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# TROUBLED WATERS – PALESTINIANS DENIED FAIR ACCESS TO WATER

ISRAEL-OCCUPIED PALESTINIAN TERRITORIES

WATER IS A HUMAN RIGHT

**AMNESTY**  
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*Cover photo:*

A Palestinian girl takes a rest while collecting drinking water in Gaza.

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*Back cover from top:*

A water tanker in the West Bank; Palestinians in the area rely on such tankers as their homes have no running water.

© Keren Manor/Activestills.org

Israeli settlers enjoy the swimming pool in the Maaleh Adumim settlement, unlawfully established in the West Bank in violation of international law, while nearby Palestinian communities struggle to access even minimal quantities of water for their basic needs.

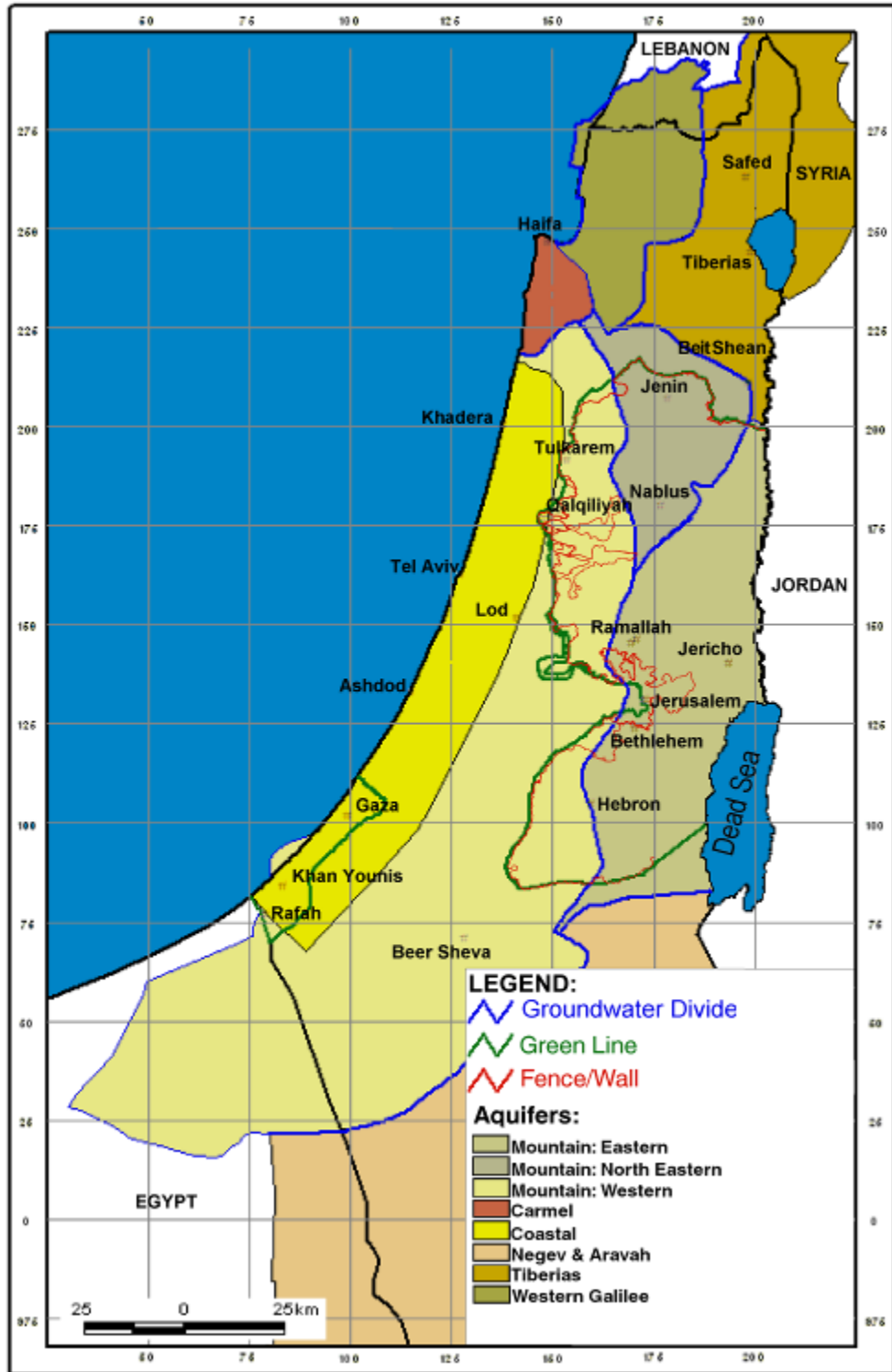
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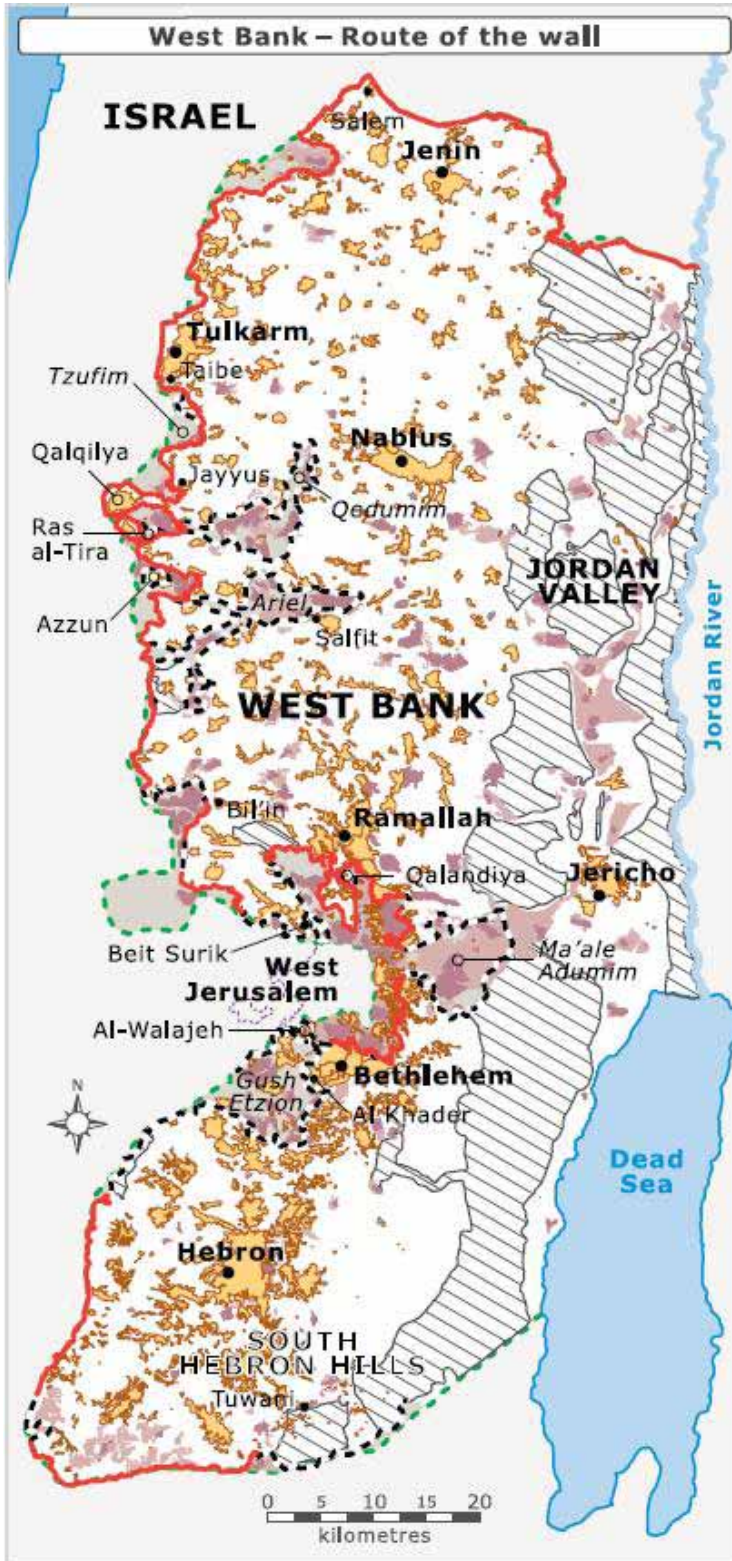
A water reservoir stands empty in Jiftlik, a Palestinian village in the West Bank.

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West Bank, including East Jerusalem, occupied by Israel since June 1967

5,600km<sup>2</sup> total area: about 130km north-south and 65km east-west

200+ unlawful Israel settlements and “outposts”

550+ Israeli military checkpoints, blockades and obstacles

709km-fence/wall, 80 per cent of it on Palestinian land inside the West Bank



## “Water is life; without water we can’t live; not us, not the animals, or the plants.”

“Water is life; without water we can’t live; not us, not the animals, or the plants. Before we had some water, but after the army destroyed everything we have to bring water from far away; it’s very difficult and expensive. They make our life very difficult, to make us leave. The soldiers first destroyed our homes and the shelters with our flocks, uprooted all our trees, and then they wrecked our water cisterns. These were old water cisterns, from the time of our ancestors. Isn’t this a crime? Water is precious. We struggle every day because we don’t have water.”

Fatima al-Nawajah, a resident of Susya, a Palestinian village in the South Hebron Hills, to Amnesty International, April 2008.



A Palestinian woman draws water from a cistern in Susya. © Shabtai Gold (IRIN)

In Susya, most of the rain-harvesting water cisterns which the villagers used to collect and store water for use during the dry season were demolished by the Israeli army in 1999 and 2001, along with the ancient caves and other shelters that were the villagers’ homes. In November 1999, the

Israeli army sealed the caves to prevent their continued use, destroyed other homes and the water cisterns, and forcibly expelled the villagers from the area. In March 2000, however, the cave dwellers obtained a temporary injunction from the Israeli Supreme Court allowing them to return and preventing their further expulsion by the Israeli army pending the court’s final decision in the matter, which has yet to be reached. Since then, the villagers have been able to remain in the area but under threat of future expulsion and with hardly any water supply.

The increasing restrictions imposed by the Israeli army on the Palestinian villagers’ access to water and the constant threat of demolition of their homes and destruction of their property have led more than half of the villagers to leave the area.

On 3 July 2001, the Israeli army destroyed dozens of homes and water facilities in Susya and several other Palestinian villages nearby.<sup>1</sup> The army smashed the villagers’ rainwater harvesting cisterns, some of them centuries old, with bulldozers and filled them with gravel and cement to prevent their repair. The soldiers also smashed water heating solar panels that

had been provided to the villagers by a non-governmental organization. Some water cisterns were left undestroyed but they, together with the tents and shacks that now serve as the villagers' homes, and even the one toilet which they have built, all have demolition orders pending.



Susya toilet under demolition order by the Israeli army © AI

The official reason given by the Israeli authorities for the destruction was that the structures lacked building permits – permits which the Israeli army systematically refuses to grant to Palestinians in the area. The aim, clearly, was to expel the Palestinian villagers from the area in order to make way for the expansion of the nearby Israeli settlement of Sussia (established in 1983). The expansion of the settlement in the 1990s was accompanied by increased harassment of Palestinian villagers by Israeli settlers and efforts by the army to expel the Palestinian cave dwellers and other inhabitants of the villages in the South Hebron Hills, who are among the most disempowered of Palestinian communities.

