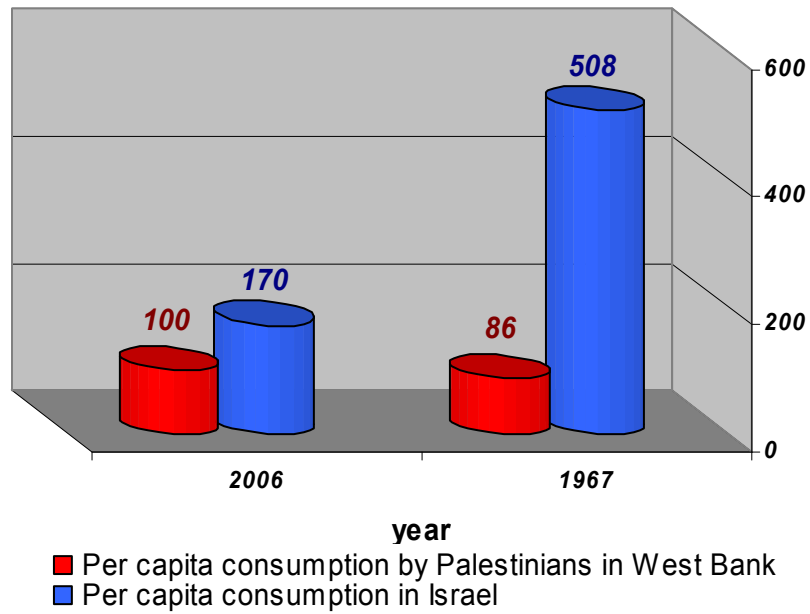
d. In 2006, Palestinian consumption in the West Bank was a total of about 180 MCM, and the population was 1,800,000.

**This is equivalent to 100 m<sup>3</sup> per capita per year.**

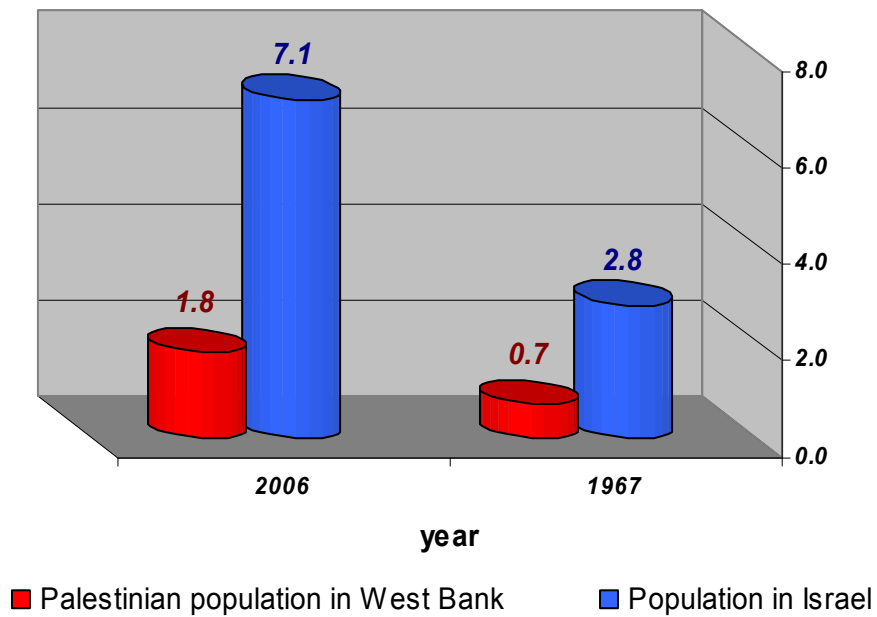
**Fig. 5.1: Total Consumption of Fresh Natural Water, 1967 vs. 2006 (MCM/yr)**



**Fig. 5.2: Per Capita\*Consumption of Fresh Natural Water (m3/person/yr)**



**Fig. 5.3: Population (millions)**



\* **Conflicting figures are quoted with respect to the size of the population in the West Bank.** For 2006, the Palestinian Central Bureau of Statistics (CBS) quotes a high figure (2.2 million). The American-Israeli Demographic Research Group has determined that the figure is lower (1.4 million). The latter organization relies on clear-cut data based on actual measurements, such as registration of births, registration for first grade in school, and reports on exits and entries at the border crossings. It also lists a series of deficiencies in calculation/counting methods used by the Palestinian CBS.

In order to reduce the margin of error, we have decided to adopt the average of the two estimates rather than either one of them.

The per capita consumption of fresh natural water in Israel has decreased dramatically since 1967 because of the decline in the availability of fresh water and the substantial growth in population. These facts have necessitated increased efficiency and conservation.

On the Palestinian side there has been a clear increase in per capita consumption, despite the growth in population.

The above gap between 170 m<sup>3</sup> per capita per year for Israel and 100 m<sup>3</sup> per capita per year for the Palestinians in the West Bank relates to **consumption of fresh, natural water**.

