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B'tselem – The Israeli Information Center for Human Rights in the Occupied Territories

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## **DISPUTED WATERS**

### **Israel's Responsibility for the Water Shortage in the Occupied Territories**

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Cover Photo: Filling-up water containers in the Palestinian town of Idna (Photo Credit: Najib Abu Rokaya)

## Introduction

Water is the most basic resource for human existence. It is vital for human life itself and for personal health and hygiene. Israel's citizens, like those of other developed countries, benefit year-round from running water in unlimited quantities to meet their household needs. For Israelis, running tap-water is taken for granted.

On the other hand, hundreds of thousands of Palestinians suffer from a severe water shortage throughout the summer. Most of them have no running water all summer long. This shortage of water affects every function that water plays in human life: drinking, bathing, cleaning, and watering of crops and animals. The shortage drastically affects their health and economic well-being. The shortage of drinking water prevents proper hygiene and leads to infections and deterioration of the health of the ill. Failure to water crops and animals affects the livelihood of the residents, and irrigating crops with sewage water is likely to cause illness when the produce is eaten.

Access to water is a basic right, derived from its vital necessity for survival. The severe water shortage, a direct result of Israel's policy since 1967, violates the basic right of Palestinian residents of the Occupied Territories to minimal living conditions. This policy is based on an unfair division of resources shared by Israel and the Palestinians.

This report examines the water shortage from various aspects: the historical background, changes in the wake of the peace process, patterns of water consumption of Palestinians in comparison with those of Israelis and Jewish settlers, and water rights in international law. Although many parts of the report are accurate for both the West Bank and the Gaza Strip, the discussion on consumption patterns relates only to the West Bank, with the focus on the Hebron region, where the problem is particularly severe.

### 1. Control over Water under the Occupation

Israel and the Palestinians share two main water sources.<sup>1</sup> The first is the mountain aquifer, a system extending over approximately 130 Km, from Mount Carmel in the north to Beersheva in the south. The aquifer is some 35 Km wide - from the Dead Sea and the Jordan Valley on the east, to the eastern border of the coastal strip on the west. It is composed of three main basins: the Yarkon-T'ninim on the west, Nablus-Gilboa on the north, and the eastern basins between Jericho and Hebron. The aquifer is fed by rainfall on the mountains of the West Bank that seeps into it. The water then flows

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<sup>1</sup> As regards another water source, the coastal aquifer, opinions differ. The aquifer extends over the entire coastal strip, in Israel and Gaza. Some experts contend that, from a hydrological perspective, this aquifer has essentially two water sources, one in Israel and one in Gaza, and that the two are not connected. Others contend that the amount of water drawn from one side of the aquifer affects the amount on the other side. See D. Gross and A. Sofer, *International Underground Water Reserves in the Middle East - Findings and Political Consequences* (in Hebrew) (Haifa: University of Haifa, 1996) (hereafter: Gross and Sofer, *International Underground Water Reserves*) 55.

eastward and westward to the reservoir areas, from where it is drawn by wells.<sup>2</sup> This source supplies about one-third of Israel's water needs and all the running water that Palestinians in the West Bank receive. The wells that supply this water were drilled in the Yarkon-T'ninim basin before the 1967 war.

The second joint source of water is the Jordan-basin system, which includes the Yarmuh and its tributaries, the Sea of Galilee, and the Jordan River. Although only the Jordan River is shared geographically, the water Israel draws from the Sea of Galilee directly affects the amount of running water available to Jordan, a significant fact according to international law (see section 5). In various ways, this source serves Israel, Jordan, Syria, and Lebanon, but not the Palestinians. These two sources - the Jordan basin and the mountain aquifer - supply more than two-thirds of the water consumed in Israel.

One of the first steps Israel took after occupying the territories in 1967 was to proclaim (Military Order 92, of 1967) all the water resources to be public property, as was the case in Israel itself since 1959. This measure, together with others taken by Israel, created a system that prevents the Palestinians from utilizing their water resources in a manner that meets their basic needs and the population's natural birth rate.

The various components of this system of restrictions and obstacles, described below, are not unacceptable in and of themselves. However, taken together with Israel's major neglect of the water system in the Occupied Territories and its failure to ensure an alternative supply of water, they have created a severe water shortage for the Palestinian residents. Israel's actions and water policy blatantly discriminate between Palestinians and Israeli citizens. After more than thirty years of occupation, some 180 villages in the West Bank are not linked to any system for the supply of running water.<sup>3</sup> This fact alone is telling.

## **A. Drilling Wells**

One of the main ramifications of Israel's proclamation that the water resources are public property was the requirement, established by law, that a permit be obtained from the Israeli authorities in order to drill new wells. Israel used this provision to prevent an increase in the amount of water Palestinians draw from the aquifer.

Currently, some 350 Palestinian wells are in operation in the West Bank. Twenty-three of them, representing 6.5 percent of all the wells, were drilled since the

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<sup>2</sup> For a detailed discussion on the various characteristics of the mountain aquifer, see Gross and Sofer, *International Underground Water Reserves* 44-54. See also H. Gvirtzman, "Groundwater Allocation in Judea and Samaria," in H. Shuval and J. Isaac (eds.), *Water and Peace in the Middle East* (Amsterdam: Elsevier, 1994).

<sup>3</sup> See T. Nassereddin, "Legal and Administrative Responsibility of Domestic Water Supply to the Palestinians," in Feitelson and Haddad (eds.), *Joint Management of Shared Aquifers - The Fourth Workshop* (Jerusalem: The Truman Institute, The Hebrew University, Jerusalem, and the Palestine Consultancy Group) (hereafter: Nassereddin, *Legal and Administrative Responsibility*) 122-125.

beginning of the occupation.<sup>4</sup> Many wells that had been in use prior to 1967 are no longer functioning because of technical and/or maintenance problems, or because they have dried up. Israel did not allow their owners to use these wells again, and the few permits Israel granted were not even sufficient to renew the operation of wells that had not been functioning.<sup>5</sup> The numerous bureaucratic difficulties imposed by Israel were intended to discourage Palestinian residents from drilling a new well or even restarting or repairing existing wells. To obtain a permit, an applicant must pass eighteen stages of approval in various departments of the Civil Administration, Mekorot, the Water Planning Authority, and the Ministry of Agriculture.<sup>6</sup>

## **B. Quotas**

Jordanian law based ownership of the underground water on ownership of the land above it. Until 1967, therefore, there were no restrictions whatsoever on the amount of water drawn from the wells. In 1975, Israel set quotas limiting the amount of water drawn from each well, and has enforced compliance by means of meters that it installed, with heavy fines imposed for exceeding the quota. Since 1975, Israel has updated the quotas only a few times, and the additions did not keep pace with the growth rate of the population.<sup>7</sup>

## **C. Expropriations**

According to the Military Order on Abandoned Property (Order No. 58, of 1967), property whose owners left the region is transferred to the Custodian of Abandoned Property. This Order also applies to property whose owners are unknown, with the burden of proof as to the status of the property falling on the owners, and not the government.<sup>8</sup> Shortly after occupying the territories, Israel declared these lands "absentee property," thereby expropriating an unknown number of Palestinian-owned wells that had been used for irrigation.<sup>9</sup>

## **D. Denying Access**

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<sup>4</sup> Some ninety-five percent of the wells are used for irrigation and privately owned, but these supply only some twenty percent of the well water generated in the West Bank. Most of the water from wells, some eighty percent, come from five percent of the wells, which are owned by the municipalities and regional councils, and are used for household purposes. For detailed figures on the number of wells, their names and locations, see Applied Research Institute-Jerusalem, *Water Resources and Irrigated Agriculture in the West Bank* (Bethlehem, 1998) (hereafter: ARIJ, *Water Resources*) 44-45.

<sup>5</sup> S. Elmusa, *Water Conflict* (Washington: Institute for Palestine Studies, 1997) (hereafter: Elmusa, *Water Conflict*) 86.

*Ibid.*<sup>6</sup>

<sup>7</sup> M. Lowi, "Bridging the Divide: Transboundary Resource Disputes and the Case of the West Bank Water," 18 *International Security* 1, p. 127.

<sup>8</sup> M. Benvenisti, *West Bank Lexicon* (Jerusalem: Cana, 1987) (hereafter: Benvenisti, *Lexicon*) 52.

<sup>9</sup> See G. Baskin, "The West Bank and Israel's Water Crisis," in Baskin (ed.), *Water: Conflict or Cooperation* (Jerusalem: IPCRI, 1993).

Israel prevents or limits Palestinian access to aboveground water sources. It declared a substantial strip of land along the Jordan River, which Palestinian farmers had used for irrigation, to be a closed military area, and five groups of springs<sup>10</sup> were declared "Nature Reserves," where an entry fee is charged.<sup>11</sup>

## E. Neglect

Immediately following the Six Day War, Mekorot [a governmental corporation] began to build an extensive water network in the Occupied Territories that was intended to supply the needs of the military and of Israeli citizens who would settle there. From the mid-1970s, Mekorot began expansion of this network, connecting Palestinian towns and villages that were not linked to a water system. Although the condition of the municipal water systems, most of them built before the occupation, had deteriorated, Israel made no effort to improve them or maintain them in a reasonable condition. The municipalities did not have the resources to repair and improve the piping, and were dependent on allocations set by the Israeli Civil Administration.