In September 2008 the Israeli army informed the remaining villagers that a military order had been issued to declare 150 dunums (15 hectares) of land near the village a “closed military area”, thereby denying the villagers access to the 13 rainwater harvesting cisterns located there and making their water shortage worse still.

Meanwhile, in the nearby Israeli settlement of Sussia, whose very existence is unlawful under international law, the Israeli settlers have ample water supplies. They have a swimming pool and their lush irrigated vineyards, herb farms and lawns – verdant even at the height of the dry season – stand in stark contrast to the parched and arid Palestinian villages on their doorstep.



# INTRODUCTION

Lack of access to adequate, safe, and clean water has been a longstanding problem for the Palestinian population of the Occupied Palestinian Territories (OPT).<sup>2</sup> Though exacerbated in recent years by the impact of drought-induced water scarcity, the problem arises principally because of Israeli water policies and practices which discriminate against the Palestinian population of the OPT. This discrimination has resulted in widespread violations of the right to an adequate standard of living, which includes the human rights to water, to adequate food and housing, and the right to work and to health of the Palestinian population.

The inequality in access to water between Israelis and Palestinians is striking. Palestinian consumption in the OPT is about 70 litres a day per person – well below the 100 litres per capita daily recommended by the World Health Organization (WHO) – whereas Israeli daily per capita consumption, at about 300 litres, is about four times as much. In some rural communities Palestinians survive on far less than even the average 70 litres, in some cases barely 20 litres per day, the minimum amount recommended by the WHO for emergency situations response.<sup>3</sup>

Access to water resources by Palestinians in the OPT is controlled by Israel and the amount of water available to Palestinians is restricted to a level which does not meet their needs and does not constitute a fair and equitable share of the shared water resources. Israel uses more than 80 per cent of the water from the Mountain Aquifer, the only source of underground water in the OPT, as well as all of the surface water available from the Jordan River of which Palestinians are denied any share.

The stark reality of this inequitable system is that, today, more than 40 years after Israel occupied the West Bank, some 180,000 – 200,000 Palestinians living in rural communities there have no access to running water and even in towns and villages which are connected to the water network, the taps often run dry. Water rationing is common, especially but not only in the summer months, with residents of different neighbourhoods and villages receiving piped water only one day every week or every few weeks. Consequently, many Palestinians have no choice but to purchase additional supplies from mobile water tankers which deliver water at a much higher price and of often dubious quality. As unemployment and poverty have increased in recent years and disposable income has fallen, Palestinian families in the OPT must spend an increasingly high percentage of their income – as much as a quarter or more in some cases – on water.

In the Gaza Strip, the only water resource, the southern end of the Coastal Aquifer, is insufficient for the needs of the population but Israel does not allow the transfer of water from the West Bank to Gaza. The aquifer has been depleted and contaminated by over-extraction and by sewage and seawater infiltration, and 90-95 per cent of its water is contaminated and unfit for human consumption. Waterborne diseases are common.

Stringent restrictions imposed in recent years by Israel on the entry into Gaza of material and equipment necessary for the development and repair of infrastructure have caused further deterioration of the water and sanitation situation in Gaza, which has reached crisis point.

Water shortages and poor sanitation services in the OPT affect all sectors of the Palestinian population and especially the poorest and most vulnerable communities, those living in isolated rural areas and in overcrowded refugee camps.

While Palestinians throughout the OPT are being denied access to an equitable share of the shared water resources and are increasingly affected by the lack of adequate water supplies, Israeli settlers face no such challenges - as indicated by their intensive-irrigation farms, lush gardens and swimming pools.<sup>4</sup> The 450,000 Israeli settlers, who live in the West Bank in violation of international law, use as much or more water than the Palestinian population of some 2.3 million.<sup>5</sup>

The restrictions imposed by Israel on Palestinians' access to water supplies in the OPT are manifested in multiple ways: control of water resources and land, and restrictions on the movement of people and goods make it excessively difficult for Palestinians to access their water resources and to develop and maintain the water and sanitation infrastructure. Furthermore, a complex system of permits which the Palestinians must obtain from the Israeli army and other authorities in order to carry out water-related projects in the OPT has delayed and rendered more costly, and in many cases prevented, the implementation of much needed water and sanitation projects.

During more than four decades of occupation of the Palestinian territories Israel has over-exploited Palestinian water resources, neglected the water and sanitation infrastructure in the OPT, and used the OPT as a dumping ground for its waste – causing damage to the groundwater resources and the environment. Urgent measures are now needed to ensure that adequate water supplies are made available today and in the future, and to prevent further damage to the water resources and the environment.

Israeli policies and practices in the OPT, notably the unlawful destruction and appropriation of property, and the imposition of restrictions and other measures which deny the Palestinians the right to water in the OPT, violate Israel's obligations under both human rights and humanitarian law.

Due to Israel's failure to fulfil its obligations, as the occupying power, the burden of dealing with these challenges has fallen to international donors and, since its establishment in the mid 1990s, to the Palestinian Authority (PA), the Palestinian Water Authority (PWA),<sup>6</sup> and other local service providers, all of whom depend on international donors for funds. Yet, the Israeli authorities continue to obstruct Palestinian and international efforts to improve access to water in the OPT.

In the face of water shortages and amid deepening poverty in recent years some Palestinians have resorted to drilling unlicensed wells, while others have connected to the water network illegally, and many have stopped paying their water bills. These practices have further compounded the problem by undermining the economic viability and the authority of the PWA, which has proved to be unable or unwilling to stop such practices.

The restrictions imposed by Israel on access to and development of water resources for Palestinians have been accompanied by other factors that have hindered the efficient delivery of many urgently needed water and sanitation projects in the OPT. These include the PWA's

near-total dependence on international donors for funds, donors' choices and priorities, and poor coordination among donors.<sup>7</sup> Adding to this, the PA and PWA have been beset by internal divisions compounded by weak and fragmented management structures, lack of expertise and of political will, and allegations of mismanagement and corruption.

This report examines the main patterns and trends affecting access to water for Palestinians in the OPT, and analyses how these are impacting severely on the population's rights, as protected under international human rights and humanitarian law, and which are necessary for the Palestinians to live in dignity.

#### NOT EVEN A DROP

On 10 March 2008, Fa'iq Ahmad Sbeih received a visit from an Israeli army patrol at his farm in al-Farisiya, a few km north of Jiftlik, in the Jordan Valley area of the West Bank. The soldiers confiscated 1,500 metres of rubber hose which brought water to his farm from a spring on a hill above his land, and crushed the small metal pipe which was connected to the hose. The confiscation order delivered by the army stated that the hose was confiscated "due to lack of permit". The army considers the spring water as "state property"

In the past, local farmers had tried to build a water cistern to collect water from the spring and to harvest the rain water but the army prevented them, because they did not possess, and could not obtain from the army, a permit to do so. When an Amnesty International delegate visited the farm on 11 March 2008 Fa'iq Sbeih was beside himself with worry: *"This is my family's livelihood. We work day and night and we need water; and the weather is getting hotter every day. Already the situation is difficult this year because we have had so little rain; you can see how little water there is in the stream and we only took a bit of it. I can't buy another pipe; and if I do the army may come and take it again."*

The army subsequently returned the rubber hose to Fa'iq Sbeih, though it was damaged and no longer usable, and reiterated the ban on him using the water from the spring. With the onset of the hot season he tried to keep some of his crops alive by buying water from other areas, delivered by tanker, but he still lost most of the crop.<sup>8</sup>

Without access to water from the spring Palestinian farmers like Fa'iq Sbeih have no option but to travel several km to buy small quantities of water that they then transport to their orchards by tanker. This is the most expensive way to obtain water, the more so because the restrictions imposed by the Israeli army require the water tankers to take long detours and circuitous routes to make their deliveries. The unlawful Israeli settlements which surround al-Farisiya face no such problems. Their residents have free access to the water from the spring which Fa'iq Sbeih and his family are not permitted to use, and which forms a small stream that flows down towards the Israeli settlements. As well, they have ready access to an abundant supply of water from nearby wells to which Fa'iq Sbeih and other Palestinian farmers have no access.

The nearby Israeli settlement of Shadmot Mechola advertises on its website: *"Breathtaking tours to Amaryllis bulbs hot houses which are harvested, packed and shipped to Europe and USA and potted in time to bloom during the winter holiday season. Short tours of our "Hi-tec" dairy farm, vineyards and orchards. Tours of farms in the Jordan Valley who specialize in crops of vegetables, fruits, flowers and spices for export in hot dry climate."*<sup>9</sup>



Sprinklers in Israeli settlement farms in the Jordan Valley, West Bank © AI

According to one international water expert, commenting on the discriminatory use of water by Israeli settlers in the OPT: *"It is easy to make the desert bloom by using someone else's water and by denying them access to their fair share of water."*

## HISTORICAL BACKGROUND

Between the two world wars Britain ruled Palestine under a League of Nations mandate, which ended with a UN decision in November 1947 to partition the territory of Mandate Palestine into two states, Israel and Palestine – 53 and 47 percent of the territory, respectively. The State of Israel was established in May 1948 amid Arab protests and a war broke out between Arab and Israeli forces from which Israel emerged victorious. More than 800,000 Palestinians were either expelled or fled from Israel and became refugees in the Gaza Strip, the West Bank and neighbouring countries. The war ended in 1949, with Israel having conquered additional territory and the State of Israel having been enlarged to comprise 78 percent of Mandate Palestine. The remaining 22 percent, the West Bank and the Gaza Strip, remained under the control of Jordan and Egypt, respectively. Hostilities between Israel and Egypt, Syria and Jordan in June 1967 ended in Israel's occupation of the West Bank (including East Jerusalem, which Israel later annexed in violation of international

law) and the Gaza Strip.<sup>10</sup> These areas became known as the Occupied Palestinian Territories (OPT).

Some 4,000,000 Palestinians, more than 1,500,000 of them refugees, currently live in the OPT under Israeli military occupation - some 1.5 million in Gaza and some 2.5 million in the West Bank - including more than 200,000 who live in East Jerusalem.<sup>11</sup>

Negotiations between Israel and the Palestine Liberation Organization (PLO) in the early 1990s led to the Oslo Accords and to the establishment of the Palestinian Authority (PA) in 1994, with jurisdiction in parts of the West Bank and the Gaza Strip. Negotiations on a permanent status agreement on Jerusalem, settlements (the Israeli colonies unlawfully established in the OPT), the delineation of borders, allocation of water resources, and Palestinian refugees were deferred, but were to be concluded by 1999. However, by 2000 no progress had been achieved on any of these issues and Israel was continuing to build unlawful settlements and so-called "bypass" roads in the OPT at an unprecedented pace.<sup>12</sup>

A Palestinian uprising (*intifada*) against the continued Israeli occupation broke out in September 2000. Since then, more than 6,000 Palestinians and more than 1,100 Israelis, most of them unarmed civilians, have been killed in violent attacks and confrontations. Tens of thousands of Palestinians have been arrested by the Israeli army; currently, some 6,500 are detained or serving sentences in Israeli prisons and the Israeli army has destroyed more than 6,000 Palestinian homes as well as large areas of agricultural land and other Palestinian property throughout the OPT.