In light of the observed decrease in replenishment over the past two decades, due to climatic changes a revised examination was carried out with regard to the **quantity of fresh natural water that is available at present to each side** (even if all of it is not yet utilized) based on the **multiannual average for the past 15 years**, since 1993, and assuming responsible and sustainable utilization. The results of the updated examination are as follows:

- **1,100 MCM/yr** is available to Israel (after transfers to Jordan and the Palestinians).
- **200 MCM/yr** is available to the Palestinian Authority in the West Bank.

The significance, in per capita terms, for 2007 is:

- **153 m<sup>3</sup>/yr per capita** in Israel (1,110/7.2).
- **105 m<sup>3</sup>/yr per capita** for the Palestinians in the West Bank (200/1.9<sup>1</sup>)

A total of 13 new Palestinian wells, with annual output estimated at about 15 MCM/yr, will be put into operation by the summer of 2009 (as per the plan by the Palestinian Water Authority). **This additional quantity of water will raise the per capita consumption of water beyond that stated above.**

---

<sup>1</sup> The population is calculated based on the method described above, updated to 2007.

Note: for the sake of comparison, water supply to Palestinian towns in the West Bank is on a better par than that in the capital of the Kingdom of Jordan (where water supply is limited to only two to three times a week).

**Total Quantity of Fresh Water, on a Multiannual Average, in Countries Bordering Israel<sup>1</sup>**

No.	Country	Quantity of fresh water- multiannual average MCM/yr	Population (millions)	Per capita quantity of water – multiannual average m <sup>3</sup> /yr	Remarks
1	Lebanon	3,700	3.9	949	Based on UN reports and Lebanese and international data (*)
2	Syria	17,000	19.8	861	Based on Syrian and international reports (**)
3	Egypt	60,000	82	732	Based on international reports (***)
4	Jordan	985	5.7	172	Based on Jordanian studies and reports (****)
5	Israel	1,100	7.2	153	Based on the reports of the Water Authority and CBS
6	Palestinians – West Bank <sup>2</sup>	200	1.9	105	Based on the Water Agreement, Palestinian CBS reports and Israeli-US studies
	Total	82,985	120.5	689	Hypothetical situation of equitable distribution

<sup>1</sup> Including renewable fresh water resources. Not including desalinated water and marginal water (brackish water, wastewater effluent, etc.).

<sup>2</sup> See General Comment on page 20.

The data is based on cross-referencing of a number of sources, some of which are detailed below:

(\*) Aquastat 2008; EMWIS-SEMIDE, World Bank.

(\*\*) Syrian Arabic Republic M.O.I. 2004; Aquastat 2008

(\*\*\*) Aquastat 2007; ESCWA

(\*\*\*\*) Aquastat 2008; ESCWA; M.O.I., World Bank.

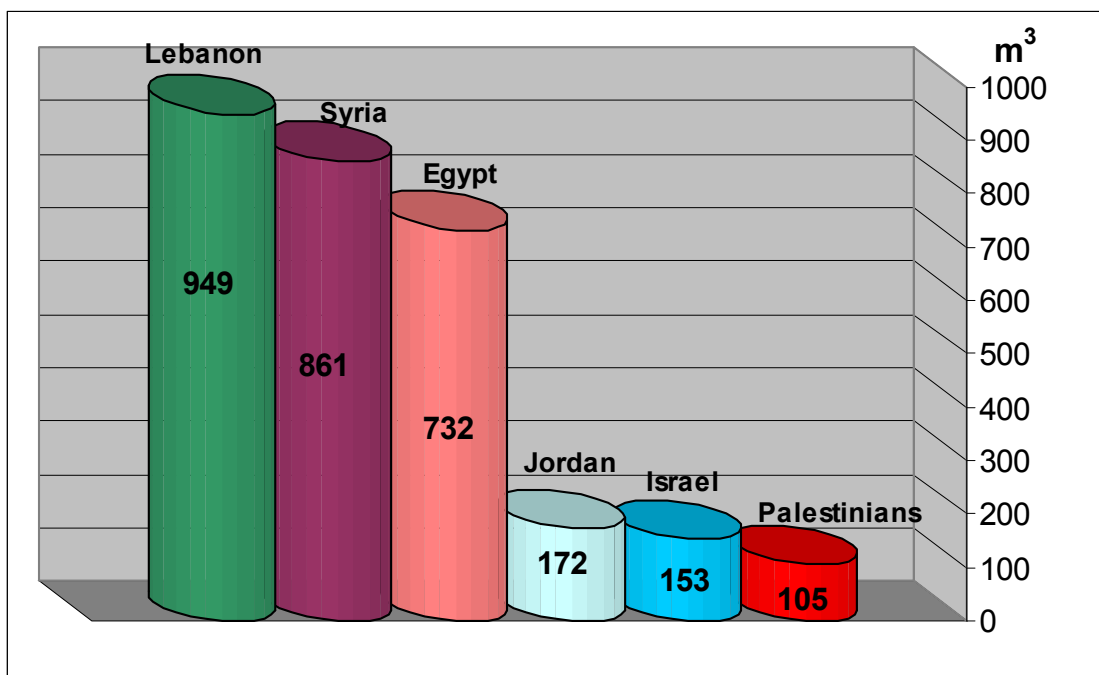
**Notes:**

**Water utilization** – Israel and Jordan use all their renewable water resources and often overdraw the shortage. Syria, Egypt and the Palestinians use almost all their renewable water resources (about 90%). Lebanon uses only about 2.7 billion m<sup>3</sup> of the 3.7 billion m<sup>3</sup>.