Neglect of the municipal water systems is only part of Israel's overall neglect of infrastructure in the Occupied Territories. According to research conducted by the World Bank, the public investment in economic and social infrastructure in the Occupied Territories as a proportion of gross domestic product during the Israeli occupation was extremely small.<sup>12</sup> This finding is particularly serious because a substantial part of the taxes collected from residents of the Occupied Territories over the years made its way to the Israeli treasury and was expended inside Israel.<sup>13</sup>

The neglect and poor condition of the pipes result in a substantial loss of water. The hydrologist Dr. Walid Sabah, of the Applied Research Institute-Jerusalem, in Bethlehem, estimates that an average of forty percent of the water flowing through pipes in the West Bank is lost by leakage. In Tulkarm, the leakage is approximately sixty percent and in Ramallah, about twenty percent.<sup>14</sup> (Regarding the activities of the Palestinian Authority on this subject, see section 2 below.)

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<sup>10</sup> The springs Israel declared in 1967-1969 to be "Nature Reserves" were al-Ojah, al-Baden, Ein Fasha, al-Qelt, and al-Turba. According to Benvenisti, declaring nature reserves was one of the overt methods used by Israel to transfer areas to use by Israeli citizens. As of 1985, the Israeli authorities had declared 250,000 dunams to be Nature Reserves. See Benvenisti, *Lexicon*.

<sup>11</sup> It is important to note that the springs, which from a hydrological perspective are part of the mountain aquifer, also continue to be used for irrigation and household purposes. However, the level of output of the springs varies according to the amount of rainfall, and no serious attempt has been made by Israel or the Palestinian Authority to improve the output from this water source by means of canals or dams.

<sup>12</sup> The World Bank, *Developing the Occupied Territories - An Investment in Peace* (Washington: The World Bank, 1993) 28-35.

<sup>13</sup> The World Bank estimates that in 1991, for example, NIS 400 million, some eight percent of the GDP in the Occupied Territories, were transferred to the Israeli treasury and not returned to the Occupied Territories. This estimate does not include the taxes paid by Palestinians who worked in Israel. *Ibid.*

<sup>14</sup> Dr. Sabah stated these figures to B'Tselem in a conversation on 29 July 1998.

## 2. Water Resources and Supply since Oslo 2

The Israeli and Palestinian dispute over water has been on the agenda of the joint peace talks since the meeting in Madrid. Despite progress in the talks that led to the signing of the Oslo 1 and 2 Agreements, many of the patterns of control characteristic of the occupation regime, including those dealing with water, have continued.

The Declaration of Principles, signed in Washington on 13 September 1993, referred to the need for cooperation between the parties in managing and developing joint water resources, while setting fair standards of allocation that will respect the water rights and meet the needs of both parties.<sup>15</sup> However, it is very doubtful that the arrangements set in the “Taba Accord,” signed in Washington on 28 September 1995, meet these objectives. The main principle of this agreement is that the future allocation of water - the amounts each side pumps from the shared aquifer, including water for the Israeli settlements - will be based on the situation at the time the accord was signed. In order to benefit the Palestinians, the accord also stipulates that new water sources will be developed.<sup>16</sup> The agreement further provides that the amount of water Israel currently draws from the aquifer, shown in the following table, will not be affected, and that the Palestinians may pump some 70-80 mcm/y (million cubic meters per year) from the aquifer that are not currently utilized, in addition to the amounts presently available to them. The accord does not address the possibility of supplying additional water to the Palestinians from other sources, like the Jordan River and the springs.

**Table 1**

**Allotment to Each Side - in  
Millions of Cubic Meters per Year**

<b>Mountain Aquifer (Regions)</b>	<b>Israel*</b>	<b>Percentage</b>	<b>Palestinians</b>	<b>Percentage</b>
Nablus-Gilboa Basin	103	71	42	29
East Basins	40	42.5	54	57.5
Yarkon-T'ninim Basin	340	94	22	6
<b>Total</b>	<b>483</b>	<b>80</b>	<b>118</b>	<b>20</b>

Source: Israeli -Palestinian Agreement on the West Bank and the Gaza Strip, Annex III, Schedule 110, Data Concerning Aquifers (Washington, 1995).

\* The total amount of water drawn by Israel for use in Israel and the Israeli settlements in the Occupied Territories, except for water Mekorot sells to Palestinians

The agreement stipulates that 28.6 mcm/y intended for household use will be supplied immediately upon completion of the infrastructure necessary for its production, ten mcm/y going to Gaza and 18.6 mcm/y to the West Bank. Responsibility for development and supply was divided between Israel and the Palestinian Authority,

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<sup>15</sup> Declaration of Principles, Annex III.

<sup>16</sup> Israeli-Palestinian Agreement on the West Bank and the Gaza Strip, Annex III, Protocol Concerning Civil Affairs, article 40.3.

with Israel responsible for supplying 9.5 mcm/y (five to Gaza and 4.5 to the West Bank) and the Palestinian Authority for 19.1 mcm/y, intended only for the West Bank.<sup>17</sup> The agreement also allows the Palestinians to carry out the development necessary to supply an additional 41-51 mcm/y over the long term from the eastern basins of the aquifer.

The mandate for approval of the detailed plans for the drilling, pumping, and distribution of these water supplements was given to a bipartite Joint Water Committee (composed of an equal number from each side). The Committee's decisions must be unanimous, and no mechanism was provided for settling or arbitrating issues in contention. This arrangement, granting veto power to each side, works to Israel's advantage, since necessary changes would benefit the Palestinians, while Israel benefits from the status quo.

Israel's water commissioner and the Ministry for National Infrastructure contend that Israel already supplies 4.5 mcm/y to the West Bank, in accordance with the agreements, and even exceeds this amount. Palestinian sources contend, on the other hand, that Israel supplies only part of the supplement it undertook to provide, and only in the winter months, when water needs in the Israeli settlements and Israel are lower.<sup>18</sup>

The Joint Water Committee has so far granted permits for drilling new wells intended to cover part of the supplementary water for which the Palestinian Authority is responsible.<sup>19</sup> At this stage, only one of the wells has been drilled. It is located in the Nablus region and is already supplying water. Four other drilling sites, in the Herodion region (between Hebron and Bethlehem), financed by the governments of Germany and the United States, are in the final stages of development. The other two - one in the Jenin region and the other in the Ramallah region - are in development.

Almost three years after the signing of the Oslo 2 Agreement, three principal factors explain why the Palestinian Authority has supplied only a small percentage of the supplementary water it undertook to supply:

1. Bureaucratic obstacles imposed by Israel regarding the procedure for approving new drillings by the Joint Water Committee.
2. Internal bureaucratic red-tape in the Palestinian Authority and technical problems in the drilling.
3. Delays in the transfer of funds promised by donor countries to carry out the drilling.

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<sup>17</sup> *Ibid.*, articles 40.6 and 40.7.

<sup>18</sup> According to the Water Departments of Hebron and Bethlehem, which showed B'Tselem records indicating that Mekorot supplied twice as much water in the winter than in the summer.

<sup>19</sup> Information on the Committee's deliberations was given to B'Tselem by Shmuel Cantor, an Israeli representative on the Committee, and by Taher Nassereddin, a Committee member representing the Palestinian Authority.

The large amount of water allocated to Palestinians from the eastern basins of the aquifer (41-51 mcm/y) will not be realized in the near future because most of it is saline and requires desalination, a complicated and costly procedure.<sup>20</sup>

In summary, it can be said that the agreements signed by the parties eliminated the restrictive Israeli policy that sweepingly prohibited the drilling of new wells, and significantly increased the water quotas available to the Palestinian Authority. On the other hand, these agreements legitimized the blatant discrimination between Palestinians and Jewish settlers and the unfair division of the shared resources. In practice, Israeli control, indirect but tighter, continues; there are still quotas on the water available to the Palestinians; and the Palestinians' dependence on Mekorot has even increased.<sup>21</sup> Moreover, even though Israel handed over to the Palestinians an extremely deteriorated water system, the agreements do not hold Israel responsible for this, and do not obligate Israel to cover the cost of their repair.

### 3. The Gap in Consumption

The severe shortage suffered by Palestinians is evident in the enormous gap in water consumption between Palestinians and Israelis, in general, and Jewish settlers, in particular. It should be emphasized that two-thirds of the water consumed in Israel comes from the two water sources shared by Israel and the Palestinians.