In September 2005 Israel withdrew its settlers and troops from Gaza, but retained control of Gaza's land borders, air space and territorial waters, and since then has kept Gaza under an increasingly stringent blockade, punctuated by periodic outbreaks of armed confrontations. Stringent restrictions imposed by Israel on the movement of Palestinians within the OPT have stifled the Palestinian economy and caused high unemployment and poverty. Most Palestinians in the OPT now depend on international aid.

Israel has continued to seize large areas of Palestinian land and to build unlawful settlements and "by-pass" roads and other infrastructure to support them. Currently more than 450,000 Israeli settlers live in the OPT, about half of them in East Jerusalem

Since 2000 most of the provisions of the Oslo Accords have become irrelevant and the PA's ability to function has been sharply curtailed by Israeli restrictions. Inter-factional tensions between the two main Palestinian political parties, Fatah and Hamas, increased after Hamas won the Palestinian parliamentary election in 2006 and led to severe armed clashes in which hundreds of people were killed in 2007 in the Gaza Strip. Since then Hamas has maintained a de-facto administration in the Gaza Strip and a PA caretaker government administers parts of the West Bank, while Israel retains overall control over both areas.

# WATER RESOURCES IN ISRAEL/OPT

## GROUNDWATER RESOURCES

Groundwater is water that is located beneath the ground surface in soil pore spaces and in the fractures of lithologic formations. The groundwater bearing strata, a unit of rock layer or an unconsolidated deposit is called an aquifer when it can yield a usable quantity of water. The depth at which soil and rock pore spaces or fractures and voids in rock become completely saturated with water is called the water table. Groundwater is usually recharged from rain and eventually flows to the surface naturally; natural discharge often occurs at springs and seeps. An aquifer is an underground layer of water-bearing permeable rock (limestone, dolomite) or unconsolidated materials (gravel, sand, silt, or clay) from which groundwater can be usefully extracted using a water well.<sup>13</sup>

**The Mountain Aquifer** is a shared Israeli-Palestinian groundwater resource, lying under both Israel and West Bank. It is the sole remaining water resource for the Palestinians and one of the most important groundwater resources for Israel. It is replenished mostly in the West Bank by the infiltration of rainfall and snowfall and flows northwards and westward towards the territory of Israel and towards the Jordan River in the east. It is actually composed of three aquifers (or basins) – the Western, North-Eastern and Eastern aquifers – with a total average yield of 679 to 734 MCM/Y (as detailed below). The figure of 734 MCM/Y is according to the Hydrological Service of Israel (HSI), the most authoritative source on the matter, whereas the estimate of 679 MCM/Y is that used by the Israeli authorities to decide the yearly quantity of water allocated to the Palestinians under the Oslo Accords.<sup>14</sup>

- **Western Aquifer:**                    427 MCM/Y (HSI)            362 MCM/Y (Oslo Accords)
- **North Eastern Aquifer:**        142 MCM/Y (HSI)            145 MCM/Y (Oslo Accords)
- **Eastern Aquifer:**                    165 MCM/Y (HSI)            172 MCM/Y (Oslo Accords)  
(Much of the water from the Eastern Aquifer is brackish/saline)<sup>15</sup>

**The Coastal Aquifer** is located under the coastal plain of Israel and the Gaza Strip. Its yearly sustainable yield is estimated at up to 450 MCM in Israel<sup>16</sup> and a mere 55 MCM/Y in Gaza.

**In Gaza** the aquifer polluted due to over-extraction and sewage infiltration, and 90-95 per cent of the water it supplies is unfit for drinking.

**Additional groundwater resources in Israel** include the Western Galilee and Carmel Aquifers in the north and the Negev-Aravah Aquifer in the south. There is no reliable figure for the yield of these aquifers.

## SURFACE WATER RESOURCES

The **Jordan River** is the most important shared surface water resource for Israel and the West Bank. It supplies up to 650 MCM/Y of water to Israel<sup>17</sup> and none to the Palestinians (see below).

# UNEQUAL ACCESS TO WATER

## THE WEST BANK: ISRAELI OVER-EXPLOITATION OF SHARED RESOURCES

Israel's water consumption stands at some 2,000 to 2,200 MCM/Y for a population of 7 million (some 1,500 MCM is fresh water, with the remainder composed of desalinated seawater and treated wastewater).<sup>18</sup> Most of Israel's fresh water supplies are drawn from the shared groundwater and common surface water resources – more than 400 MCM/Y from the Mountain Aquifer and up to 650 MCM/Y from the diverted Jordan River.<sup>19</sup>

### Jordan River

Since Israel occupied the West Bank in 1967, it has denied its Palestinian inhabitants access to the water resources of Jordan River, preventing them from physically accessing the river banks and diverting the river flow upstream into Lake Kinneret/Tiberias/Sea of Galilee, which supplies up to 700 MCM/Y of water to Israel. Jordan also diverts the flow of the Jordan River's tributaries within its territory, as do Syria and Lebanon further upstream. As a consequence, compared to 1953, when a UN report estimated the yearly flow of the Jordan River through the West Bank as 1,250 MCM, this flow has now been reduced to a trickle, of highly saline water heavily contaminated by untreated sewage.<sup>20</sup> As well as depriving the Palestinians of a crucial source of water, the drying up of the Jordan River has had a disastrous impact on the Dead Sea, which has seen the fastest drop in its water level to an unprecedented low.<sup>21</sup>

### Mountain Aquifer

As Palestinians in the West Bank have no access to the Jordan River, the Mountain Aquifer is their only remaining source of water. Israel, on the other hand, has two other main water resources (Lake Kinneret/Tiberias/Sea of Galilee and the Coastal Aquifer).

Even so, Israel limits the amount of water annually available to Palestinians from the Mountain Aquifer to no more than 20 per cent, while it has continued to consistently over-extract water for its own usage far in excess of the aquifer's yearly sustainable yield. Moreover, much of Israel's over-extraction is from the Western Aquifer, which provides both the largest quantity and the best quality of all the shared groundwater resources in Israel-OPT.

According to the Israeli Ministry of Environmental Protection: "*This aquifer supplies about 417 MCM per year, a quarter of the total national production, although the average multi-annual natural replenishment rate is estimated at about 360 MCM.*"<sup>22</sup>

The World Bank put Israel's extraction from the Western Aquifer in 1999 at 591.6 MCM - that is, 174.6 MCM (or 229.6 MCM according to the Oslo Accords figures) in excess of the aquifer's yearly sustainable yield.<sup>23</sup>

Such sustained over-extraction has reduced the aquifer's current yield and future reserves and has caused potentially serious damage to the quality of the water supply for both Israelis and Palestinians. As the Israeli Ministry of Environmental Protection noted, "*Overexploitation may lead to a rapid rate of saline water infiltration from surrounding saline water sources.*"<sup>24</sup>

According to the World Bank, "*Palestinians have access to one fifth of the resources of the Mountain Aquifer. Palestinians abstract about 20% of the "estimated potential" of the aquifers that underlie both the West Bank and Israel. Israel abstracts the balance, and in addition overdraws without JWC [Joint Water Committee] approval on the "estimated potential" by more than 50%, up to 1.8 times its share under Oslo. Over-extraction by deep wells combined with reduced recharge has created risks for the aquifers and a decline in water available to Palestinians through shallower wells.*"<sup>25</sup>

In 2007, according to the World Bank, overall Palestinian water extraction<sup>26</sup> from the Mountain Aquifer in the West Bank was 113.5 MCM (down from 138.2 MCM in 1999) and according to PWA figures total Palestinian extraction in 2008 was 84 MCM, with the reduction due to operational problems for some wells and a drop in the level of the water table, caused by Israeli over-extraction and low annual rainfall.<sup>27</sup> According to the Israeli authorities, Palestinians also extract some 10 MCM/Y from unlicensed wells and obtain some 3.5 MCM/Y from illegal connections to Israeli water lines in the West Bank.<sup>28</sup>

To boost insufficient supplies the Palestinians must buy water from Israel – water that Israel extracts from the Mountain Aquifer and which the Palestinians should be able to extract for themselves if Israel were to allow them a more equitable share of the aquifer. In recent years the quantity of water bought by Palestinians from Israel has increased, to some 50 MCM/Y, but this is not enough to match the increase in population in the West Bank and supplies are often reduced by Israel to the Palestinians (but not to the Israeli settlers in the OPT) during the hot season, when needs are greater.

The total amount of water available to Palestinians from these various supplies in recent years has been a maximum of some 170-180 MCM/Y, which reportedly fell to a mere 135 MCM in 2008, for a population of 2.3 million. However, as much as a third (some 34 per cent) is lost in leakages due to old and inefficient networks,<sup>29</sup> and these cannot be readily replaced and modernized due to the restrictions on Palestinians' movements and other obstacles imposed by Israel, including the requirement that permits be obtained from the Israeli army for even small development projects. In practice, therefore, Palestinians have access to an average of no more than 60-70 litres per capita per day, and some survive on much less even than this, as little as 10-20 litres per person per day.

Even at an average of 60-70 litres per person per day, the amount of water available to Palestinians is the lowest in the region. While there has been a meagre increase in the total amount of water available to Palestinians in the OPT during the more than 40 years of Israeli occupation, the amount available per capita is now less than in 1967 as the Palestinian population has more than doubled since then.<sup>30</sup>

## GAZA: UNSAFE WATER SUPPLIES

The southern end of the Coastal Aquifer is the sole source of water for the 1.5 million Palestinian inhabitants of the Gaza Strip, but it is only one of several sources of water for Israel. Due to the aquifer's east to west flow, the quantity of water extracted in Gaza does not diminish the available yield in Israel; consequently, Israel has not imposed restrictions on Palestinian extraction from the part of this aquifer which underlies Gaza. However, extraction by Israel from this aquifer in the area to the east of Gaza affects the supply available to be



extracted in Gaza.<sup>31</sup> As well, most of the water from Wadi Gaza, a stream and surface water source which originates in the Hebron mountains in the West Bank and then flows south-east through Israel and into Gaza, is diverted into a dam in Israel, just before it reaches Gaza.<sup>32</sup> There are no available reliable figures for the annual flow of Wadi Gaza or for the amount

collected on the Israeli side.<sup>33</sup>



The yearly sustainable yield of the Coastal Aquifer in Gaza, some 55 MCM, falls far short of the population's needs. Israel does not allow the transfer of water from the Mountain Aquifer in the West Bank to Gaza. (In any case, such transfers would be feasible only if Israel allowed the Palestinian population of the West Bank access to a more equitable share of the Mountain Aquifer, as the current allocation is not sufficient to meet even their own needs.)

Residents filling containers of drinking water at a water purification plant in Khan Yunis, Gaza Strip © AI

With no other source of water available to them, Palestinians in Gaza have long resorted to over-extraction from the Coastal Aquifer, by as much as 80-100 MCM/Y – a rate equivalent to twice the aquifer's yearly sustainable yield.<sup>34</sup> The result has been a marked, progressive deterioration in the quality of the water supply, already contaminated by decades of sewage infiltration into the aquifer. Today some 90-95 per cent of Gaza's water is polluted and unfit for human consumption.

## ISRAELI MILITARY ORDERS

When Israel occupied the West Bank and Gaza Strip in June 1967, a multilayer legal system existed in the OPT, MADE UP of Ottoman, British, Jordanian (in the West Bank) and Egyptian (in Gaza) laws – the legacy of the powers that had previously controlled the area. The Israeli army issued a series of Military Orders seizing control of water and land resources in the OPT.