**Multiannual average** – for Israel and the Palestinians, the value relates to the last 15 years, from 1993, which is shorter than the time span frequently quoted. It is more relevant, since it reflects the already noticed and the forecasted reduction in averages due to global climate changes. Current studies indicate that while the average is dropping, the variability is increasing, which means more extremes at both ends. Increased variability exacerbates the difficulties in providing reliable and sustainable supplies.

**For the remaining countries**, the multiannual average is calculated according to a longer period of time; however, it is possible that due to climatic changes there will be a deviation of about 10% with respect to the quantity of water actually available to them, as above.

Fig. 5.4: Total Quantity of Fresh Water per Capita on Multiannual Average in Countries Bordering Israel



Note: The chart is a graphic depiction of the previous table showing the total quantity of fresh water (for agricultural, industrial and municipal use) available to each country annually on a per capita basis.

## **General Comment:**

The discussions and comparisons presented in this document focus on the **situation in Israel vis-à-vis the Palestinians in the West Bank.**

**As regards Gaza,** it should be noted that the Gaza Aquifer has no impact on Israel and Israel does not prevent the flow of surface water or groundwater to the Gaza Aquifer. Clearly, the source of any additional water to the Gaza Strip must be desalination of seawater. General plans have been prepared (by donor countries, USAID) for seawater desalination, and their implementation can provide a separate, general solution for the population of the Gaza Strip.

## **6. Fresh Water for Agriculture**

Irrigation of Palestinian agricultural lands in the West Bank is based on fresh water exclusively, amounting to about 90 MCM/yr. The Palestinians have so far refused to treat wastewater and use the treated effluent in agriculture, as Israel does, even though it would allow considerable quantities of fresh water to be freed for municipal use.

Israel has cut the allocation of fresh water for agriculture within its territory to an unprecedented extent: the total amount of fresh water to agriculture has dropped in the last decade to less than half what it was a decade ago, and in years of shortage (like 2008) restricted to even much lower values. To compensate for this reduction, Israel has increased to about 72% (380 mcm/year) the percentage of municipal sewage that is treated and reused for irrigation. Similar action by the Palestinians would release fresh water to increase the supply of municipal water by at least 25 MCM/yr, a very significant increment.

## **7. Water Losses in the Supply Systems**

Water losses in the Palestinian networks are very high and amount to about 33% (some of which are due to illegal use). By comparison, average municipal water losses in Israel are about 11%.

Measures to reduce water losses can increase the quantity of water available for the Palestinian communities in the West Bank by at least 10 MCM/yr. Better control of illegal connection will help to direct the water to recognized and legitimate users

## **8. Water Transfers between Israel and the West Bank**

Israel supplies 30 MCM/yr of water to the Palestinians in the West Bank from within its territory (within the "Green Line"). In no case does Israel transfer water from the West Bank to areas inside the "Green Line".

## **9. Principal Conclusions Regarding Implementation of the Water Agreement**

- a. **Israel has met** all its obligations according to the Water Agreement, in terms of the additional quantities of water to the Palestinians, and has, indeed, **even exceeded the requirements.**
- b. **The Palestinians are seriously defaulting** on their obligations according to the Water Agreement primarily on two important items:
  - 1) Drilling of Unauthorized "Pirate" Wells – the Palestinians drill water wells without the approval of the JWC, principally in the northern West Bank; to date, more than 250 unapproved wells have been drilled.
  - 2) Failure to treat wastewater – the Palestinians are not constructing wastewater treatment plants and discharge their wastewater to streams, contaminating the environment and the groundwater. Some of the wastewater flows into Israeli territory.
- c. The Palestinians are not developing and using, quite deliberately, the groundwater resources in the eastern aquifer that were made available to them in the Water Agreement. (This resource has an additional useable quantity of at least 40 MCM/yr. The

JWC approves every request for drilling of wells in the eastern aquifer.) As a result, Israel is compelled to supply more than 30 MCM/yr from its territory to the Palestinians.

## 10. The Common Mountain Aquifer and its Vital Importance to Israel's Water Economy

See Figs. 10.1 and 10.2

- a. The Mountain Aquifer comprises **three groundwater basins**: the western basin (Yarkon-Taninim); the eastern basin, and the northern basin. According to the Water Agreement, average natural replenishment in the three basins amounts to **679** MCM/yr. According to the Water Agreement, Israel is permitted to use 483 MCM/yr of this quantity and the Palestinians 196 MCM/yr (including the quantity defined as the "future needs" of the Palestinians).
- b. Yarkon-Taninim Basin: while most of the replenishment zones are located to the east of the "Green Line", the natural aquifer outlets (the Taninim and Yarkon springs) as well as most of the confined/storage zones are located to the west of the "Green Line", i.e. inside Israeli territory. The natural replenishment on a multiannual average quoted in the Water Agreement amounts to 362 MCM/yr (this figure was quoted in the Water Agreement; at present the value is lower).