**Table 2**

**Annual Water Consumption per Person in Cubic Meters,  
Israelis and West Bank Palestinians, 1996**

	<b>Palestinians*</b>	<b>Israelis**</b>	<b>Gap (percentage)</b>
Total consumption	84.6	357	322
Agriculture	56.5	228	303
Household use	26.5	105	296
Industry***	1.6	24	1400

Source:

As regards Israeli consumption: The Central Bureau of Statistics, Statistical Yearbook for Israel No. 47 (1997).

As regards Palestinian consumption: Taher Nassereddin, Director General of the Water Department for the West Bank<sup>22</sup>

The figures per person were calculated according to the size of the population:

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<sup>20</sup> The main reason for the salinity of the water is excess drawing of water by Israel. See Gross and Sofer, *Underground Water*.

<sup>21</sup> It is important to point out that, as of 1996, Mekorot supplied sixty percent (on a yearly average) of all the water for household needs in the West Bank. The remainder came from municipal wells. Fifty-five percent of the water provided by Mekorot in the West Bank comes from wells drilled by the company in the West Bank, and the remainder from water it brought from wells it had drilled in Israel. See Nassereddin, *Legal and Administrative Responsibility*, 123.

<sup>22</sup> See Nassereddin, *Legal and Administrative Responsibility* 122.

\* The Palestinian population in the West Bank is 1,571,500 persons (Palestinian Authority's Central Bureau of Statistics)

\*\* Israel's population is 5,688,900 (Israel's Central Bureau of Statistics)

\*\*\* As regards the Palestinians, a distinction was made between industrial and household consumption based on statistics given to B'Tselem by the Palestinian Water Authority.

The figures on Palestinian consumption, presented in Table 2, do not include the rainwater collected in private cisterns of Palestinians. According to one estimate, the total amount of water collected in the West Bank in this manner ranges between two to five million cubic meters per year.<sup>23</sup> Even when water from the cisterns is included, the average consumption of an Israeli for all purposes is four times that of a Palestinian in the West Bank. If only household consumption is considered, that is, water for drinking, personal hygiene, and cleaning, a West Bank Palestinian consumes one-third the amount of water consumed by an Israeli. These figures are averages for the entire population. In practice, some twenty percent of the residents of the West Bank, living in some 180 villages, consume even less water as they are not connected to any network of water flow,<sup>24</sup> while others, mainly town residents, consume a slightly higher amount.

The accepted assumption of water experts is that the desired minimum amount of water for household needs in a modern city is one hundred cubic meters per person per year:<sup>25</sup> Israelis falls slightly above this standard, while the Palestinian residents of the West Bank consume less than one-third this amount.

Table 2 shows that the agricultural sector is the largest consumer of water in Israel. This fact has historic roots tracing back to the pre-state period and the first ten years of the State of Israel: agriculture was perceived then - for political, economic, and ideological reasons - as crucial to the success of the Zionist project.<sup>26</sup> This perception led to creation of a complicated system of subsidies for irrigation water, which encourages continuously increased consumption.<sup>27</sup> The subsidies continue although, from every aspect, agriculture is much less important now than it was in the 1960s (see Table 3).

This situation is particularly problematic in light of the water shortage among Palestinians and the relatively great importance of agriculture for the limited economy of the Palestinians (see Table 3). Israeli and Palestinian experts agree that any future

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<sup>23</sup> According to Haisham Aratny, in an Arabic publication of a-Najah University, cited in Elmusa, *Water Conflict*, 104.

<sup>24</sup> These persons rely on water that they collected in private cisterns or purchased. For statistics, see Nassereddin, *Legal and Administrative Responsibility*, 122.

<sup>25</sup> This figure was stated, for example, by Israel's current water commissioner, Meir Ben-Meir, in an interview with *Globes*, an Israeli financial newspaper, on 26 March 1997. For comparable estimates, see H. Shuval, "Proposed Principles and Methodology for the Equitable Allocation of the Water Resources Shared by the Israelis, Palestinians, Jordanians, Lebanese and Syrians," in H. Shuval and J. Isaac (eds.) *Water and Peace in the Middle East* (Amsterdam: Elsevier, 1994).

<sup>26</sup> See E. Feitelson, "The Implications of Changing Water Agendas within Israel for Regional Water Allocations," unpublished paper, Hebrew University, Jerusalem, 1998 A. DeShalit, "From the Political to the Objective: The Dialectics of Zionism and the Environment," *Environmental Politics* (1995) 4.

<sup>27</sup> S. Arlosoroff, "Water Trading and Pricing Issues in the Middle East," in E. Feitelson and M. Haddad, *Joint Management*.

agreement on water must include transfer of water from the agricultural sector in Israel to the Occupied Territories.<sup>28</sup>

**Table 3**

**Water and Agriculture in Israel in comparison to the West Bank**

	<b>Palestinians (West Bank)</b>	<b>Israelis</b>
Water for irrigation per person (cubic meters/year)	56.5	228
Irrigated area within the cultivated fields	6.0%	45.6%
Importance of agriculture in the economy (percentage of gross domestic product)	30%	2.2%
Importance of agriculture in exports	25%	3.9%
Number of persons employed in agriculture	13.2%	2.5%

Source:

As regards Israel: The Central Bureau of Statistics, Statistical Yearbook for Israel No. 47 (1997).

As regards the West Bank: ARIJ, *Water Resources*; PASSIA.<sup>29</sup>

The gap in consumption between Israelis and Palestinians does not end with the quantity, but also prevails in the regularity of supply and the price of water paid by the consumer.

Whereas an Israeli citizen benefits from unlimited running water throughout the year, residents of the West Bank, primarily residents of the Hebron region, have no running water throughout the summer. The lack of water stems from the increased consumption during the warm season, and because particularly in this season Mekorot further cuts back the water supplied to Palestinians in order to meet the increased demand in Israel and the Israeli settlements. (For additional reasons, see section 4 below.)

For running water in their homes (as opposed to water they collected or purchased), Palestinian consumers pay the same price as the Israeli consumer (some NIS 3 per cubic meter). Since the average income is much higher in Israel than in the Occupied Territories, the financial burden for a Palestinian family is significantly heavier than for an Israeli family. To illustrate this difference, the per capita GDP for Israelis is twelve times higher than the per capita GDP for Palestinians.

No authorized Israeli body, including the Central Bureau of Statistics, publishes statistics on regional water consumption in Israel by regions. Therefore, to obtain figures on water consumption in the Israeli settlements, B'Tselem contacted Israel's

<sup>28</sup> See, for example, Feitelson and Haddad, *Joint Management*. 86; M. Ben-Meir, in Shuval and Isaac, *Water and Peace*, 34; Elmusa, *Water Conflict*, 251.

<sup>29</sup> Palestinian Academic Society for the Study of International Affairs (1997) 201.

water commissioner, Meir Ben-Meir. The Commissioner flatly refused to provide any figures on this matter, claiming that the request is part of a political game in which he does not want to participate.<sup>30</sup>

Various research projects' estimates of water consumption in the West Bank Israeli settlements ranges from forty-five to sixty-five mcm/y.<sup>31</sup> Assuming an average consumption of 55 mcm/y, the annual per capita consumption in the Israeli settlements totals some 380.6 cubic meters,<sup>32</sup> which is higher than the average annual consumption of the general population of Israelis [including settlers], which is 357 cubic meters per capita (see Table 2). According to one researcher,<sup>33</sup> the settlers irrigate some sixty percent of their cultivated land, in comparison to forty-five percent in Israel and six percent by Palestinians in the West Bank.

Furthermore, to supply water to the settlements, Mekorot drilled dozens of wells, some very close to Palestinian towns and villages. These wells reached the deep strata of the aquifer and, according to Palestinian researchers, damaged the wells and springs fed by the upper level of the aquifer, which supply water to Palestinian towns and villages.<sup>34</sup> The damages caused to these water sources result in reduction in the quantity of water and even total dessication of the water source. The report of the commission appointed by the UN Security Council refers explicitly to the drastic reduction in the amount of water available to the Palestinian towns and villages of al-'Arij, Ramallah, al-Bireh, and Tel al-Bireh as a result of the drilling in nearby Israeli settlements.<sup>35</sup> Following strong local and international pressure, Israel ultimately admitted that the wells drilled by Mekorot for the Israeli settlements Yotav and Galgal led to the desiccation of wells and springs in al-'Arij, and compensated the residents by granting a permit to drill a new well.<sup>36</sup> In the other cases, Israel denies that its drilling damaged Palestinian water sources.

#### **4. Hebron Region**

The Hebron region is an extreme example of the water shortage among Palestinians resulting from Israel's discriminatory policies and unfair division of water sources.

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<sup>30</sup> The comments were made in a telephone conversation of 11 August 1998 between the water commissioner and B'Tselem.

<sup>31</sup> The lowest estimate, of forty-five mcm/y, came from Nassereddin (Nassereddin, *Legal and Administrative Responsibility*, 118). The highest estimate, of sixty-five mcm/y, came from Shuval and ARIJ. See H. Shuval, "A Water-for-Peace Plan," *Palestine-Israel Journal*, vol. 3-4, p. 77; ARIJ, *Water Resources*, 46.