**Military Order 92**, issued on 15 August 1967, granted complete authority over all water-related issues in the OPT to the Israeli army.

**Military Order 158** of 19 November 1967 stipulated that Palestinians could not construct any new water installation without first obtaining a permit from the Israeli army and that any water installation or resource built without a permit would be confiscated.

**Military Order 291** of 19 December 1968 annulled all land and water-related arrangements which existed prior to Israel's occupation of the West Bank.<sup>35</sup>

These and other Israeli Military Orders remain in force today in the OPT and apply only to Palestinians. They do NOT apply to Israeli settlers in the OPT, who are subject to Israeli civilian law.

The Israeli army also took control of the West Bank Water Department (WBWD),<sup>36</sup> which had been established by Jordan in 1966 to develop and maintain the West Bank water supply system. The WBWD operates some 13 wells that are located in the West Bank and are mostly controlled by Israel. The water from these wells is sold to Palestinian communities and to Israeli settlements.

In 1982 the West Bank water infrastructure controlled by the Israeli army was handed over to Mekorot, the Israeli national water company. Mekorot operates some 42 wells in the West Bank, mainly in the Jordan Valley region, which mostly supply the Israeli settlements. Mekorot sells some water to the Palestinian water utilities, but the amount that it sells is determined by the Israeli authorities, not by Mekorot.

Under the new Israeli military regime imposed in the OPT, Palestinians could no longer drill new wells or rehabilitate or even just repair existing ones, or carry out other any water-related projects (from pipes, networks, and reservoirs to wells and springs and even rainwater cisterns), without first obtaining a permit from the Israeli army. In theory, such permits for drilling or rehabilitating wells could be obtained after a lengthy and complicated bureaucratic process; in practice, most applications for such permits were rejected. Only 13 permits were granted in the 29 years from 1967 to 1996 (when the PWA was established), but all of these were for projects for domestic use only and they were not sufficient to make up even for the replacement of wells that had dried up or fallen into disrepair since 1967.<sup>37</sup>

Meanwhile, Israel continued to develop its own water infrastructure, both within Israel itself and in the OPT, reducing the yield of existing Palestinian wells and springs in the OPT, and cutting off Palestinian access to the Jordan river and the springs along the river's bank. Israel devoted considerable resources to developing water networks and infrastructure to serve the illegal settlements which it established in the OPT, but consistently neglected the development and maintenance of the water infrastructure for the Palestinians, who were required to pay their taxes to the Israeli military administration but received few services in return. For the most part any benefits accrued to the Palestinian population were incidental. For example, some Palestinian communities were connected to water networks which served nearby Israeli settlements or military bases.

The regime put in place by the Israeli army not only prevented the development of new

Palestinian wells and infrastructure, but also limited the use and upkeep of existing ones. It prevented the rehabilitation of old wells and imposed quotas on the quantity of water which Palestinians could extract from their wells, capping the amount at the level being extracted at the point when the well was first metered. Meters were installed in the early 1970s to monitor pumping and to ensure Palestinian compliance with the capped allowance. The measures were simply imposed; there was no process of consultation with local Palestinian communities about their needs and how these would be met.

The quotas were set at a time when the levels of extraction from many wells had temporarily diminished due to the 1967 war and the changes it caused, including the displacement of many Palestinians who had fled from the West Bank at the time of the fighting and in its aftermath. Following the war, Palestinian water use dropped drastically due to the reduction in irrigated areas from 100,000 to 57,000 dunums.<sup>38</sup> In addition, large areas of Palestinian land had been appropriated by Israel for military use and for Israeli settlements, and had been made inaccessible to Palestinians; and many Palestinians who had previously been farmers in the West Bank were by then working in Israel. As well, many wells had fallen into disrepair or had dried up, including as a result of the drilling of Israeli deep wells.

In addition to those mentioned above, a plethora of military orders issued by the Israeli army were also aimed at, or had the effect of, preventing or restricting Palestinian access to water and land in the OPT. For example, **Military Order No. 1039** of 5 January 1983 (*Concerning Planting Fruits and Vegetables - broadening the scope of Military Order No 1015 of 27 August 1982 to include vegetable as well as fruits*), stipulates that:

*"In accordance with the authority vested in me, and in my capacity as commander of the Israel Defense Forces in the region and because I believe that this Order is necessary for the welfare of the residents, and with the intention of preserving the water resources [Amnesty International's emphasis] and the agricultural product of this region for the general benefit... It is prohibited to develop any vegetables in the Jericho district except after obtaining a written license from the relevant authority according to the conditions the latter demands (Article 2 A)."*

Article 10 of the original order, Military Order No 1015, stipulates: *"Any person contravening these provisions is punishable by one year's imprisonment, or a fine of up to 15,000 NIS [about US\$5,000] or both, and an additional fine of 500 NIS [about US\$160] for each day the contravention continues. If the person has been ordered by a court to uproot the crops planted without a permit, the relevant authority may uproot the crops and impose on the accused all the cost of the uprooting of the crops."*

For four decades, Israeli military orders issued ostensibly to "protect" nature resources and reserves, including water resources, have had a crippling impact on Palestinian agricultural activities throughout the West Bank, while Israeli settlers, during the same period, have been given virtually unlimited access to water supplies to develop and irrigate the large farms which help to support unlawful Israeli settlements.<sup>39</sup>

#### HOPES AND LIVELIHOOD DESTROYED



On 11 March 2008, an Amnesty International delegate witnessed Israeli soldiers destroy a Palestinian farm in the outskirts of Jiftlik, in the Jordan Valley area of the West Bank. Nearby, Israeli settlers have large farms cultivated with verdant irrigated crops.

Mahmud Mat'ab Da'ish's vegetable crops and irrigation network, being uprooted by an Israeli army bulldozer while soldiers surround the field in Jiftlik, Jordan Valley, West Bank; 11 March 2008 © AI

Mahmud Mat'ab Da'ish, his wife Samar and their seven children and other relatives looked on in dismay as an Israeli army bulldozer uprooted their crops – and their livelihood. Having quickly crushed the young vegetable plants, the army bulldozer continued to drive up and down the field, methodically scooping up and tearing to shreds the drip irrigation system which the family had installed at great cost.

Tens of Israeli soldiers in uniforms, accompanied by men in plain clothes, surrounded the area, preventing the farmers from approaching the field. The farmers pleaded with the soldiers to allow them at least to salvage their costly drip irrigation network, but the soldiers refused. The army had uprooted the same field two months earlier but the family had then replanted vegetables in the hope that these would be allowed to survive. A month later the army returned once again, this time to destroy the family's home – a simple dwelling built of thin corrugated iron sheets, wood and stones. After this, the family was left to live in a tent provided by the International Committee of the Red Cross (ICRC).

Samar Da'ish told Amnesty International: *"Why must they destroy the little we have? What harm have we done by cultivating this small bit of land, so that we can feed our children? Look, they did not spare a single plant. Why so much cruelty to human beings, to the land, to nature?"*

Many other military orders have been issued by the Israeli army which do not specifically refer to water resources but which restrict activities in the water sector. These include orders seizing land or declaring particular areas "closed" on undefined "security grounds", making them inaccessible to Palestinians. Other military orders have designated Palestinian lands as "firing ranges" for use by the Israeli army or as "state land", including the areas where Israeli

settlements are located. More than a third of all land in the West Bank falls into one or other of these categories, and the restrictions imposed apply only to Palestinians. Israeli settlers, by contrast, have access to these areas, where they have unlawfully appropriated large areas of water-rich Palestinian land.

Israel's policy has been, and remains, to limit the overall amount of water (and land) available to the Palestinian population, while preserving for itself privileged access to most of the water and land in the OPT. To this end, Israel has not sought to change either the localized system of management of water resources by local councils, notables, and families who own wells located on their lands or the patterns of use of the water allocated to the Palestinians in the OPT. Rather, Israel has imposed restrictions on the overall quantity of water accessible to the Palestinians in the OPT to an extent where it has severely impaired realization of the Palestinians' right to adequate food, health, work and to achieve a decent standard of living. Israeli policies and restrictions have served to restrict agricultural and industrial development, and have thereby seriously hindered and obstructed social and economic development. According to the World Bank, "*The cost to the economy of foregone opportunity in irrigated agriculture is significant, with upper bound preliminary estimates that could be as high as 10% of GDP and 110,000 jobs.*"<sup>40</sup>

As noted by the UN Secretary-General in 1992: "*The general settlement policy of confiscating land and imposing restrictions on water resources has meant that a large proportion of the population that would normally have earned a living by traditional agriculture have gradually begun to seek employment in Israel as unskilled workers because of the lack of jobs in the territories. This appears to be partially responsible for the economic dependence of the occupied Palestinian and other Arab territories on Israel, particularly as regards agricultural produce.*"<sup>41</sup>

#### THE IMPACT OF WATER SHORTAGES – COPING STRATEGIES

Palestinian families who do not have enough water to meet their basic needs often have no choice but to resort to coping strategies which carry risks for their own health, negatively affect their food security, and damage the groundwater resources. These include:

- Buying water from unsafe sources (agricultural wells, which are not monitored for quality or adequately chlorinated) and boiling before consumption by young children, as most families cannot afford to buy sufficient fuel to boil all their drinking water.
- Reusing the same water for several tasks: water used to boiled vegetables is reused to wash dishes, then reused again to wash floors and then finally reused to flush toilets.
- Flushing toilets less frequently.
- Washing less regularly and fully, using a bucket or jug to limit the water used instead of showering.
- Washing clothes and floors as infrequently as possible and using a small quantity of water to hand-wash clothes in a bucket rather than using a washing machine.
- Only growing rain-fed crops in their home gardens or not keeping a home garden at all in dryer areas.
- Keeping fewer animals or none at all.
- Drilling unlicensed shallow wells.

#### STRUGGLING TO COPE WITH WATER SHORTAGE

*"I am a widow and have six small children, three boys and three girls, aged 6-12. My husband was killed in 2003. His two daughters from his first wife, who died, live with us. We live in a small house in Yatta. The only income we have is an allotment of 1,000 NIS a month that we receive from a charity in Yatta. This sum is not enough to pay for food for nine people.*

*In addition to our income problems, we also suffer from water shortage, as do most residents of the town. The shortage affects all aspects of our life. We are connected to the town's water network, but since January 2008, we haven't gotten water through the network because we live at a high altitude, and the water pressure is insufficient to get the water to us. We buy all our water from tankers. The town sells the water at a rate of 120 NIS for ten cubic meters. You have to wait your turn, and we get water only once every twenty or thirty days. This is not often enough, so I have to buy water from private tankers, who charge 170 or 180 NIS. It is hard on us financially, but we have no choice. I save lots of water. I always warn the children not to waste water, and tell them to pay attention to every drop of water they use. The children already know they have to conserve water. Every two children are given one bucket of water to shower with. We have rugs on the floor all year round, so I don't wash the floor. That saves water.*

*For more than two years, I haven't washed the carpets or blankets. I use a washing machine that uses less water than other machines, and I use the shortest washing cycle so as to save water, even though the clothes don't come out clean enough. My husband's son lives next to us, and he sometimes asks if he can take some of our water. Sometimes, we don't have enough to give him. We've gotten used to living like this because we don't have a choice. When my husband died, we owed 4,500 NIS to the town for water, and 5,000 NIS for electricity. I don't have the money to pay these debts, and I'm afraid they'll disconnect us. We don't get water from the network, but I'm afraid they'll cut off the electricity. The house, is surrounded by more than two dunams of land. If we had water, we could farm it and make some income that way."*

Fatima Zein, a resident of Yatta, to the Israeli human rights organization B'Tselem<sup>42</sup>

*"The human right to water is indispensable for leading a life in human dignity." [UN Committee on Economic, Social and Cultural Rights, General Comment No. 15, para 1]*

# OSLO ACCORDS: INSTITUTIONALIZING ISRAELI CONTROL OF RESOURCES

Contrary to Palestinian expectations, the Oslo Accords did not result in greater access for Palestinians to the water resources of the OPT. Even after the establishment of the PWA, up to the present day, Israel's control of the water resources and of most of the land in the OPT has allowed the Palestinians little possibility to develop their water and sanitation sector and to put in place more efficient extraction systems and distribution networks in the OPT.