The Yarkon-Taninim Basin serves as a central source of water for Israel's national water supply system. Its contribution may be summed up in terms of four components:

- 1) Total production in the Yarkon-Taninim Basin constitutes about 35% of the total production in the three-basin national system, with the Coastal Aquifer contributing about 27% and the Kinneret Basin about 38%.
- 2) The large storage and transfer capacity by aquifer flows allow substantial operational flexibility within the three-basin system and the national water

supply system in terms of water management between winter and summer, and between rainy and dry years.

- 3) The installed pumping capacity of the wells in the Yarkon-Tananim Basin is three times higher than the average annual quantity of water that can be abstracted from the basin, a fact that allows flexible management of the storage capacity and increases the reliability of water supply from the national system, which lacks the storage capacity needed for optimal management. Also important is the proximity of this aquifer to the demand centres. (Abstraction by the Palestinians takes place upstream of the groundwater flow and therefore is not affected by Israel's abstractions. Whereas, pumping by the Palestinians in excess of that stated in the Water Agreement will immediately affect the storage and extraction capacity in Israel.)
- 4) Water security, in its strategic sense, allows the water sector to guarantee essential supply of water in emergencies; the combination of well deployment and protection of wells against attacks provides added security and reliability in the long term and in emergencies.

**c. Vital Importance of the Yarkon-Tananim Basin to Israel**

The Palestinians demand to permit them additional pumping from this basin and from the northern basin at the expense of Israel's share. Their reasoning is that Israel can desalinate seawater in place of the water that is taken from it.

The idea that desalination would constitute an alternative source to the Yarkon-Tananim basin, which serves as both source and storage is more complex and problematic than might appear at first glance. This would require a feasible response to the first three issues described in Section b above. Calculations show that six to eight desalination plants would have to be constructed (in addition to those whose construction has already been approved), each with a capacity of about 100 MCM/yr and idle for a significant part of the time, in order to compensate for the lack of storage and regulating capacity in the Yarkon-Tananim basin. An alternative would be the construction of fewer desalination plants but compensated by development of surface and underground storage capacity of unprecedented and virtually

unfeasible scope, plus major new conveyance systems. If at all feasible, this would impose a heavy and continuous economic burden on Israel, over and above the cost of desalination itself.

Construction of such a large added desalination capacity also entails environmental costs, the impact of the added brine that will be discharged to the sea, the effect on health, the damage to agriculture and natural resources, and the high and problematic dependence on energy prices.

Even if all of the above is implemented, and assuming that the environmental impacts and the costs can be disregarded or ways found to overcome them, we will still not solve the strategic problem of water security, with seawater desalination plants being vulnerable and their critical importance, due to the extent of their output.

The importance of the Yarkon-Taninim basin becomes even more vital against the backdrop of the serious condition of the Coastal Aquifer and the steady decline in the amount of precipitation replenishing Lake Kinneret.

**d. Northern Basin – Harod - Beit She'an**

According to the Water Agreement, the natural long-term average replenishment in this basin is 145 MCM/r. The Palestinians are entitled to use 42 MCM/yr and Israel 103 MCM/yr of this water, which drains naturally in the direction of the Gilboa, Harod and Yizrael Valley area.

This area is not connected to the national system. Any damage to this source of water will further exacerbate the problem described in Section c above to a severe extent and will in addition seriously affect the settlement pattern in the valley area.

From the above, it follows that in any discussion on the issue of water, Israel must maintain firmly its right to the water of the western (Yarkon-Taninim) and northern (Harod-Beit Shean) basins in the Mountain Aquifer, which naturally issue in the form of springs in Israeli territory (within the "Green Line") and for which no practical substitute exists.

**This water has been developed and used continuously in the past by Israel** within the "Green Line" (well before 1967), whether by diversion of spring water or by drilling of wells.

It is clear that Israel has a natural right over this water, which complies with international norms (maintaining existing utilization) as well as section 3a of the "Water Agreement".

**e. Eastern Basin**

According to the Water Agreement, the natural long-term average replenishment in this basin is 172 MCM/yr. Israel is entitled to use 40 MCM/yr and the Palestinians 132 MCM/yr (as stated, the Palestinians have not yet fully developed the extraction capacity from this aquifer.) All the exploited water in this aquifer remains in the West Bank.

**11. International Law Relating to Water**

The rules of modern international law relating to the use and division of shared water resources started to be developed during the second half of the previous century. In 1966, the International Law Association published the Helsinki Rules on the Uses of the Waters of International Rivers. In spite of the fact that the Helsinki rules do not constitute a binding international treaty, they are widely viewed as the basic legal document in this field and as reflecting customary international law norms.

Following the publication of the Helsinki Rules, the United Nations launched its own effort in this field, as the UN General Assembly tasked the UN's International Law Commission (ILC) to research the topic. The ILC's work in this regard continued for more than two decades, culminating with the formulation of the 1997 UN Convention on the Non-Navigational Uses of International Watercourses (the UN Convention). The UN Convention is still not in force, as it requires a minimum of 35 State ratifications to enter into effect (currently only 16 ratifications have been made). However, similar to the Helsinki Rules, many scholars view the core principles of the UN Convention as reflecting principles of customary law.

It is important to note that the process of development of the rules of international law in this field has yet to conclude, as the ILC has been discussing, for more than a decade, the rules applicable to the division of shared ground-waters not covered by the UN Convention.