<sup>32</sup> Calculated on the basis of the number residents of Israeli settlements in the West Bank in 1996, which totaled 144,500 persons (Central Bureau of Statistics Yearbook No. 48, 1997)

<sup>33</sup> D. Kahn, *Agriculture and Water Resources in the West Bank and Gaza (1967-1987)* (Jerusalem: The Jerusalem Post) 110,111.

<sup>34</sup> United Nations, *Water Resources of the Palestinian Occupied Territories*, Report A/AC. 183, New York, 27-30.

<sup>35</sup> See United Nations, Security Council Commission Document S/14268 (1980), paragraph 205

<sup>36</sup> Al-'Arij is located in the Jordan Valley, ten Km north of Jericho. On this matter, see J. Stork, "Water and Israel Occupation Strategy," 16 MERIP Reports (July-August 1983) 22.

Some 288,000 persons live in the Hebron region and the existing water resources there are severely limited.<sup>37</sup> Water for household use by Palestinians comes from four wells, two of which - al-Fawar 1 and 2 - are owned by the Hebron Municipality, and two - Samu'a and Rihiyeh - owned by Mekorot. The region also has ten springs from which the residents freely draw small quantities of water for their household and farming needs.

Hebron Municipality supplies water to some 170,000 residents - 120,000 city dwellers and another 50,000 living in nearby Palestinian towns and villages, among them six villages - Dura, Dir Razah, Rabud, Abu al-'Asjah, Tarameh, and Qorzeh - and two refugee camps - al-Fawar and al-'Arub. The water engineer of Hebron Municipality, 'Amad 'abd al-Khalim a-Zir, informed B'Tselem that the amount of water supplied to Palestinians from the two Mekorot wells is less in the summer than in the winter, and therefore, the Municipality must ration the water to the Palestinians.<sup>38</sup>

In summer, the Municipality divides Hebron into fifteen districts and supplies water on a rotation basis, each district receiving water once every fifteen days for twenty-four hours. However, some five percent of the houses, those located at the higher elevations, do not receive any water because the water pressure during the summer is insufficient to pump the water to the houses. Hebron supplies water to these families by water tankers - ten cubic meters per family per month - at a price of NIS 6.5 per cubic meter. In July 1997, average per capita daily water consumption in Hebron totaled fifty-eight liters.<sup>39</sup> In comparison, average per capital daily consumption in Israel is 288 liters, and even higher in the summer.<sup>40</sup>

Two other factors aggravate the problem. One is the leakage of water, resulting from the poor condition of the city pipes. As noted above, this condition stems largely from the severe neglect of water-system infrastructure in the city during the period of sole Israeli control. Since transfer of control of the city to the Palestinian Authority, three-fourths of the network have been renovated, but significant leakage continues.

The other, equally significant, factor is theft of water from the network by Palestinian residents, mainly farmers. This phenomenon stems primarily from the shortage of water for home and agricultural use, and also somewhat from the desire to obtain water without paying for it. Theft reached significant proportions at the beginning of the intifada, and the measures taken by Israel and the Palestinian Authority since then to eliminate the thefts have not solved the problem.<sup>41</sup>

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<sup>37</sup> Palestinian Authority Central Bureau of Statistics, 1998.

<sup>38</sup> B'Tselem researcher Najib Abu-Rokaya interviewed the water engineer on 22 July 1998.

<sup>39</sup> This figure, provided by the Palestinian Water Authority, was published in an article by Amira Hass in *Ha'aretz*, 31 August 1998 (hereafter: Amira Hass article).

<sup>40</sup> The figure on consumption in liters is taken from the data of Table 2 (105 cubic meters per person per year is 105,000 liters, divided by 365 days in a year). Unfortunately, the Central Bureau of Statistics does not provide statistics on seasonal consumption.

<sup>41</sup> One of the obstacles currently faced by the Palestinian Authority in battling this phenomenon is that most of the illegal connections to the water system are found in Area C, over which Israel has total control, and Palestinian Authority police are allowed to enter these areas only with Israeli approval and accompanied by Israeli security personnel. The Palestinian Authority also refrains from doing this out of fear that they would be portrayed as cooperating with Israel (see Amira Hass article.)

The water shortage during the summer compels Palestinian residents in the Hebron region to buy water privately from water tankers. The owners of these tankers buy the water from public and private wells, and charge a price fluctuating between NIS 15-30 per cubic meter, depending on the distance from the house to the well and the height of the water storage container. This price is five to ten times higher than that charged by the Municipality for running water. A family can, therefore, spend hundreds of shekels a month for water, which is a heavy financial burden for a family whose average monthly income does not exceed NIS 1500. There is clearly a problem with the fact that the Palestinian Authority sells water from public wells to the private water-tanker owners without supervising who ultimately receives the water and the prices charged for it.

#### **A. Public Health Consequences of the Water Shortage in the Hebron Region**

The water shortage greatly affects hygiene, with grave consequences for health: an increase in infectious diseases from the use of polluted water, increased dehydration because of insufficient water intake, and improper care of patients in homes and hospitals, leading in some instances to life-threatening situations.

The Hebron region has three hospitals, which serve some 288,000 persons. Because of the water shortage, the hospitals purchase water daily. According to Sabah Muhammad Namura, deputy director of 'Alia Hospital, the largest hospital in the Hebron region, the hospital purchases four to five tanks of water daily. In July 1998, each tank cost NIS 120; it now costs NIS 250. In Namura's words, "Our hospital has 140 beds, 270 employees, and between 600-800 patients come to the hospital daily. Because of the water shortage, the hospital dug a cistern with a capacity of seven water containers. This is how we overcome the problem, and only three times this summer did the hospital have no water at all. The last time was on 22 August, when we couldn't operate the dialysis machines. More than ten patients were in dialysis at the time, a very dangerous situation. Because of the increasing demand for the water tankers, sometimes cisterns do not solve the problem."

The water shortage causes infectious disease in various ways: pumping water from dirty wells; use of standing, rather than running, water for cleaning; and irrigating crops with sewage water. Testimonies of health workers indicate that the incidence of contagious diseases in the region has increased during the last two years. The following is the testimony of Hawaleh Muhammad Hussein Barahin, a nurse in the Pediatrics Department of 'Alia Hospital:

More than fifty percent of the patients in our Pediatrics Department suffer from various complications resulting from the use of polluted water. We cannot say with a hundred percent certainty, of course, that this always results from the water shortage, because it may be that the child's mother does not clean the bottle well, but two years ago there was a smaller proportion of such complications. We can assume that the water shortage and use of polluted water led to an increase in these diseases, but that is my evaluation, and not based on research.

The diseases caused by polluted water and the water shortage are diarrhea, dehydration, and intestinal and digestive tract infections. In many areas of Hebron, there is no water in the taps. We do not always know the source of the water, so it may be that water arrives already polluted, and it may be that the way the water is stored causes the pollution. For example, some people have wells that have not been used for years and just started using them without cleaning them thoroughly. That leads to lots of cases of infection.

Yesterday, for example, a month-old baby weighing half of what he should was admitted suffering from dehydration. Of course, the mother who is breast feeding him does not drink as much water as she should, because there is insufficient clean water in many villages in the Hebron region. Buying water from the store is impossible for them. Furthermore, when there isn't water to clean the eating utensils, they wash all the household utensils, including the child's bottle, in one receptacle, like a bucket. This causes disease. Also, not cleaning the house with water more than once a week or every two weeks is not healthy when there is a child crawling on the floor.<sup>42</sup>

Ensuring proper hygiene in the hospitals is vital because of the amount of bacteria there. The water shortage severely upsets the cleaning routine and sharply reduces the number of treatments and operations performed. The following is the testimony of Mahmud Bashir Rahed Dawik, a physician at al-Ahli Hospital:

The water problem affects every function of the hospital, and even affects the surgical operations. When no water is available to clean the operating rooms and to wash the sheets and our clothes, those of the doctors and nurses, we can only perform three, let's say, operations rather than six, which may at times be disastrous. Of course, we first treat the patients in very serious condition, and put off treating those whose condition is less serious.

In the winter, when there is no water problem, we customarily change the sheets every eight hours. Now we do it only every twelve hours, except, of course, where there are blood stains or where the patient really dirtied the sheet. The hospital does not have enough water for laundering, and we often have to wait to do the laundry until the water tankers arrive. The bathrooms do not have any running water at all. The hospital does not have enough water to wash the patients.

The water shortage affects the kind of diseases the patients have. Most of those who come to the hospital in the summer suffer from various infectious diseases, either bacterial or viral, and from digestive tract infections. These result from using water that is unclean or comes from reservoirs of standing water or from dirty wells.

One night a week ago, while I was the on-duty physician, more than thirty patients suffering from diseases caused by polluted water arrived at the hospital.

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<sup>42</sup> The testimony was given to Marwah J'bara-Tibi on 27 August 1998 at the hospital.