The Israeli authorities contend that: "*Water matters, like other civil powers, have been for some time under the full responsibility of the P.A....Jurisdiction over water was transferred [to the PA] completely and on time...*"<sup>43</sup>

In truth, however, the PA did not acquire control of water resources in the OPT under the Oslo Accords.<sup>44</sup> It acquired only the responsibility for managing the supply of the insufficient quantity of water allocated for use by the Palestinian population and for maintaining and repairing a long-neglected water infrastructure that was already in dire need of major repairs. As well, the PA was made responsible for paying the Israeli authorities for half of the water used for domestic purposes by Palestinians in the West Bank, which water Israel extracts from the shared aquifer and sells to the Palestinians.<sup>45</sup>

Under the Oslo Accords, the PA was given no authority to make decisions relating to drilling of new wells, or upgrading existing wells, or implementing other water-related projects, and Israel continues to control decision-making regarding the amount of water that may be extracted from existing wells and springs in the OPT virtually to the same extent as it did before the Oslo Accords.

Thus, the Israeli authorities continue to monitor and control the amount of water extracted from Palestinian wells and springs in the West Bank, and Palestinians are not allowed to drill new wells or rehabilitate existing wells without first obtaining authorization from the Israeli authorities. Such authorization is rarely granted; even when it is, the process is an unduly lengthy and complicated one and the potential for delays and consequent cost increases is high.

As well, the multitude of other restrictions that the Israeli authorities have imposed and maintain on the movement and activities of Palestinians in the OPT have further hindered or prevented the development of the water supply infrastructure and related facilities.

### TERRITORIAL JURISDICTION UNDER THE OSLO ACCORDS

Under the Oslo Accords Israel divided the West Bank into **Areas A, B and C**.

- **Areas A and B** include most major Palestinian towns, refugee camps and villages, accounting for some 95 per cent of the population but only 40 per cent of land of the West Bank. In these areas the PA is responsible for civil affairs and Israel for external security.

- **Area C**, where Israel is responsible for both civil affairs and internal as well as external security, comprises some 60 per cent of the land area of the West Bank and includes all the land reserves and all the main roads, but is mostly inaccessible to Palestinians.

Areas A and B are fragmented into scores of separate enclaves surrounded by Israeli settlements, settlers' roads and closed military areas. Most Palestinians live in Areas A and B, but the infrastructure which serves these populations is located in or passes through Area C, where Palestinian access is restricted or denied and construction and development activities are rarely permitted by the Israeli army.

The most productive locations for drilling wells are located on the lower flanks of the West Bank mountains, in Area C, but restrictions imposed by the Israeli army have delayed or prevented the drilling of even those wells which has been approved by the Joint Water Committee (JWC). Similarly, Israel has consistently refused to allow Palestinians to locate sewage treatment facilities and solid waste dumps in Area C, the only areas where there is land available for such facilities.

These arrangements have curtailed or prevented Palestinian development, including the development of much-needed water and sanitation infrastructure.

### ISRAELI WATER LAW AND WATER AUTHORITIES

The Israeli Water Law (1959)<sup>46</sup> does not recognize the existence of shared surface or groundwater resources. It is defined as: "...a framework for the control and protection of Israel's water resources". It stipulates that:

- All sources of water in Israel are public property. A person's land rights do not confer rights to any water sources running through or under their land.

- Every person is entitled to use water, as long as that use does not cause the salination or depletion of the water resource.

- Water use is under the jurisdiction of the Ministry of Agriculture (via the Water Commission), which is authorized to:

- Prescribe norms for the quantity, quality, price, conditions of supply and use of water...and rules for the efficient and economic utilization of water...

- Ration water when necessary.

The Minister of Environmental Protection is authorized to:

-Promulgate regulations to prevent the pollution of water resources.

The Water Commissioner, appointed by the government, is responsible for enforcement of the Water Law and Regulations, and for the maintenance of water quality, and is authorized to:

- Approve or reject or prepare plans for the disposal of sewage.

The Water Board is chaired by the Minister of Agriculture. The Water Commissioner serves as deputy chairperson.



The Tribunal for Water Affairs may impose fines, or, in extreme cases of non-compliance, prison sentences, to those who contravene the provisions of the Water Law or the Drainage and Flood Control Law.

At the national level, Israel does not have a constitution and its Basic Laws do not contain provisions relating to the right to water. However, the Supreme Court ruled in 1989 that, *"The right to water is a substantive right... [It] does not have to be created by statute necessarily, but can be grounded on other foundations, such as agreement, custom, or any other manner."*<sup>47</sup>

The Israeli national water company Mekorot (founded in 1937, prior to the establishment of the State of Israel) manages most of the water supplies in Israel and the OPT.

## PALESTINIAN WATER LAW AND WATER AUTHORITIES

**The Palestinian Water Law** (Law No. 3/2002) was enacted in 2002.<sup>48</sup> Its provisions include:

- *"This Law aims to develop and manage water resources, increasing their capacity, improving their quality, and preserving and protecting them from pollution and depletion (Article 2);"*

- *"All water resources available in Palestine are considered public property (Article 3.1);"*

- *"Every person shall have the right to obtain his needs of water of a suitable quality (Article 3.3);"*

- *"It is prohibited to drill or explore or extract or collect or desalinate or treat water for commercial purposes or to set up or operate a facility for water or wastewater without obtaining a licence (Article 4);"*

- *"The Authority may ... halt the production or supply of water if it appears that its source or system is polluted and it may close the source or system if pollution continues... (Article 30);"*

- *"The Authority... may declare any area that contains groundwater a protected area if the quality or quantity of water is in danger of pollution... on condition that it provides alternative water resources (Article 31)";*

- Articles 35 to 37 provide for punishment of up to two years' imprisonment and/or fines of up to 5,000 Jordanian Dinars (about US\$ 6500), or double the punishment for repeat offenders for breaches of this law, including for polluting water resources, drilling wells without licence, and supplying water without a licence;

The PWA<sup>49</sup> sets the policy and plays a regulatory role, while services for domestic and industrial supplies are mostly delivered by regional water utilities (such as the Jerusalem Water Undertaking, JWU, for the Ramallah region, and the Coastal Municipality Water Utility, CMWU, in Gaza), municipalities (in urban centres), and Village Councils or Joint Service Councils (in rural areas). Private wells have a low capacity and mostly supply water for agriculture, and increasingly to communities who have limited or no access to domestic water supplies. In the West Bank the West Bank Water Department (WBWD) monitors the extraction levels of Palestinian wells on behalf of Israel and manages the sale of most of the water supplied to Palestinians from some 13 wells which it operates together with that supplied by Mekorot, the Israeli water company.<sup>50</sup>

In Gaza, the PWA assumed control of water resources and facilities in the mid-1990s except for those located within the Israeli settlements in Gaza, which were eventually dismantled in September 2005.

## INEQUALITY IN ACCESS TO WATER RESOURCES CODIFIED

Under the Oslo Accords " 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."<sup>51</sup>

Crucially, these rights were not defined and the inequitable division of the shared groundwater resources – the Mountain Aquifer - was maintained, with some 80 per cent allocated to Israel and just 20 per cent to the Palestinians.

This unequal allocation is all the more striking in view of the fact that their 20 percent allocation from the Mountain Aquifer is the sole source of water for the Palestinian inhabitants of the West Bank, while the 80 per cent allocated to Israel is only one of several water resources available to Israel, which can also draw fresh water from the Coastal Aquifer and Lake Kinneret/Tiberias/Sea of Galilee, including the Jordan River and tributaries, both significant sources.

Far from providing for an equitable re-distribution of the available shared groundwater resources, the Oslo Accords specifically stipulated that there would be no reduction in the quantity of water that Israel extracts from the Mountain Aquifer, both for use within Israel and in the unlawful Israeli settlements located in the West Bank: " *the existing water systems supplying water to the Settlements and the Military Installation Area, and the water systems and resources inside them continue to be operated and managed by Mekoroth Water Co.*" And " *All pumping from water resources in the Settlements and the Military Installation Area, shall be in accordance with existing quantities of drinking water and agricultural water... the Palestinian Authority shall not adversely affect these quantities.*"<sup>52</sup>

As well, the Oslo Accords did not provide for any re-distribution of the water from the Jordan River, to which the Palestinians have been denied access since 1967.

SHARED WATER RESOURCES Allocation as codified in the Oslo Accords <sup>53</sup>			
MOUNTAIN AQUIFER	Estimated potential <sup>54</sup>	ISRAEL	PALESTINIANS
	679MCM/Y	483 MCM/Y	118 MCM/Y (+ 78 for future needs)
Distributed as follows:			
WESTERN Aquifer:	362MCM/Y	340 MCM/Y	22 MCM/Y
NORTH-EAST Aquifer:	145MCM/Y	103 MCM/Y	42 MCM/Y
EASTERN Aquifer:	172MCM/Y	40 MCM/Y	54 MCM/Y + 78 (for future needs, as above)
JORDAN RIVER	The Oslo Accords contain no provisions allowing access by Palestinians to any of the Jordan River water resources		

#### ALLOCATION OF WATER SUPPLIES FOR “FUTURE NEEDS”

The limited share of the Mountain Aquifer allocated to the Palestinians under the Oslo Accords includes 78 MCM per year designated for “*future needs*”, and to be developed in the future from the Eastern Aquifer and other unspecified “*agreed sources in the West Bank*”.<sup>55</sup>

Crucially, the provision does not set any timeframe for realizing the development of this projected additional water supply although the Oslo Accords were only intended to cover the five-year-period prescribed for achieving the final status agreement.

A decade and a half later and in the continuing absence of any final status agreement, this projection has neither been realized, nor does it now appear achievable, so long as Israel continues to prevent the Palestinians from accessing the most productive areas of the Eastern Aquifer.

Moreover, in the period since the Oslo Accords, Israel has extracted far in excess of the agreed quantity of water from the Eastern Aquifer, up to more than three times as much.<sup>56</sup> At the same time Palestinian extraction from the Eastern Aquifer has declined in the past decade, down from 138 MCM per year in 1999 to 113 MCM in 2007,<sup>57</sup> and to 84 MCM in 2008 according to the PWA. This appears to be due partly to a lowering of the water table (the aquifer level), possibly as a result of Israeli over-extraction, as well as to operational problems which have caused some Palestinian wells to become only partially operational or to cease operating for long periods. These operational problems have been exacerbated by the requirement that Palestinians must obtain Israeli permits before digging new wells or rehabilitating existing ones, and the delay or obstruction this entails, and by the extent to which the Palestinians have to rely on international donors for the funding needed to undertake such infrastructural maintenance and improvement.