Today – two basic rules are viewed as customary in relation to the use and division of shared international water resources:

**First** – the principle of "equitable and reasonable use".

This principle provides that the division of the shared resource should be made on the basis of an equitable and fair balancing of the various interests and uses of the relevant States. The UN Convention lists seven categories of such relevant uses (the Helsinki Rules, for comparison, listed eleven such uses) although it should be stressed that these are not necessarily "closed" lists, and that no clear preference is granted to one use over another.

**Second** – the principle of prevention of appreciable or significant harm.

Under this principle, a riparian State is obligated, when using its equitable share of the shared international water resource, to ensure that its use does not unreasonably harm the uses of its co-riparians.

The implementation of these two principles in reality is complex, as neither the Helsinki Rules nor the UN Convention provide a clear mathematical formula for the division of shared waters, limiting themselves to providing only guiding criteria, which should be weighed in accordance with the circumstances of each situation. It is for this reason that the majority of water related disputes worldwide are resolved primarily through pragmatic solutions, and not necessarily through strict adherence to "dry" legal principles.

In the discussion between Israel and its neighbours there is made frequent reference to the concept of "**water rights**". It should be noted that this term is not defined under international law, although it is assumed that the intention is to refer to the rights of States under the rules and principles referred to above.

The basic positions of Israel and the Palestinians in relation to the issue of water are summarized below. Although it is possible to anticipate which of the various criteria listed in

the abovementioned international documents supports one side or the other (or even both) it is impossible to quantify such criteria, either individually or collectively.

Finally, the authors wish to emphasize that, due to the general purpose and nature of this document and further due to their clear conclusion that it would be most beneficial to both Palestinians and Israelis to focus their efforts on pragmatic rather than legal solutions, this document is not intended to serve as a legal document or as a detailed analysis of the two sides' respective positions. As a result, they have not seen fit, apart from the short summaries below, to present the detailed supporting arguments for each side's positions.

## **12. Water Rights as Perceived by the Palestinians**

The Palestinians are asking for **most of the water from the Mountain Aquifer, all the water from the Gaza Aquifer, water flowing to it from Israeli territory, and a share in the water of the Jordan Basin (Lake Kinneret) as well as the Coastal Aquifer.**

The Palestinians claim that their position is supported and endorsed by international law, and demand that international law and their future sovereignty over the West Bank be the basis for negotiations over the permanent agreement on the issue of water.

They claim, for example, that replenishment of the Mountain Aquifer is principally in the area that is or will be part of their territory, and therefore all or most of this water belongs to them.

This claim ignores the fact that according to international law, geographical-hydrological factors are only one of the relevant considerations. Against this, for example, is the principal of maintaining existing uses of water, i.e. the fact that the natural springs and water utilized prior to 1967 were all in Israeli territory.

The Palestinians wish to disregard the fundamental clause in the Water Agreement signed by them (Clause 40 of paragraph 6 in the third appendix to the Interim Agreement), which states that the "**future needs**" of the Palestinians in the West Bank are estimated at 70-80 MCM/yr (in addition to what they had at the time of signing the agreement, namely, 118 MCM/yr).

The Palestinians are avoiding treatment of wastewater and reuse of the treated effluents for irrigation, a move that would free large quantities of fresh water for domestic use, while also preventing contamination of groundwater and environmental pollution. At times, this is explained on the basis of a religious prohibition, which is puzzling as neighbouring Arab countries treat wastewater and use the effluent for irrigation of agricultural lands.

It also appears that for tactical reasons of negotiation, the Palestinians do not wish to discuss desalination as a concrete solution (for the West Bank) or regional schemes.

This Palestinian position may be summed up as follows: "Give us (Israel to the Palestinians) all the fresh water we need for the present and the future, take (Israel from the Palestinians) the wastewater that we generate, and desalinate seawater in place of the water we are taking from you."

The above position, which has been presented in international articles and at many international forums, attests to the fact that the Palestinians have not yet internalized the idea that a win-win solution to the water scarcity in the region will necessitate an increase in the overall availability of water, conservation, increased efficiency, and substantial upgrading of the entire supply system.

The Palestinians are clearly endeavouring to arrive at solutions that will be primarily at the expense of Israel, which is suffering from severe water scarcity and is making intensive efforts to bring about efficient and responsible utilization of its scarce natural resources.

### **13. Coping with Water Shortages – Israel's Viewpoint**

The principles outlining the mode of water sharing, both present and future, as well as the methods for coping with expected water shortages, were stated in the section on water in the framework of the Interim Agreement signed between Israel and the Palestinians.

Water from the Mountain Aquifer that Israel has used even before 1967 has drained naturally into its territory, principally from the Yarkon, Taninim, Harod, Gilboa and Beit Shean springs. The Palestinians have never used this water. This fact grants Israel rights of possession and use regarding this water, even according to international law.