The situation in the hospital is intolerable. The hospital is not as clean as it had been before the water problem worsened. One after the other, the patients use bathrooms that have no water. This situation invites disease, but it is impossible to prevent people from using the bathrooms, and it is also impossible to guarantee there will be water for everyone who uses them. We already do not really wash the floor. We use a damp rag and do not clean it thoroughly. This is a hospital, where maintaining proper hygiene is especially important. This is not just a house where healthy people move about. Here, diseases move about. Cleanliness is vital in the hospital, and we cannot provide it. It is as if we are at war, even though there is no war.<sup>43</sup>

The danger inherent in the hygienic and sanitation conditions in the hospitals increases the danger of the disease for which the patient is admitted, and also threatens the patient's family. Hawaleh Barahin, a nurse in the Pediatrics Department of 'Alia Hospital, whose testimony, in part, was presented above, describes the situation in the Department:

Because of the water problem, our Department also is not clean the way it used to be. At times, when a child has a high fever, we have to give him a bath in cool water. We can't do that because there is insufficient water, creating a dangerous situation. We are also not sure about the purity of the water we use to prepare the formula for infants. Because of the polluted water, lots of patients are admitted to the Department, and we do not have enough clean sheets because we cannot launder them as we should. Many mothers sleep alongside their children on beds without sheets.

The Department's bathrooms and showers do not have sufficient water for the patients, the visitors, and the physicians and nurses, and this invites disease. When two patients use the same toilet without water to flush it, one is liable to infect the other. A healthy mother bringing her child to the Department is liable to return home ill.<sup>44</sup>

More than everyone, the patients in the Department suffer. Use of toilets and showers are almost impossible, as the testimony of Sara 'Ali al-Hanur, from Deheisheh refugee camp, who was hospitalized at al-'Ahli Hospital, indicates:

I was hospitalized six days ago with tremendous pain. They operated on me and opened a blockage in my digestive tract. My stomach has a wound almost 25 cm long, and I must keep it clean, because a small infection can cause much pain and suffering. But to keep it clean during a water shortage in the hospital is almost impossible.

My daughter takes me to the Department, where it is not so clean, even though this hospital is recognized as a clean hospital and is one of the best. When I am in the Department, I make sure that my body doesn't touch anything, because I

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<sup>43</sup> The testimony was given to Marwah J'bara-Tibi on 26 August 1998 at the hospital.

<sup>44</sup> The testimony was given to Marwah J'bara-Tibi on 27 August 1998 at the hospital.

don't know which patient was there before me, what she has and what she had touched. Because of the operation, I can't shower my whole body, but even if I could have, there wasn't enough water. Sometimes there is a thin stream of water, and sometimes none at all. My daughter cleans me with a damp towel, and there is not even enough water to clean myself the way I should.

It is not pleasant to go into the hospital bathrooms because they have no water. When I do, despite the pain and difficulty in controlling my body, I stand so that I do not touch anything, because I do not know who was there before me, and what sickness she had. The urine of the one who was there remains, and you can smell it.

The hospital tries to overcome the problem. We receive instructions, not only about which medicine to take and when, but also on how to save water and use as little as possible and still meet a good hygienic standard. But that is difficult.

Both the patients and the visitors buy drinking water in the shop. I can't afford that. I wait for the hospital to have water, and then I fill up a cola bottle so that I will have enough water until the next time there is water in the hospital.

It is possible to obtain juice and cola and things like that. It is much easier to obtain them than it is to get water. I count the days until I leave the hospital and want to go home tomorrow, even though the hospital is very good and though the doctors and nurses are very nice, and though I prefer to be under medical supervision<sup>45</sup>.

## **B. Testimonies of Officials and Residents of the Hebron Region**

### **Testimony of Ratem Muhammad Hussein Karaghat, born in 1951, head of the Halhul Water Department<sup>46</sup>**

Halhul has some twenty thousand residents. The municipal water system serves 2,290 customers, and some 230 families are not linked up to the network. Some of the latter live in areas that the water network does not reach, and some live in high locations, where the water does not reach, so they have no reason to link up. A small portion of the families chose not to link up for financial reasons, and prefer to use water they gather in cisterns or buy in containers.

Halhul receives water only from Israel's Mekorot. We are linked by a four-inch pipe to the main line coming from the Gush Etzion region. This year, the city's water meter wasn't working properly, and we received an estimated bill. The following is a breakdown of the city's water consumption as recorded by our meter in the summer of 1997:

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<sup>45</sup> The testimony was given to Marwah J'bara-Tibi on 27 August 1998 at the hospital.

<sup>46</sup> The testimony was given to Najib Abu-Rokaya on 12 August 1998 in Halhul.

28 May 1997 - 28 June 1997: 32,950 cubic meters, which works out to 55 liters per person (lpp)

29 June 1997 - 30 July 1997: 17,280 m<sup>3</sup>, which works out to 29 lpp

31 July 1997 - 26 August 1997: 19,870 m<sup>3</sup>, which works out to 33 lpp

27 August 1997 - 25 September 1997: 24,250 m<sup>3</sup>, which works out to 40 lpp

26 September 1997 - 28 October 1997: 27,510 m<sup>3</sup>, which works out to 46 lpp

29 October 1997 - 29 November 1997: 26,600 m<sup>3</sup>, which works out to 44 lpp

The monthly allocation of water to Halhul does not allow for running water throughout the week. The water flow is based on the plan of the Palestinian Water Authority. Four days open and four days closed. Sometimes it is closed for more than four days. Furthermore, the water pressure sometimes changes. Sometimes it is two liters, and sometimes seven, which also affects the availability of water.

Family water consumption varies according to the number of persons in the family and the number of animals the family has: donkeys, horses, cattle, sheep, etc. There are some 3,000 such animals in Halhul. Another reason for the variation in water consumption is location. Some 200-300 families linked to the city's water system do not receive water for one to three months during the summer because their home is located at a high altitude, and the water pressure in the pipes is low.

Residents of the Israeli settlement Karmi Tsur, located some 350 meters from Halhul, do not require water tanks on the roofs and do not have to buy water in containers. They have running water all the time.

**Testimony of 'Issa Salem Hamis Abu Haran , born in 1960, married with three children, director of al-Arub refugee camp<sup>47</sup>**

Al-Arub refugee camp now has some 7,000 residents, and nearby Shiyuh al-Arub village has 1,200 residents. The water comes from Gush Etzion through pipes that date back to 1964. The quantity of water allocated to al-Arub and Shiyuh al-Arub totals 8,000 cubic meters a month in the winter and 12,000 cubic meters in the summer. This amount is intended to serve 8,200 persons. The water is used for everything, including water for the cattle and chickens and a bit for watering the private crops and home gardens.

The conduit bringing the water from Gush Etzion splits into two at the entrance to the al-Arub refugee camp. One section is administered by the Hebron Municipality, which charges those hooked up to it the same price it charges residents of Hebron, and the other section is administered by UNRWA. This water runs to the public institutions in the refugee camp, like the school, mosques, clinic, youth club, and women's club. The municipal pipe also brings water to the camp's public taps, to which people come with their containers, fill them with water, and take them home. The Palestinian Authority is supposed to pay the Hebron Municipality for the water that people take from these taps.

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<sup>47</sup> The testimony was given to Najib Abu-Rokaya on 8 July 1998 at Haran's office.

The Hebron Municipality conduit is linked to the houses and measures water supply by a meter, like everywhere else. My house is connected to this line with a meter, as required. I get the water regularly, except for interruptions resulting from repairs or failure to pay the bill. I generally have running water because my house is on the western side of the refugee camp, which receives water first. I receive lots of complaints from residents on the eastern side and in the higher parts of the camp. They do not always get water on a regular basis. There are houses that do not get water at all during the summer. An example is the house of Muhammad 'Odeh 'Aqel Iyub, and all the houses at the higher section, above the hill on which the refugee camp was built. The same is true on the eastern side. The water does not get to the house of 'Adel Ibrahim Hamed and all the houses of Shiyuh al-Arub.

**Testimony of Haisham Badar Muhammad Abnu 'Alan, born in 1949, married with seven children, member of the municipal council, resident of a-Dahariyah, Hebron District<sup>48</sup>**

A-Dahariyah has 25,000 residents, some 4,000 families. Only 1,800 families are linked to the water system. The others are not linked up because the network is unable to supply water to them. To link up, the family has to make a one-time payment of NIS 400 and pay a monthly fee of NIS 17, even if they consumed no water. Those who are linked up receive water on a rotation basis. We divided the city into five neighborhoods, which receive water in turn. Each neighborhood receives water for forty-eight hours. However, even this system of rotation does not result in all the customers getting water. When it is the turn for one of the neighborhoods, people start to store water so they have enough until their next turn. They fill up their cisterns and water their flocks and crops beside their house. A-Dahariyah has some 25,000 sheep and cattle and some fifty chicken coops. As a result of the excessive utilization of the water, it does not reach all the houses, and 800 families linked up to the water network, whose houses are located at relatively high altitude, get very little water, if at all, based on the water pressure at the time and the level of consumption in the lower-altitude areas.