In 2002 the then Israeli Water Commissioner Shimon Tal told the Israeli Knesset (parliament) that “*the Eastern Mountain Aquifer was allocated to them. They have not yet started developing it sufficiently, and the development is extremely expensive*”.<sup>58</sup>

#### ISRAELI CLAIMS: MAINTAINING THE STATUS QUO

The Israeli authorities have consistently rejected calls to allow the Palestinians access to an equitable allocation of the shared water resources, insisting that Israel’s “prior established use” of most of the water from the shared Mountain Aquifer justifies its continuing appropriation, in perpetuity, of most of the aquifer’s water for its own purposes, regardless of the consequences that this disproportionate and unfair division has for the Palestinian population in the OPT and its impact on Palestinians’ human rights.

In its response to the April 2009 World Bank report the Israeli Water Authority argued that: “*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)*.”<sup>59</sup>

Israel's position is open to challenge in several important respects. It is fundamentally discriminatory, both in essence and in its selective interpretation of the status quo ante and its implications.

Firstly, the appropriation of a disproportionate percentage of shared resources by one party for a given period does not confer on that party a perennial right to exploit those resources disproportionately to the exclusion of all other considerations.

Secondly, Israel dates its "prior established use" of the Mountain Aquifer to the particular time in the past most convenient to its claim.

Thirdly, Israel fails to take into account that a large part of the Palestinian population of the OPT - two thirds of Gaza's residents and almost a third of West Bank residents – were (or are descended from those who were) formerly part of the population of what is today Israel but were displaced by conflict.

Fourthly, after its occupation of the OPT in 1967, Israel forcibly took control of water resources and imposed significant changes in the area's water sector. This included extracting large quantities of groundwater and diverting surface water for its own benefit, while preventing access by the local Palestinian population to these same resources.

Lastly, Israel has also forcibly imposed other changes in the OPT whose impact has directly reduced access to water for the Palestinian population, notably the appropriation of large areas of land, the establishment of unlawful Israeli settlements, and the prohibition on Palestinians taking measures to develop their own infrastructure and economy. The Israeli authorities claim that Palestinian water shortages are caused by the Palestinians irrigating fields that should not be irrigated because they have never been irrigated in the past – while they continue to supply large quantities of water to Israeli settlers to irrigate ever-expanding farms in settlements unlawfully established after Israel occupied the West Bank.<sup>60</sup>

The argument put forward by Israel is also legally untenable. The Israeli authorities have recognized that the principles of "*equitable and reasonable use*" and of prevention of appreciable or significant harm are two basic rules that can be "*viewed as customary in relation to the use and division of shared international water resources.*"<sup>61</sup> Consequently, even if prior established use had been, or were to be, determined in a fair manner, the principle of equitable and reasonable use would still apply and could not justify the disproportionate and inequitable allocation of water that currently exists.

## POLICIES OF DENIAL

“There is no water in the village, so we have to bring it from far away and it’s expensive. I can’t wash and clean as often as needed. We can’t afford it. It’s a daily struggle.”

Iman Jabar, a resident of al-'Aqaba village, whose home has a demolition order pending against it, told Amnesty International, “*There is no water in the village, so we have to bring it from far away and it’s expensive. I have nine children (five girls and four boys aged from five to 19 years). We spend a lot of money on water and we have to make do with very little, just for drinking and cooking and don’t have enough for the other needs. We need more water for washing, washing the clothes and cleaning the house. I can’t wash and clean as often as needed. We can’t afford it. It’s a daily struggle. The goats also need to drink. We can’t keep more goats because we can’t afford the water, and we can’t grow food for us and fodder for the animals, so we have to buy it and this too is expensive.*”



A tractor used to pull a water tanker in al-'Aqaba village in the West Bank © AI

**Al-'AQABA** is a small Palestinian village in the north-east of the West Bank where almost all the houses, as well as the nursery school, a clinic and other buildings, are under demolition orders issued by the Israeli army. For years, the villagers have been resisting efforts by the Israeli army to force them to abandon the village. Most have left but some 35 families remain, and the difficulties they face are exacerbated by the lack of water.

The village is one of some 200 communities that have not been connected to the water network. Nearby towns and villages, such as Tayasir and Tubas, are connected but they too suffer from water shortages and their inhabitants often have to buy additional supplies from water tankers.

Another villager, Akram Muhammad Salah Talib, told Amnesty international: *" I have six children and with my wife and my elderly parents we are 10 people. We also have sheep. We need two tanks of 10m<sup>3</sup> per month and each tank costs 120 to 150 NIS [US\$65 to 80 per month]. It is an enormous expense and this amount only covers the most basic needs. It does not allow us to live in good and hygienic conditions. In addition, the Israeli army demolished my house five years ago and they also destroyed the water cistern where we collected the rainwater. My cousin built a water cistern two years ago and the army gave him a demolition order for it."*

In August 2009 the head of al-'Aqaba's village council, Haj Sami, issued an appeal for help to relieve the water problem in the village. He told Amnesty International: *" We have to travel quite far to buy water and bring it to the village by tanker. With the cost of transport the water costs 15 NIS per m<sup>3</sup>, which is three or four times what it would cost if we had a connection to the water network or a well in the village. It is unaffordable. People here live simple lives; they work the land and herd goats and sheep; but without water they can do neither. There are more than 100 children in the school and nursery school in the village; there should be water for them to drink and wash their hands; this is a necessity not a luxury. People shower once a week because they haven't enough water. Such hardship is unacceptable and inhuman. Would our Israeli neighbours accept to live in such conditions? No, so why do they deny us our basic rights? The Israeli army uses our village land for military training, a safety hazard for us, and controls this area, but provides no services and does not allow us to put in place services."*

# THE WATER CRISIS IN GAZA

**“The deterioration and breakdown of water and sanitation facilities in Gaza is compounding an already severe and protracted denial of human dignity in the Gaza Strip. At the heart of this crisis is a steep decline in standards of living for the people of Gaza, characterized by erosion of livelihoods, destruction and degradation of basic infrastructure, and a marked downturn in the delivery and quality of vital services in health, water and sanitation.”**

Maxwell Gaylard, UN Humanitarian Coordinator for the Occupied Palestinian Territory, 3 September 2009.<sup>62</sup>

The water situation in Gaza is dire. The Coastal Aquifer, Gaza’s sole fresh water resource, is polluted by the infiltration of raw sewage from cesspits and sewage collection ponds and by the infiltration of seawater (itself also contaminated by raw sewage discharged daily into the sea near the coast) and has been degraded by over-extraction.

The average amount of water available to each inhabitant of Gaza slightly exceeds the average amount available in the West Bank, at about 80-100 litres per capita a day.<sup>63</sup> However, more than 90 per cent of the water extracted from the aquifer in Gaza is contaminated and unfit for human consumption.<sup>64</sup> Waterborne diseases are common. The Department of Health of the UN Relief and Works Agency (UNRWA) reported in its February 2009 Epidemiological Bulletin for Gaza Strip that: “*Watery diarrhoea as well as acute bloody diarrhoea remain the major causes of morbidity among reportable infectious diseases in the refugee population of the Gaza Strip.*”<sup>65</sup>

According to a report of the United Nations Environment Programme, UNEP, the *Environmental Assessment of the Gaza Strip following the escalation of hostilities in December 2008 – January 2009*, published in September 2009: “*The pollution of groundwater is contributing to two main types of water contamination in the Gaza Strip. First, and most importantly, it is causing the nitrate levels in the groundwater to increase. In most parts of the Gaza Strip, especially around areas of intensive sewage infiltration, the nitrate level in groundwater is far above the WHO accepted guideline of 50 mg/litre.... Second, because the water abstracted now is high in salt, the sewage is also very saline and hence infiltrating sewage only adds to the salinity of the aquifer. It has been well known and well documented for decades that higher levels of nitrates in drinking water can induce methemoglobinaemia in young children.*”<sup>66</sup>

## BLUE BABIES IN THE GAZA STRIP

*“Methemoglobinaemia is a blood disorder characterized by higher than normal levels of methemoglobin, a form of haemoglobin that does not bind oxygen. When haemoglobin is oxidized it becomes methemoglobin, its structure changes and it is no longer able to bind oxygen or deliver it to the tissues, and anaemia can result. This state is referred to as methemoglobinaemia. Infants suffering from methemoglobinaemia may appear otherwise healthy but exhibit intermittent signs of blueness around the mouth, hands and feet. They may have episodes of breathing trouble, diarrhoea and vomiting. In some cases, infants with methemoglobinaemia have a peculiar lavender colour but show little distress. Blood samples*

*appear chocolate brown and do not turn pink when exposed to air. When the methemoglobin level is high, infants express a marked lethargy, excessive salivation and loss of consciousness. Convulsions and death can occur when methemoglobin levels are extremely high... The current (WHO 2008) guideline value for nitrate is 50 mg/litre. A disturbing feature of nitrate as a contaminant is that it is colourless, tasteless and odourless. This, and the fact that the population has not been warned about it, means that people will continue to consume drinking water with high nitrates unless they are informed about it. Monitoring of groundwater in the Gaza Strip indicated the presence of nitrates as early as the 1990s. It emerged that the elevated levels of nitrate were primarily caused by the infiltration of sewage from domestic septic tanks as well as agricultural runoff into the groundwater. Nitrate values in the Gaza Strip have continued to rise and currently present a health risk throughout the territory... In the 1990s, data began to emerge about the incidence of blue babies in the Gaza Strip... The current status of methemoglobinaemia in the Gaza Strip is unknown as there are no systematic studies available in the public domain. However, as mentioned previously, nitrate levels in the groundwater have increased and nitrates are more widespread in the area. Consequently, it can be expected that the problem is still prevalent in the Gaza Strip, and in the absence of widespread awareness, a large number of children are at risk... ”<sup>67</sup>*

#### SMALL SCALE DESALINATION: A STOP-GAP SOLUTION

Small scale desalination – largely private – has emerged as a stop-gap solution. In addition to four public desalination plants run by the Coastal Municipality Water Utility (CMWU) (production 1000m<sup>3</sup>/day), there are at least 40 private desalination plants selling water both wholesale for delivery by tanker and retail by jerry can (production about 2,000m<sup>3</sup>/day).<sup>68</sup> Most of the private facilities are not licensed by the PWA and even those that are licensed are not monitored, as the water authorities do not have the capacity to monitor the many small facilities. There are also thousands of home desalination plants, which are similarly unmonitored.<sup>69</sup> Hence, privately or home desalinated water may still be contaminated.

The vast majority of people cannot afford privately desalinated water and if they cannot get sufficient supplies of desalinated/purified water from public sources they have no choice but to use water from unsafe sources.

#### DWINDLING RESOURCES

Under the Oslo Accords, the West Bank and Gaza Strip constitute a single territorial entity,<sup>70</sup> yet the Accords made no allowance for the transfer of water from the West Bank to the Gaza Strip and maintained the separation between the West Bank and Gaza water sectors, leaving Gaza's water needs to be met from local water resources.