Realistic solutions to the problem of water shortage are those that derive from the principles that were determined in the Water Agreement signed by the two sides, in terms of both international law and responsible and sustainable management, principally:

- a. Reduction of water losses and conservation.**
- b. Full exploitation by the Palestinians of the eastern basin in the Mountain Aquifer.**
- c. Treatment of wastewater and reuse of the effluent as well as stormwater for irrigation.**
- d. Desalination of brackish water and seawater for domestic use.**
- e. Cooperation for optimal utilization of all the water sources, adoption of advanced technologies and management techniques.**
- f. Concerted regional efforts to increase the total quantity of available water.**

**Implementation of the first three activities will double the total quantity of water that will be available for domestic use by the Palestinians.**

The above activities, which Israel is already carrying out in its territory, add at present about 800 MCM/yr to the country's water sector. Most of this water is diverted to agriculture, thus freeing fresh water for domestic use. (Israel is currently desalinating seawater to the extent of 130 MCM/yr and brackish water to the extent of 36 MCM/yr; in September 2009, an additional seawater desalination plant, with a capacity of 100 MCM/yr, will commence operation at Hadera.)

The information, technology and experience that Israel has accumulated in the framework of the above activities can be made available to the Palestinian Authority as well.

The donor countries have expressed their willingness to finance the construction of wastewater treatment plants for the Palestinians, such that the question of funding should not be a concern.

The proposition of solving the problem of Palestinian water shortage by exacerbating Israel's water scarcity is utterly unacceptable. Thus only realistic, fair and sustainable solutions must be sought.

Israel is of the opinion that the water agreements in the region must be practical and just, and that each of the agreements must take into account, among other things, quantities, schedules, locations, qualities, and prices for transfer of water between the sides.

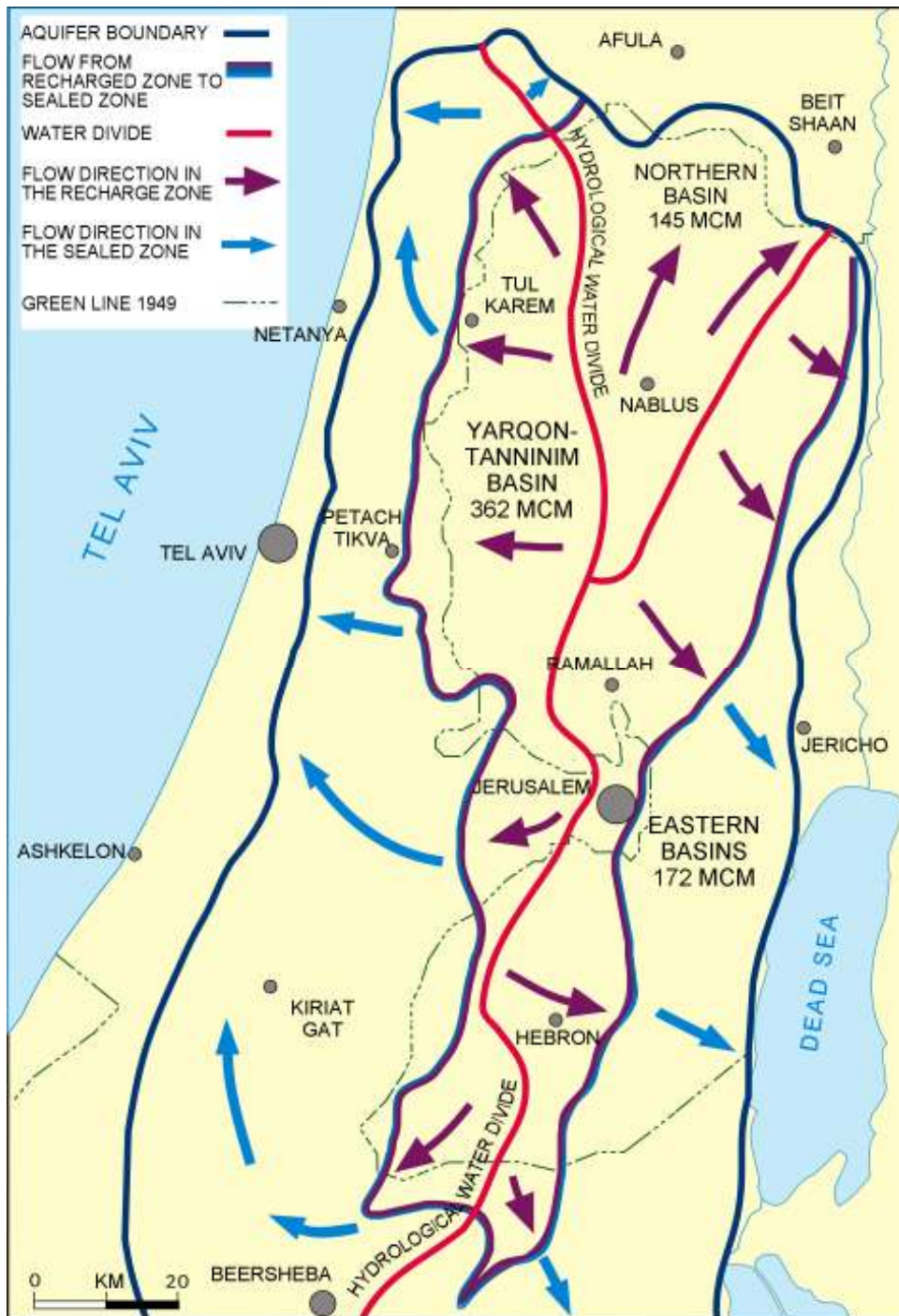
Without derogating from Israel's legal claims in the domain of water, the practical reality existing between nations shows that it is not the rules of international law that determine agreed solutions but rather practical considerations that are discussed and concluded in the framework of negotiations. Clearly, the agreement worked out cannot be in contradiction of the relevant rules of international law; however, the interpretation of these rules and their translation into a real-life context must be on the basis of consent between the sides, while taking into account the unique circumstances of each case.