As for families who are not linked up, those with a cistern accumulate rainwater during the winter. For most of them, this provides them with enough water until the end of July, or even earlier. Then they have to buy water in containers. The water dealers sell water in the Palestinian Tekoah village, Kiryat Arba, and Givat HaHarsinah. A container of ten cubic meters ranges between NIS 200-250. A-Dahariyah is some eight kilometers east of the Green Line [separating Israel from the Occupied Territories]. West of the Green Line lies Kibbutz Lahav and south of us are Kibbutz K'ramim and Metar. In a radius of five kilometers from a-Dahariyah, there are four Israeli settlements - Shimah, Ashcolit, Etanyel, and Tene-Omrin. As far as we know, none of these settlements, on either side of the Green Line, suffers from water shortages.

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<sup>48</sup> The testimony was given to Najib Abu-Rokaya on 10 August 1998 in a-Dahariyah.

**Testimony of Hifa Yunis Abu Munshar, born in 1959, married with eight children, resident of the Jabel Nimra neighborhood, Hebron<sup>49</sup>**

For the past two months, June and July, we have gotten no water from the taps. Last summer, we had running water once a week, but this year, the situation is impossible. My husband just went to relatives to fill up all our containers, and he will have to haul them up thirty-seven steps to our apartment.

I have not washed the dishes since last night. We are a family of ten, and all the dishes, pots, and pans, from yesterday's supper and today's breakfast remain unwashed. I am waiting for my husband to bring water from somewhere. It has been ten days since we last took a shower here. There is not a liter of water in the house for a cup of tea. I sent my daughter to bring some from the neighbors. The main problem has to do with the toilet. After a person uses the toilet, we collect the water used for washing the clothes and the dishes, and pour it into the toilet to flush it.

In proper circumstances, when water is flowing through the city's pipes, we fill up the four water tanks on the roof. Each contains 700 liters. I tried to find a way to buy water, but the small tankers do not have a pump and are unable to pump the water to our roof. Those with a pump are large tankers, containing ten cubic meters. Our tanks are too small for that amount.

My husband is a clerk at the Palestinian Ministry of Religious Affairs, and makes NIS 1,300 per month. I do not work. My eldest daughter is eighteen and is in high school. We have no other income. I feel that the whole house is dirty.

**Testimony of 'Atiyah Salem Hamidat, born in 1932, married with twelve children, pensioner, resident of Bani Na'im<sup>50</sup>**

We are seven people in the house. In the yard, we have a cistern about four to five meters deep. Only a bit of water remains, around ten to twenty centimeters... During the winter, if there is a lot of rain, the cistern fills up. This past winter there was not enough rain, reaching only about only about sixty centimeters high. We get water from the city only during the winter, for about three to four months. We have already used up the water in the cistern, and we are waiting for the city, which is trying to find a solution. They installed a new pump to bring water to our neighborhood. If the problem isn't resolved by tomorrow, I shall have to buy water.

Bani Na'im has about ten owners of tractors and tankers who sell water. I shall have to buy a four cubic-meter container for NIS 70. My family and I shower once a week. For drinking water, we filter the water in cloth to remove all types of worms and tiny organisms living in the water. I poured a bit of kerosene into the cistern to kill them. We cut back on the amount of water we use, and

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<sup>49</sup> The testimony was given to Najib Abu-Rokaya in 13 July 1998 at Abu Munshar's home.

<sup>50</sup> The testimony was given to Najib Abu Rokaya on 22 July 1998 in Bani Na'im.

allocate it, a little for washing dishes and a little for washing clothes. We have five sheep, and we share our water with them.

**Testimony of 'A'ish Abdallah a-Razem, born in 1974, married with one child, resident of the al-Qasareh neighborhood, Hebron<sup>51</sup>**

I live in the al-Qasareh neighborhood. My house is 30-35 meters from the Kiryat Arba Jewish settlement. I obtain water from the same water tower that supplies Kiryat Arba, some 400-500 meters from our house.

Over the past two months, even when there is water, it comes out very slowly, and there is not enough pressure for the water to reach the tanks on the roofs. The water only comes to the tap in the yard. At times, the settlers totally close the flow of water to us, and then we open it, and it goes on and on like that... The gardens of Kiryat Arba are located about ten meters from our house. These gardens have sprinklers that water the vegetation around-the-clock. We and the gardens receive water from the same source, and we do not even get enough for household use. The settlers get enough even for watering.

**Testimony of Khalil Ahmad Shatat, born in 1940, married to two women, father of sixteen children, resident of the Zid neighborhood, Yata Municipality<sup>52</sup>**

I am supported by Palestinian Welfare Services. Our neighborhood has seventy to eighty houses, with close to 870 residents. None of us has running water. All the families have cisterns. My family has two. My brother, Hassan, who lives next door, has one. His family of seventeen members relies on water from that cistern. I have an electric water pump. We pump water from the cistern to a tank on the roof, and from there the water flows through pipes to the taps in the house. I fill the cisterns with water that I buy. Each container of four cubic meters costs me NIS 60. This year, I bought thirty-two such containers, at a cost of NIS 1,920. I have a two donkeys and ten sheep.

Five families live in the house - my family and the families of my four married sons. We all consume water from the two water holes. The toilet is outside the house, and is constructed on a cistern. We shower only twice a week. The money I spend to buy water places a heavy financial burden on the family. Other people who do not have tanks on the roof shower with a bucket. I do not have a solar heater because I do not have running water. I heat the water on wood or on a small burner.

The only solution for people who are not supplied with water is to fill up at the [communal] taps. A radical solution is necessary. It has to include replacing the main conduits and installing a new infrastructure into the camp to create a sufficient flow of water with a compressor to increase the water pressure and flow of water into the high-altitude and distance neighborhoods. The residents

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<sup>51</sup> The testimony was given to Najib Abu-Rokaya on 27 July 1998.

<sup>52</sup> The testimony was given to Najib Abu-Rokaya on 23 July 1998.

of the refugee camp are unable to finance such a project or to affect the amount of water allocated to them.

## **5. International Law**

The relevant international law distinguishes between Israel's obligations as an occupying power to the population under its control and the use of Palestinian-Israeli shared water sources, which are considered international waters.

### **A. Management of Water in Occupied Territory**

#### **(1) Prohibition on Making Permanent Changes not Benefiting the Local Population**

Two major international conventions, which Israel has signed, deal with the rights and obligations of an occupying power vis-a-vis the local population: the Hague Convention, of 1907, and the Fourth Geneva Convention, of 1949.<sup>53</sup> The commentary of the International Committee of the Red Cross explicitly states that "the occupation of territory in wartime is essentially a temporary, *de facto*, situation."<sup>54</sup> The temporary nature of occupation limits the occupying power from creating permanent facts in the occupied area. Article 55 of the Hague Regulations stipulates that:

The occupying State shall be regarded only as administrator and usufructuary of public buildings, real estate, forests, and agricultural estates belonging to the hostile State, and situated in the occupied country. It must safeguard the capital of these properties, and administer them in accordance with the rules of usufruct.

According to law professor G. Von Glahn, the term usufruct indicates limited use, insofar as "the occupier may not exploit real estate to a degree greater than normal use."<sup>55</sup> This rule applies, in one form or another, to all natural resources of the occupied area, including water.<sup>56</sup> Therefore, the wells drilled by Israel in the Mountain Aquifer in the West Bank to supply water to the Israeli settlements breaches this principle of international law. As the occupying power, Israel is only allowed to administer the underground water of the occupied territory, and to benefit from it (as

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<sup>53</sup> The formal position of Israel on the application of these conventions was stated in 1971 by the then-attorney general, Meir Shamgar. This position holds that the conventions apply only on occupied land of a legitimate sovereign government, and since the sovereignty of Jordan and Egypt over the lands occupied was never recognized, they are not within the definition of occupied territory within the provisions of international law. See M. Shamgar, "The Observance of International Law in the Administered Territories," *Israel Yearbook of Human Rights* (1971) 262-266.

<sup>54</sup> J. Pictet, *Commentary: Fourth Geneva Convention Relative to the Protection of Persons in Time of War* (Geneva: International Committee of the Red Cross, 1958) 275.

<sup>55</sup> G. Von Glahn, *The Occupation of Enemy Territory - A Commentary on the Law and Practice of Belligerent Occupation* (Minneapolis: Univ. of Minnesota Press, 1957) 177.