The Gaza Strip's sole source of water, the Coastal Aquifer, has an estimated yearly recharge of some 55 MCM, far less than the quantity required to meet the needs of its 1.5 million inhabitants. There are no other resources, such as a large-scale desalination plant, to provide additional water locally.<sup>71</sup>

Consequently, the only way to try and meet the population's water needs has been through over-extraction from the aquifer at a rate more than double its sustainable yearly recharge.

Unsurprisingly, this has caused rapid deterioration of the aquifer, increasing its salinity and making it ever more vulnerable to contamination from sewage infiltration.



A water pump and well in the Zaytoun neighbourhood of Gaza City destroyed in an Israeli attack in January 2009 © AI

According to the United Nations Environment Programme (UNEP): *"The state of the environment in the Gaza Strip is bleak from any perspective... The aquifer is severely damaged and collapsing quickly. Unless the trend is reversed now, damage could take centuries to reverse.... Ideally, abstraction from the aquifer should cease and a monitoring system should be installed to evaluate recovery. Controlled abstraction should only be permitted once the aquifer recovers and the sustainable yield is recalculated using accurate data on inflows. Alternative sources of water should be developed and used to allow the coastal aquifer to rest. The only method that can produce water in adequate quantities is seawater desalination... Technical solutions are available, but implementing them requires financial resources, materials, equipment and technical expertise that are currently not available in the Gaza Strip."*<sup>72</sup>

"States...should refrain at all times from imposing embargoes or similar measures, that prevent the supply of water, as well as goods and services essential for securing the right to water. Water should never be used as an instrument of political and economic pressure."

UN Committee on Economic, Social and Cultural Rights, General Comment 15: The right to water (2002).

The Israeli blockade of Gaza, which has been particularly severe since 2007, has exacerbated what was already a dire situation in the water sector.<sup>73</sup> On 3 September 2009 the UN Office for the Coordination of Humanitarian Affairs (OCHA) expressed concern that *"equipment and supplies needed for the construction, maintenance and operation of water and sanitation facilities have been denied entry to Gaza, leading to the gradual deterioration of these*

*essential services. Destruction caused during the Israeli military offensive in 2008/2009 exacerbated an already critical situation, leaving some services and facilities on the brink of collapse". OCHA called on Israel "to take immediate steps to ensure the entry into Gaza of construction and repair materials necessary to respond to the water and sanitation crisis that exists in the Gaza Strip".<sup>74</sup>*

## THE JOINT WATER COMMITTEE (JWC) – A PRETENCE OF COOPERATION

The Joint Water Committee (JWC) is part of the governance arrangements that was established under the Oslo Accords for a five-year interim period, due to end in 1999 but which remains in place today in the absence of a permanent status agreement on the future of the OPT. The role of the JWC is to oversee the management of the water resources in the West Bank, except for the Jordan River.<sup>75</sup>

To understand the dynamics of the JWC one needs to take into consideration the reality - in law and in practice - of the conditions that prevail in the West Bank. Currently, the West Bank remains under Israeli military occupation and Israel, as the occupying power, rules the area using military, not civil law, and maintains effective control of the area – including its water resources, land and borders, as well as the movement and activities of the Palestinian population. It is the Israeli army that decides if and where Palestinians are permitted to drill a well or to construct a rainwater harvesting cistern, to run a water pipe or to build a house, to plant a tree or where they may graze their flocks. It is the army that decides too whether and when Palestinians may travel within the West Bank and on which roads. The Israeli army and police are empowered to arrest and imprison Palestinians anywhere in the OPT, including in the areas which fall under PA jurisdiction, and these powers have been used to imprison, among others, ministers in the Palestinian administration and members of the Palestinian parliament. The PA, for its part, has no control or authority over the Israeli army or Israeli civilians, even when they commit crimes and do so within the areas under PA jurisdiction.

The JWC is composed of representatives from the Israeli and Palestinian water authorities and the consent of both sides is required for most activities undertaken in the water sector in the West Bank. However, there is no parity of power and control between the two sides. As noted by the World Bank: "*The JWC has not fulfilled its role of providing an effective collaborative governance framework for joint resource management and investment... The JWC does not function as a "joint" water resource governance institution because of fundamental asymmetries - of power, of capacity, of information, of interests – that prevent the development of a consensual approach to resolving water management conflicts.*"<sup>76</sup>

An international water expert who attended several JWC meetings on behalf of a major international donor told Amnesty International that decision-making, in practice, was almost entirely in the hands of the Israeli representatives: "*The interaction between the two sides during the meetings can best be described as an exercise in subjugation and humiliation.*"

Yet the JWC has often been held up as an example of successful Israeli-Palestinian cooperation because the two sides continued to meet in the JWC even after the collapse of the peace process and during the periods of heightened tensions and conflict that have marked recent years. The reality, however, is that the establishment of the JWC merely institutionalized the intrinsically discriminatory system of Israeli control over Palestinian resources that had already been in existence since Israel's occupation of the OPT three decades earlier.

Palestinians must obtain JWC approval for any project involving water extraction from the Mountain Aquifer and for all other water-related projects - including minor activities such as laying or replacing water mains - in Area C, comprising 60 per cent of the West Bank. In practice, scores of requests for water projects submitted by the Palestinian side to the JWC have been either rejected or delayed by the Israeli representatives on the JWC, and where approval was granted often this was after considerable delay. Other proposed projects were not even submitted as the PWA considered that there was no chance that they would be approved by the Israeli side.

The Israeli authorities, meanwhile, not only determine the quantity of water that the Palestinians are allowed to extract from the Mountain Aquifer but also monitor and enforce Palestinian compliance and control even the small quantities of rainwater that Palestinian villagers collect to augment the inadequate supplies available to them. The Israeli army frequently destroys small rainwater harvesting cisterns built by Palestinian communities who have no access to running water.



An Israeli well in the OPT © AI

A rainwater cistern destroyed by the Israeli army for lack of permit © Shabtai Gold/Irin

By contrast, the PA has no power or means to monitor, still less to limit, the quantity of water that Israel extracts from the Mountain Aquifer in the West Bank or inside Israel. The PA has no access even to the data concerning the amount of water extracted by Israeli wells located in Israeli settlements in the West Bank, let alone the possibility to monitor these wells, or to obtain information about new water network connections that are frequently installed in order to supply new Israeli settlements and Israeli "settlements outposts" in the West Bank.<sup>77</sup>

## MILITARY PERMIT REGIME HINDERING WATER PROJECTS

Securing the approval of the JWC is only the first hurdle to be surmounted by Palestinians seeking to carry out water projects in the West Bank. If and when this approval is granted, additional permits must then be obtained from the Israeli army before any work can be commenced in Area C of the West Bank. This includes not only projects - such as wells, pumping stations, reservoirs, and sewage treatment plants - that would be located in Area C, but also projects - such as installing, or repairing water mains and supply pipes - which are intended to connect water distribution or sewage collection networks in Areas A and B but

which pass through Area C. This has immense implications as Area C makes up some 60 per cent of the land area of the West Bank and Area C land surrounds scores of disconnected communities that are located within Areas A and B but exist as enclaves. In practice, it means that any project of significance in the water sector cannot go ahead unless the necessary permits are first obtained from the Israeli army.

Obtaining such permits entails a lengthy and protracted bureaucratic process. Many applications are rejected, others are subject to long delays. Even when permits are granted, whether or not the work can be carried out depends on the Israeli army's assessment of "security considerations" prevailing in the place where the work is to be done at the time; areas can be and often are declared out of bounds to Palestinians for periods ranging from hours to days or weeks or longer because of the Israeli army's "security considerations". Any project, therefore, can be blocked for long periods because a permit cannot be secured for what may be only a minor part of the project. For example, any work to repair pipes connecting villages to wells that pass through different parts of Area C requires that a permit be obtained, covering each area in which the work will be done. The work cannot go ahead if the Israeli army rules that it should not do so because of "security considerations" in one or more of the areas where the work is planned. Attempts to carry out such projects without first obtaining approval result in the projects being halted or demolished by the Israeli army.

#### ELUSIVE PERMITS FOR PALESTINIAN WATER PROJECTS

In a response to the April 2009 World Bank report, the Israeli Water Authority (IWA) stated that it had approved 70 wells for Palestinians in the West Bank.<sup>78</sup> However, a request by Amnesty International to the IWA for a list of these wells received no response. The IWA also declined to provide a list of these wells to the Israeli daily *Haaretz* despite the newspaper's repeated requests.<sup>79</sup>

Noah Kinarti, who headed the Israeli water team during the negotiations for the Oslo Accords and is now chief adviser to the Head of the IWA, recently told the Israeli daily *Haaretz*: "*Liars... they [the Palestinians in the West Bank] have enough water to drink... There are water tankers in Amman and Damascus, too. That's how they do things. In the interim agreement they were given at least 70 to 80 million m<sup>3</sup> of water [a year] from the eastern aquifer. They did nothing. They want us to bring them water and to live at our expense.... We let them dig [wells] in the eastern aquifer; there is water there, so let them dig, God damn it. Why aren't they digging? For no reason, because it's easier to cry. They want to be miserable*".<sup>80</sup>

Even with regard to the Eastern Aquifer, however, Palestinians continue to face difficulties and delays in obtaining the approval required by, and from, the Israeli authorities to drill new wells. For example, one Palestinian request to drill two wells in the Hizmah area (north-east of Jerusalem) has been pending since 2000.

THE HIZMAH WELLS

Date	Relevant Authority	Issue – HIZMAH WELLS
2 Apr. 2001	JWC meeting	"JWU1 & 2 hydrologically approved (locations coordinates included)"
11 July 2001	Joint Technical Committee (JTC)	"JWU 1 & 2 (coordinates as above) are hydrologically approved. The request will be directed for final decision to the Ministry of Defense".  In the event the Israeli army did not approve the drilling of the two wells at the location approved by the JWC.
16 Dec. 2004	Letter from Israeli official Baruch Naggar prior to JWC meeting	"Substitute wells for JWU 1+2: - It seems the Israeli Army will not approve the proposed locations - Mr Yossi Guttman will submit alternatives for new locations - If the Palestinian side will find a new alternative locations, these locations will be sent by fax"
19 Dec 2004	JWC – JTC meeting	"Substitute wells for JWU 1+2:  The wells were approved (by the JWC) but not implemented, since the location was not approved by the IDF. Relocation of JWU 2 is to be discussed between Dr. Guttman and the Palestinian side.  The new location for JWU 1 is approved."
6 July 2004	JWC Sub-committee on Drillings	"JWU 1 and 2: Subcommittee recommends these wells for approval. The Israeli side shall see to the issuance of a permit from the Civil Administration (Israeli army)."  In the event no permits could be obtained from the Israeli army and no progress was made for several years while the army planned the route of the fence/wall around Jerusalem
3 Mar. 2008	Letter from Head of PWA to Baruch Naggar	" - JWC approved JWU 1 at coordinates: 172.4/106.19. - Israeli army has stopped the site preparation works at the approved location - When we contacted the Civil Administration to get its approval for Area C, we were informed that the site is rejected and we were advised to shift the well location. Attached are 4 proposed new locations for JWU1"  Also attached are the map and coordinates of sites previously approved by the JWC but rejected by the Israeli army.
5.Mar. 2008	Civil Administration (Israeli army) Decision	" - The proposed well lies inside the planned wall/fence - Therefore I cannot approve the point - Please look for new locations  - I am aware that your first request – approved by JWC – was located on the slope of Road No. 437, near the quarry."