Israel's experience in the Treaty with the Hashemite Kingdom of Jordan (1994) and in the Interim Oslo II Agreement with the Palestinians (1995) points to the fact that a sound basis can be formed for reaching an arrangement that will meet the needs of both sides, including mechanisms for coordinated development and management of water resources (JWC) and for monitoring, control, supervision and implementation of the agreement.

International experience also shows that water agreements between countries are not a question of principles but one of practical action.

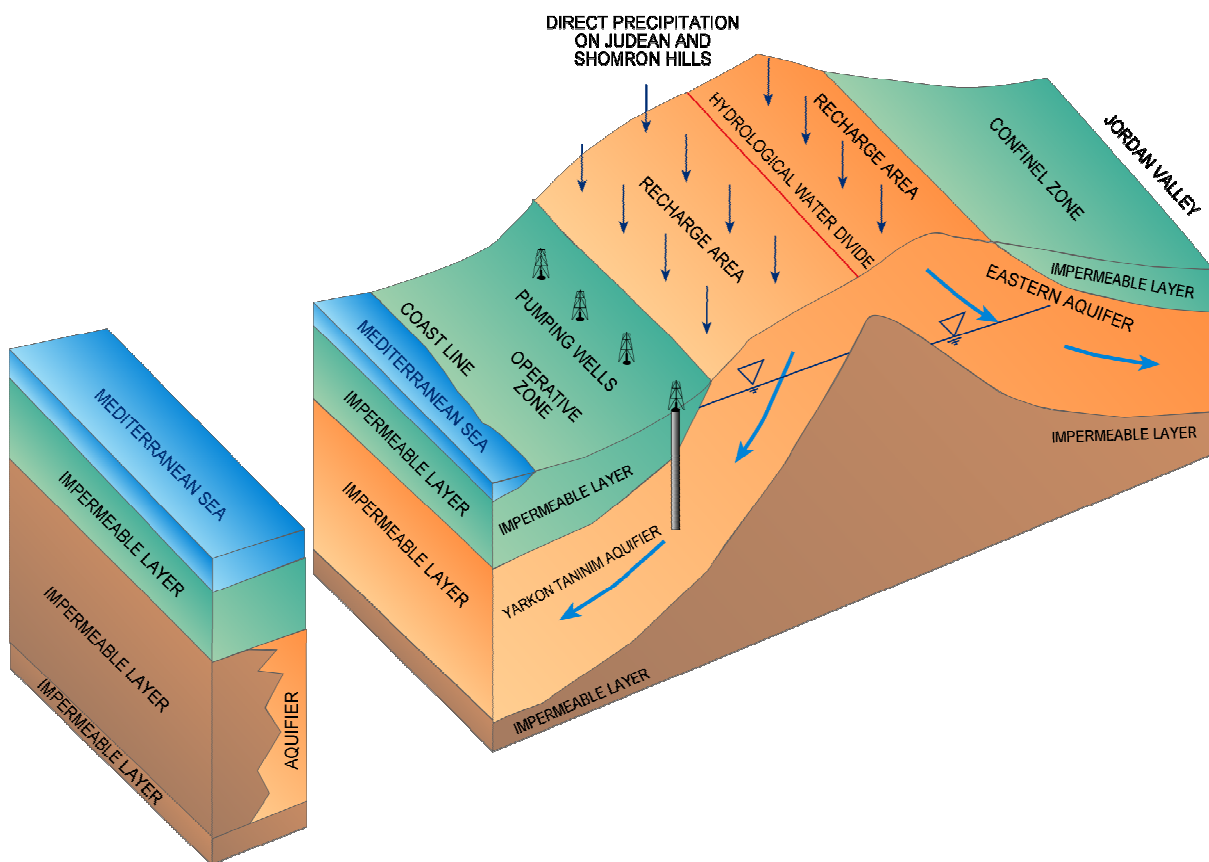
## Appendices

Fig. 10.1: Map Showing the Three Mountain Aquifer Sub-Basins and their Average Potential as Defined in the Interim Agreement



Most of the rainfall infiltrates to the aquifer to the east of the "Green Line" and from there drains naturally to the west of the "Green Line", where the water issues in the form of springs or is pumped. Hydrologically, the Mountain Aquifer, like most aquifers worldwide, comprises two parts: a phreatic part (replenishment zone) and a confined part (storage zone) (Fig. 10.2). The replenishment zone is composed of permeable rock through which the water infiltrates vertically to the groundwater storage area. In contrast, the storage zone is overlain by impermeable rock that serves as a "roof" for the confined aquifer which lies under it. Rainfall over the replenishment zone infiltrates down to the phreatic part and from there flows horizontally, entering the confined part of the aquifer, where it is stored and subsequently pumped.