<sup>56</sup> See, for example: Palestinian Hydrology Group and Land and Water Establishment, *Legal Status of West Bank Groundwater Resources* (Jerusalem, 1991) 8-21.

described above), and is prohibited from utilizing these resources for its citizens who reside there, other than for purely military needs.<sup>57</sup>

## **(2) The Obligation to Supply the Needs of the Occupied Population**

The Fourth Geneva Convention includes two articles that obligate Israel to supply a suitable quantity and quality of water to the protected population in the Occupied Territories. Article 55 stipulates:

To the fullest extent of the means available to it, the Occupying Power has the duty of ensuring the food and medical supplies of the population; it should, in particular, bring in the necessary foodstuffs, medical stores and other articles if the resources of the occupied territory are inadequate.

The Occupying Power may not requisition foodstuffs, articles or medical supplies available in the occupied territory, except for use by the occupation forces and administration personnel, and then only if requirements of the civilian population have been taken into account.

This article prevents Israel from using water resources in the West Bank for the Israeli settlers. Where there is a water shortage in the Occupied Territories, Israel is required to supply the settlers with water from its own sources.

Another instrument that obligates Israel to supply water of suitable quantity and quality to the Palestinians in the Occupied Territories is the International Covenant for Economic, Social, and Cultural Rights, which Israel signed in 1966. The Covenant obligates Israel to ensure these rights to the entire population under its control, and to supply water to it, both for drinking and to meet its health needs. Article 11 of the Covenant stipulates:

The States Parties to the present Covenant recognize the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions.

Water is not mentioned specifically in this article, but water clearly constitutes a necessary element of adequate food and living conditions.

The Covenant also recognizes the "right of everyone to the enjoyment of the highest attainable standard of physical and mental health," and stipulates the obligation of the signatory countries to take measures to "improve all aspects of environmental and industrial hygiene" (Article 12). The testimonies presented above concerning the situation in the hospitals in the Hebron region indicate that the water shortage results in more disease as a consequence of the consumption of polluted water and the inability to provide proper treatment in hospitals because of the lack of vital sanitary

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<sup>57</sup> B'Tselem has consistently held that the establishment of the Israeli settlements breaches international humanitarian law. See B'Tselem, *Israeli Settlements in the Occupied Territories as a Violation of Human Rights: Legal and Theoretical Aspects* (Jerusalem, 1997). The UN General Assembly, in discussions on establishment of a permanent international court, recently defined establishment of the settlements in occupied territory as a war crime.

conditions. In allowing this situation to occur, Israel breaches its obligation to ensure the health of the population under its control.

Israel's failure to supply enough water to Palestinian residents of the West Bank to meet their needs and Israel's use of the water from local wells for the needs of Israeli settlers there contravene international law. The principles established in the human rights instruments and in humanitarian law obligate Israel to take all necessary measures to ensure that the Palestinians have access to water in the quantity and quality required to maintain basic health and hygiene.

### **(3) Prohibition on Discrimination**

Israel's preferential treatment of the Israeli settlements over Palestinian towns and villages in supplying water in the Occupied Territories blatantly violates the principle of equality, which is unequivocally required under the Hague Regulations and the Fourth Geneva Convention. The prohibition on discrimination is a basic principle in defending human rights. Article 2(2) of the International Covenant on Economic, Social and Cultural Rights stipulates:

The States Parties to the present Covenant undertake to guarantee that the rights enunciated in the present Covenant will be exercised without discrimination of any kind as to race, color, sex, religion, political or other opinion, national or social origin, property, birth or other status.

The Fourth Geneva Convention also prohibits discrimination against the population of the occupied territory. Article 27 stipulates:

... all protected persons shall be treated with the same consideration by the Party to the conflict in whose power they are, without any adverse distinction based, in particular, on race, religion or political opinion.

As regards the distribution of water in the Occupied Territories, Israel distinguishes between two populations in the West Bank - Palestinians and Israeli settlers - solely on the basis of nationality. Establishing two separate infrastructures for the distribution of water and giving priority of access to water to the settlers grossly breaches the prohibition on discrimination.

### **B. Use of International Waters**

The Mountain Aquifer and the Jordan Basin comprise, under international law, international waters subject to the shared use of Israel and the Palestinians. In addition to Israel and the Palestinians, the Jordan Basin is shared by Lebanon, Syria, and Jordan.<sup>58</sup>

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<sup>58</sup> In 1955, the United States appointed special ambassador Johnston to settle the water conflict between Israel and its Arab neighbors. Johnston drafted a plan, bearing his name, that divides the Jordan Basin waters among the four entitled parties according to various criteria. Although all the parties agreed in principle with the plan, it was never formally approved because the Arab states considered it *de facto* recognition of Israel. In 1994, the plan served as the basis for the Jordanian-Israeli peace agreement on the subject of water. For a discussion of the plan and its implications, see A.

The founding instrument of international law on the subject of water was prepared in 1966 by the International Law Association and is known as the Helsinki Fair-Use Principles.<sup>59</sup> Since then, agreements and conventions have been added that have reinforced and expanded its principles.<sup>60</sup> The instrument mentions four main factors to be considered in dividing shared water resources:<sup>61</sup>

### **(1) Current or Previous Use**

As long as the division of water with the Palestinians has been a subject of international interest, Israel has utilized the principle of "current or previous use" to justify its claims for a larger portion of the shared waters. This is also the most salient principle in the interim agreements signed between the parties. The Palestinians argue that the greater use by Israel in the past results from the policy of restrictions Israel implemented in the Occupied Territories (see section 1). Israel responds that, except for the use by the Israeli settlers, the quantities drawn by the two sides from the Mountain Aquifer have not changed since the 1950s.<sup>62</sup> According to Israeli researcher H. Gvirtzman, this criterion credits Israel with eighty-three percent of the underground water of the Mountain Aquifer.<sup>63</sup>

### **(2) Natural Characteristics of the Water Source**

This principle is based on the absolute sovereignty theory regarding resources upon or beneath the sovereign land of a state. This claim, which the Palestinians regularly raise,<sup>64</sup> favors the states located at the egress points of the water resources. In the case of the Mountain Aquifer, the source of the vast majority of the water is the rainfall onto the West Bank. Under this principle, the Palestinians are credited with some eighty to ninety percent of the aquifer waters. As regards the Jordan Basin, the primary beneficiaries under this principle are Lebanon and Syria, which control the source of the aquifer.

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Sofer, "The Relevance of the Johnston Plan to the Reality of 1993 and Beyond," in Shuval and Isaac, *Water and Peace*.

<sup>59</sup> Various critics often noted that the instrument is purposeless because, in part, it is too general, too flexible as long as priorities are not set among the relevant factors, and too weak in that it is non-binding international law and has no enforcement mechanism. Furthermore, "the Helsinki Principles" continue to constitute a point of reference and source of legitimacy for governments in almost every international water dispute, including the Israeli-Palestinian dispute. It is appropriate, therefore, to examine the current division of the water between the parties in light of these factors.

<sup>60</sup> In 1986, the "Seoul Principles," which relate to utilization of underground water resources, were drafted. In 1991, the International Law Convention passed regulations dealing with the use of international waters not used for navigation; recently, the European Economic Commission, which operates in the UN framework, adopted a convention for the management of underground water resources.

<sup>61</sup> The drafters of the instrument also mentioned that the list is not complete, leaving room for the addition of other factors in the conventions and instruments that followed, such as the stage of economic development, financial compensation, population size, environmental sensitivity, and others.

<sup>62</sup> On the disagreement over this factor, see E. Benvenisti, "International Law and the Mountain Aquifer," (hereafter: Benvenisti, *International Law*), in Shuval and Isaac, *Water and Peace*, 234.

<sup>63</sup> H. Gvirtzman, *Groundwater Allocation*, 217.

<sup>64</sup> This claim is presented in M. Haddad, "The Dilemma over Palestinian Water Rights," in Feitelson and Haddad, *Joint Management*.

### **(3) Social and Economic Needs**

According to the law professor Eyal Benvenisti, this principle is based on the fundamental assumption that, regarding water for household needs, "The basic principle of division must be equal allocation to every user in accordance with current and future needs."<sup>65</sup> Only after these needs are met can allocation for agricultural and industrial use be considered. Based on the data and testimonies presented in this report, under this principle, the Palestinians are entitled to much higher quantities than they currently receive.

### **(4) Access to Alternative Sources**

The literature on water regularly mentions three alternative water sources that theoretically are available to Israel and the Palestinians: the import of water from countries with bountiful water resources, treatment of sewage water, and desalination of salt water.<sup>66</sup> Israel's favorable technological and economic position, in comparison to that of the Palestinians, facilitates Israel's access to these sources, with the option of expenses incurred being shared with the Palestinians.<sup>67</sup>

In summation, even accepting the Israeli argument that it is entitled to a higher quota of water than the Palestinians from the shared sources, based on its higher use in the past (under principle A above), the other factors dictate a re-division of the shared water sources in favor of the Palestinians.

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<sup>65</sup> Benvenisti, *International Law*.

<sup>66</sup> Feitelson raises the need to include in discussions on the division of water the "water-cycle perspective", which increases the quantities available to the parties by creative analysis that takes into account alternative sources. See E. Feitelson, "Water Rights within a Water Cycle Framework," in Feitelson and Haddad, *Joint Management*.

<sup>67</sup> See H. Shuval, *Water-for-Peace*, 83.

## CONCLUSIONS AND RECOMMENDATIONS

Throughout most of the hot months, hundreds of thousands of Palestinians suffer from a severe shortage of running water in their homes. The water shortage does not enable them to meet minimal living conditions and critically affects their health and welfare. Dozens of Palestinians need hospital treatment because of the water shortage and the use of polluted drinking water. The local hospitals are unable to properly treat patients, at times leading to life-threatening situations, because of the difficulty in maintaining proper hygiene due to the lack of sufficient water. This situation is particularly offensive in light of the abundance of water supplied to the Israeli settlements, at times from locally-drilled wells, contrary to international law.

The findings of this report indicate that:

- The immediate and direct reason for the water shortage is Israel's discriminatory water policy, implemented through Mekorot, Israel's water authority, which drastically cuts the water allocated to Palestinian towns and villages during the summer months in order to meet the increased consumption of water in Israel and the Israeli settlements.
- Other reasons for the shortage:
  - Unfair and discriminatory division of shared water resources, in part as a result of Israeli policy since 1967 that prevents the drilling of new wells and imposes restrictions on the quantity of water pumped from existing wells.
  - The poor condition of the water-system network, causing high levels of leakage. This is a result of Israel's continuous neglect of, and failure to invest in, infrastructure during the many years of its direct control over the towns and villages in the West Bank.
  - Theft of water by Palestinians, mostly farmers, from the networks supplying water to Palestinian towns and villages.
- The Oslo 2 Agreement improves the water situation of the Palestinians by increasing the quantity of water available to them and providing them with a certain degree of influence over the division arrangements. However, the agreement also preserves the previous inequality and grants Israel veto power over any change in the status quo.

- International law prohibits utilization of water resources in the Occupied Territories by the Israeli settlements, and requires a fairer re-division of the shared water sources.

Israel, which controls the water sources of the Palestinians, is responsible for the water shortage suffered by the Palestinians and consequently is breaching its obligations under international law.

B'Tselem urges the Israeli government to:

- Immediately provide Palestinians in the Occupied Territories with at least enough water to meet their minimal household needs.
- Stop discriminating in the distribution of water between Palestinians in the Occupied Territories and the Israeli settlements there.
- Shorten the approval procedures to develop new water resources and carry out the other water projects agreed upon in the Oslo Accords.
- Recognize Israel's responsibility for the poor condition of the water infrastructure in the Occupied Territories and the lack of infrastructure in many areas, and provide money to improve the infrastructure.

B'Tselem urges both sides to cooperate to end the theft from the water-system network and to establish a fairer division of shared water resources, one that meets international law standards and is based on existing models of joint management of shared resources.

## **RESPONSE OF THE WATER COMMISSIONER\***

### **STATE OF ISRAEL MINISTRY OF NATIONAL INFRASTRUCTURE OFFICE OF THE WATER COMMISSIONER**

2 September 1998  
zelem42/98

Mr. Yehezkel Lein  
B'Tselem  
43 Emek Refaim Street  
Jerusalem

Dear Sir:

Re: B'Tselem report - The Water Shortage

1. The draft of the report that you sent me is replete with mistakes, inaccuracies, and distortions, including the statements you make about my response to your request. In response to your telephone call (addressing a matter as significant as the subject of your report by telephone is, to say the least, startling), I tried to expand on the source of the gap in consumption between Israelis and Palestinians. However, I was harshly demanded to respond to the question relating to the gap in consumption between Israeli settlers and Palestinians. When I tried to explain that if *all the* settlers lived west of the Green Line, their water consumption would not be reduced, I was interrupted by the questioner's alternative demand, as mentioned above.
2. As mentioned above, your report is full of distortions, like the one that states that, "the annual per capita consumption in the Israeli settlements totals some 380 cubic meters," which is absolutely untrue. There is barely a line in your draft that is free of mistakes and distortions.
3. I am unable to relate to each section in your letter, and I shall, therefore, highlight the main points.

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\* Translated by B'Tselem.

- You do not explain the basis for the contention that the Jordan basin system is a water source for the Palestinians.
- Proclaiming all the water resources to be public property is a fundamental principle under Israel water law and is vital to proper management of water.
- You did not explain the obstacles Israel placed on the Palestinians that limited their ability to utilize water resources.
- The requirement of obtaining a permit to drill wells is necessary to ensure proper management of the underground water system, as is customary in Israel.

### 3.2, page 3

- The fact that Palestinians own 373 operating wells proves the scope of Palestinian activity in the matter, and is not evidence of paralysis, as you state.
- Mekorot, the Water Planning Authority, and the Ministry of Agriculture have never been, and are not now, involved in approval of drilling.
- Our position is based solely on hydrological considerations at each site, and is unrelated to allocation of water quotas.

### 3.3, page 5

- The Oslo 2 Agreement explicitly states that the future pumping of water from the various aquifers will not affect existing supply for existing consumers.
- Indeed, Oslo 2 does not relate to supplying water from the Jordan to Palestinians. There is no determination whatsoever that the Jordan comprises a water source for the Palestinians.
- The amount of 28.6 mcm/y includes 5 mcm/y for Gaza, and not as you stated in your report.

### 3.4, page 6

- The water annex does not relate at all to a compromise procedure.
- Most of the supply to the Palestinians occurs in the summer months and not during the winter, as mentioned in your document.
- There are no bureaucratic difficulties regarding drilling, but only necessary professional processes.

### 3.5, page 7

- All the water now being pumped from the eastern basins does not require desalination. The same is true of recently approved drillings.
- Development of water management in Judea and Samaria is not based on "blatant discrimination between Palestinians and Israeli settlers" and "unfair division of the shared resources."

- Israel's stated policy emphasizes Israel's willingness to supply drinking water to the entire population of Judea and Samaria.
- Oslo 2 "does not impose on Israel the responsibility" for maintaining the towns' internal water systems, insofar as the matter comes within the responsibility of the municipalities themselves (as in Israel).

### 3.6, page 8

- The gap in water consumption between Israel and the Palestinians has existed for a long time. The gap cannot be reduced by reducing per capita Israeli consumption, but rather by adding water to the region. If and when the Palestinians agree to this, Israel will gladly cooperate and assist.
- Indeed, a not insignificant number of communities in Judea and Samaria are not linked up to a running-water system (and never were).
- Israel submitted a proposal to the Palestinian Authority on how to supply water to the aforementioned villages, and planning discussions for implementation are being held between Israel and the Palestinians.
- This [activity] is based on Israel's declaration that it will do as much as possible to supply drinking water to the entire population of Judea and Samaria.

### 3.7, page 9

- Israel does not add an allocation of quality water for agriculture. The same is true of Israeli settlements in Judea and Samaria.
- All agricultural development in Judea and Samaria, as in Israel, can be based only on suitably treated sewage water.
- Every mention of "running water being cut off during most of the summer" is incorrect. The Hebron region, for example, receives all quantities [of water] available during the summer.
- The price of water Palestinians pay in Judea and Samaria is set in discussions between the Palestinians and Israelis, and is based on detailed and disclosed calculations. The price of water is a function of the cost of supplying it.

### 3.8, page 10

- There is no discrimination in the supply of water to Palestinians and Israelis from the existing system. I already mentioned the principles upon which water is supplied.

### 3.9, page 11

- In every case where water pumped from Israeli-owned drillings damaged, or was likely to damage, existing drillings of Palestinians, the Palestinians were provided a total substitution.

- Your description of the situation in Hebron distorts the facts. The various water districts of Hebron do not "receive water once every fifteen days for twenty-four hours." The daily supply is made in accordance with the interim agreement.
- Additional water projects are being developed in the Hebron region, as follows: a German drilling project in the Hebron region that will be completed at the end of 1999; an American drilling project that will be completed at the end of 1999; an Israeli project from the Israeli [water] system, in the west, that will be completed at the end of 1999.

3.10, page 12

- The large amount of water lost from leakage of the municipal system and theft of water from the main conduit into Hebron are, indeed, a cause of the water shortage for Palestinians and Jews. This amount is not minimal, as you state.
- Supply of water to the hospitals in Hebron is the responsibility of the city's water officials.
- Israel is not responsible for drinking water from uncontrolled sources found in various sites where necessary sanitation supervision is lacking. The responsibility lies with the Palestinian Authority. Water supplied from the Israeli system is continuously monitored, in the manner customary in Israel.

3.11, page 10

- We reject your legal analysis.

4. Summary

- I consider it appropriate to emphasize that Israel does, and will continue to do, everything it can to respond to humanitarian needs.
- Israel will also cooperate with the Palestinian Authority in matters dealing with the proper treatment of sewage water, in order to prevent pollution of the water source and to approve use of the suitable-quality treated water for irrigation.

Sincerely,

s/

Meir Ben-Meir  
Water Commissioner

cc: Shmuel Cantor