Fig. 10.2: Schematic Cross Section of the Mountain Aquifer in the Judean Mountains Region



Source: Gvirtzman, 2002

Under the natural conditions that existed at the beginning of the 20th century, most of the Yarkon-Taninim groundwater issued from springs located to the west of the "Green Line". It drained naturally to the Yarkon springs, whose discharges amounted to about 220 MCM/yr, and to the Taninim springs, whose discharges reached about 110 MCM/yr. Both are situated to the west of the "Green Line" (an additional small amount drained in the sub-surface to the sea). The Nablus-Gilboa Aquifer drained naturally in large part to the Gilboa and Beit-Shean Valley springs (about 110 MCM/yr) situated to the north of the "Green Line". On the other hand, groundwater in the eastern basin flows mostly to the east of the "Green Line" (with the exception of some springs like that of Ein Gedi). Wells that were drilled for groundwater extraction from the Mountain Aquifer, were mostly located to the west and north of the "Green Line", in Israeli territory.

The fact is that the natural spring discharge areas have always been located within Israeli territory. The extent of production by Israel from the Mountain Aquifer since 1967 has not increased and has, indeed, even decreased.

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

sn.	Region	1995 basis for increments	Additional Supply, according to the agreement	Total Obligation	Actual Quantity Supplied to the Palestinian Authority in the West Bank											Supplied in 2008, in addition to Israeli obligation
					1998	1999	2000	2001	2002	2003	2004	2005*	2006	2007	2008	
1	Jenin	2		2	2.55	2.3	2.28	2.13	1.99	1.87	2.4	2.22	0.68	1.19	1.6	-0.4
2	Nablus & Salfit	1.9	1.6	3.5	2.8	3.8	3.48	3.7	4.11	4.17	4.5	4.64	5.4	6.12	6.65	3.15
3	Hebron & Bethlehem	11.7	1	12.7	13.9	14.7	14.8	15.06	14.87	15.2	16.2	15.83	19.74	19.78	19.65	6.95
4	Ramalah	7.2	0.5	7.7	8.9	10.5	11.62	12.19	12.77	13.6	14.4	13.9	14.43	15.2	16.99	9.29
5	Jordan Valley	5.07	0	5.07	4.74	5.86	5.13	5.48	5.31	5.21	6.1	6.18	6.1	6.65	6.88	1.81
6	<b>Total</b>	<b>27.9</b>	<b>3.1</b>	<b>31.0</b>	<b>32.9</b>	<b>37.2</b>	<b>37.3</b>	<b>38.6</b>	<b>39.1</b>	<b>40.1</b>	<b>43.6</b>	<b>42.8</b>	<b>46.4</b>	<b>48.9</b>	<b>51.8</b>	<b>20.8</b>

### 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.

## 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 <b>1</b> MCM/year to the <b>Hebron</b> and <b>Bethlehem</b> area.	An addition of <b>8</b> MCM/year was provided	
7a2	An additional <b>0.5</b> MCM/year to the <b>Ramallah</b> area	An addition of <b>9.8</b> MCM/year was provided	
7a3,4	An additional <b>1.6</b> MCM/year to the <b>Salfit</b> and <b>Nablus</b> area	An addition of <b>4.8</b> MCM/year was provided	
7a5	An additional <b>1.4</b> MCM/year to the <b>Jenin</b> area	Israel drilled "Jenin 2" ( <b>1.4</b> MCM/year) for Palestinian operation	
7a6	An additional <b>5</b> MCM/year to the <b>Gaza</b> Strip	<b>Israel installed the pipeline up to the Gaza Strip border</b>	
7b1	An additional <b>2.1</b> MCM/year to the <b>Nablus</b> area (new well)	<b>Israel authorized the drilling</b>	The well has been drilled
7b2	An additional <b>17</b> MCM/year from new wells to be drilled by Palestinians in the eastern aquifer and other agreed sources.	Israel authorized the drilling of <b>70</b> wells with an estimated extraction capacity of more than <b>50</b> 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 <b>31</b> MCM/year (3.1 additional water supplied under the agreement + 27.9 supplied at the time of signing the agreement).	<b>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</b>	

Commitment		Status of Implementation (2008)	
Article 40 Clause	Nature of Commitment	by Israel	by Palestinians
6-7	It was agreed that a quantity of <b>28.6</b> MCM/year shall be added to the Palestinians for the <b>interim period</b> (In addition to the <b>118</b> MCM/year which was consumed by the Palestinians at the signing of the agreement).	<b>Additional amount of water made available for the Palestinians:</b> <b>23.9</b> MCM/year supplied directly by Israel (20.8+3.1) <b>3.5</b> MCM/year by authorized wells- Jenin, Nablus <b>50</b> MCM/year estimated yield of 70 authorized wells <b>Total: 77.4</b> MCM/year	
Sched. 8 1(b)	Prevention of illegal drillings	No illegal drillings	There are more than <b>250</b> 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 <b>52 MCM</b> of Palestinian sewage - <b>4 MCM</b> is treated in the West Bank, <b>14 MCM</b> is treated in Israel and <b>34 MCM</b> is not treated at all and therefore polluting the environment.