In the northern suburbs of Jerusalem, the village of Hizmah lost much of its land and with it access to its springs and other water resources. Much of the village's land has been appropriated by Israel for the establishment of unlawful settlements during the last four decades. Palestinian residents of Hizmah and other areas in the Ramallah district, depend on the water that Mekorot extracts from the Mountain Aquifer and then sells to Palestinians through the JWU, the Palestinian water utility responsible for supplying water to more than 200,000 Palestinians in the Ramallah district. However, the supply is insufficient to meet their needs and water shortages in the area are common.

In an effort to improve this situation, for the past decade the PWA has been seeking approval from the Israeli authorities for the JWU to drill two wells (referred to as JWU 1 and 2) in the Hizmah area. The request was initially approved by the JWC in April 2001 but the location has still not been approved by the army. The prolonged delay has had a negative impact on the Palestinian population, which has experienced worsening water shortages, and in 2002, the German donors withdrew their commitment to fund the project, seemingly due to the prolonged delay. The official record of JWC meetings and correspondence between the Israeli and Palestinian water authorities, summarized in the table on the previous page, illustrates the obstacles and prolonged delays that occur when seeking to obtain permits from the Israeli army, even after a Palestinian request has been approved by the JWC.

#### THE RUJIB WELL

A new well in Rujib, on the south-east edge of Nablus, which has been under construction since 2003, illustrates some of the difficulties that so often characterize the implementation of water infrastructure projects in the OPT.

The well is intended to increase the water supply to Nablus and to provide water to a group of 10 nearby villages (known as the 'Aqraba cluster, from the name of the largest village), whose 50,000 inhabitants have no running water and are waiting eagerly for the well to become functional and for their villages to be connected to it.

Plans for the well go back several years. After Nablus municipality secured the required permit from the Israeli army and the necessary funds from international donors, the project began in 2003, funded by USAID.<sup>81</sup> A borehole was drilled but before the pump and other equipment could be installed, the project was frozen after Hamas' victory in the local municipal elections rendered the municipality ineligible for USAID funding. The following year, Hamas also won the legislative elections and formed a Hamas-led government in the PA; this further reduced the possibility of securing new, alternative funding to continue and complete the project, until the ICRC provided funding support for the project to resume.

In February 2008, however, as the well was in its final stages of construction, the Israeli army ordered the work to stop and demanded that the site of the well be moved 25 metres to the east, away from the road which ran alongside the site. The army's demand presented new problems and was not easy to comply with: a move of 25 metres would place the entrance of

the site at the edge of the borehole; the municipality would need to acquire a new parcel of land in order to accommodate the move; and the location of the well's equipment would have to be reconfigured – all changes that would entail additional costs and delay. The Israeli army provided no explanation for its new requirement to either the municipality or the PWA. Eventually, a compromise solution was negotiated, whereby the site would be moved eastwards by some 15 metres instead of 25.

#### SALFIT SEWAGE TREATMENT PLANT – NEVER ENDING DELAYS

Construction of the Salfit sewage treatment plant has been pending for more than a decade. It was initially approved in early 1997 by the JWC and by the Israeli army but the army subsequently objected to the location and ordered the construction work to stop in 1998. The Israeli army informed the German donors who financed the project that the location was not suitable because of the intended expansion of the nearby Israeli settlement of Ariel and demanded that the whole project be moved to a different, less suitable location, and that it include a connection for the Israeli settlement. The Israeli authorities refused, however, to provide any written information to the donors or to the PWA about the projected expansion of the Ariel settlement.

In 2001 the Israeli authorities paid 1 million NIS (approximately US\$350,000) to the German donors as compensation for the additional costs that they had incurred as a result of the Israeli decision to stop the project, though the donor estimated that the additional cost incurred was significantly higher – some 2.3 million German marks (approximately US\$1.25 million).<sup>82</sup>

The implementation of this and most other major projects was suspended in the following years largely due to the stringent restrictions imposed by the Israeli army on the movement of people and goods within the West Bank.

Negotiations to resume implementation of the project restarted in earnest between the Israeli authorities and the German donors in 2004.

At a meeting on 7 February 2005 a German diplomat requested that the Israeli Water Commission and Israeli army provide " ... *written confirmation that neither the security fence nor the Ariel settlement or any extension thereof would put any obstacles to project implementation. To this end, the letter written by the Israeli side regarding this issue should bear a signature*". In response, an Israeli Water Commission official stated: " ... *signed guarantees could however not be given with regard to this issue.*"<sup>83</sup>

Months later, in a letter dated 7 June 2005, the Head of Infrastructure Branch of the Coordinator of Government Activities in the Territories (COGAT) in the Israeli Ministry of Defense informed the head of the PWA that he had met a representative of the German donors " *to see how we can promote the Salfit treatment plant projec,*" , adding " ... *COGAT recognizes the importance of this project and will do its best in order for the project to succeed.*"

However, at this point the Israeli authorities had still not established the infrastructure needed to deal with sewage from the Ariel settlement and its industrial zone, and other nearby settlements. For their part, the German donors wished to wait until there was tangible evidence that the Israeli authorities were taking the steps necessary to resolve the issue of disposal of Ariel settlement waste before resuming development of the Salfit sewage treatment facility.

In November 2007 the Israeli army proposed that a pipeline be built to convey the waste from Ariel and its industrial zone and other Israeli settlements to Shafdan in Israel for treatment. Insisting that the construction of a local Palestinian sewage treatment plant would "create additional environmental hazards and damage the landscape", the army proposed that the sewage from Salfit should also be taken in the same new pipeline to Israel.<sup>84</sup>

The PWA, however, has rejected this, as use of the pipeline proposed by the Israeli army would result in the PWA having to pay the Israeli authorities for the treatment of Salfit's waste water and, once treated, that water would then be used in Israel. The Israeli authorities have already imposed similar arrangements for treatment of the sewage from other Palestinian towns - Tulkarem, Qalqilya and Hebron - for which Israel charges the PA by automatically deducting payment from the tax revenues (on imports which are destined to the OPT and which must pass through Israel) which Israel collects on behalf of the PA.<sup>85</sup>

Despite the many obstacles placed in the way of the Salfit sewage treatment project, the Israeli army refuses to accept any responsibility for the years of delay – as indicated by a letter sent by the Head of the Foreign Relations Branch of the Civil Administration (Israeli army) to the Head of the PWA on 20 April 2008. He wrote: "The Salfit WWTP is planned in area B, which is under the PA authority. It is not clear to the Civil Administration why the PWA has not commenced building this plant."

According to the German donors:<sup>86</sup> "Financing of the wastewater treatment plant (WWTP) has been postponed for the following reasons:

- 1) Currently the wastewater from Israeli settlement Ariel (approx. 20.000 inhabitants) is being discharged into the same wadi as the one from Salfit without major treatment, thus rendering a solution only for Salfit would be ecologically ineffective. There are indications by the Civil Administration to collect the wastewater from Ariel, transport it to Israel and treat it there. This plan, however, is still lacking clear confirmation.
- 2) The present proposal for the WWTP (activated sludge technology) contains considerable socio-economic and operational risks with negative effects on financial sustainability."

Work on the Salfit project has yet to resume. The German donor supporting the project is reluctant to go ahead while sewage from the Israeli settlement continues to be discharged and to pollute the area. Salfit Municipality and the PWA hope that the project will resume once the Israeli side has completed its project to pipe the sewage from the Ariel settlement for treatment in Israel.

Military permits are not only required for large-scale water projects. In Area C, comprising 60 per cent of the West Bank's area, Palestinian families must obtain a permit from the Israeli army even to build a small water cistern in the garden of their home.



**Shukba**, a village in the district of Salfit, is served by the piped water network, but water shortages are common; even when there is water, it does not reach houses on the edge of the village and those on higher ground. One of the families particularly affected is the Qdah family. They built a water cistern in their garden with the help of a Spanish NGO in order to store water that they do receive from the network, together with the rainwater they collect, and any additional water that they buy from water tankers. However, on 26 February 2008 the Israeli army issued a demolition order for the family's cistern, on the grounds that it was built without a permit. The order has not yet been carried out but remains pending.

Bassam Qdah, a teacher and father of seven young children, told Amnesty International in May 2008:

*"Because our house is on a hill at the edge of the village a lot of the time we don't get any water; there isn't enough pressure to reach here. That is why I decided to build a water reservoir, so whenever we get water we can fill it and then we have water to use when the taps are dry. What else are we supposed to do? We have seven young children and even if we use it sparingly, we still need quite a bit of water. Why would they want to demolish this small cistern? It does not bother anyone and is on my land."*



The house of Bassam Qdah in Shukba in the OPT, and the family's water cistern, which is threatened with demolition © AI

# RESTRICTING ACCESS TO WATER AS A MEANS OF EXPULSION

“They try to force us out of the area by all means, taking our land is one way and limiting our access to water is another way.”

Hafez Hereni, a community activist from Tuwani, in the Southern Hebron Hills, West Bank

As well as limiting the amount of water which Palestinians can extract or buy, the Israeli authorities also restrict Palestinians' access to water by denying or restricting their access to large parts of the West Bank. Many parts of the West Bank have been declared "closed military areas", which Palestinians may not enter, because they are close to Israeli settlements, close to roads used by Israeli settlers, used for military training or protected nature reserves. Such areas are located particularly along the western and eastern flanks of the West Bank. Yet, the western flank of the West Bank, along the Green Line, provides the best potential for water extraction in the whole of the OPT and is therefore particularly valuable to the Palestinians. Land appropriation in this area has benefited Israel on two levels: it has prevented Palestinian access to the Mountain Aquifer where there is good water drilling potential and it has allowed the establishment of many Israeli settlements in areas contiguous or close to Israel. On the eastern flank of the West Bank, meanwhile, Israel has declared all the land along the Jordan River, which Palestinians previously farmed, as a "closed military area", preventing Palestinians' access to the Jordan River's waters and to the best farming land in the area, both now being exploited by Israeli settlers. Israeli water extraction inside the West Bank is highest in the Israeli settlements in the Jordan Valley, where Israeli settlers have large farms cultivating agricultural produce for export to Europe.<sup>87</sup>

Israel has expropriated large areas of land in the OPT by using an old Ottoman Land Law which defined the *miri* class of ownership, under which most Palestinian agricultural land is held, by virtue of use. According to this law, *miri* land that had not been cultivated for three years could be auctioned off to villagers willing to cultivate it who would then be entitled to ownership of the land if they cultivated it continuously for 10 years. Using this law, Israel has expropriated large areas of land which Palestinians are prevented from accessing and/or cannot cultivate because of lack of water, but which Israeli settlers can access and cultivate because they have access to ample water supplies. Such practices continue.<sup>88</sup>

## DESTRUCTION OF WATER CISTERNS – VULNERABLE COMMUNITIES TARGETED

The Israeli army's destruction of Palestinian water facilities – rainwater harvesting and storage cisterns, agricultural pools and spring canals - on the grounds that they were constructed without permits from the army is often accompanied by other measures that aim

to restrict or eliminate the presence of Palestinians from specific areas of the West Bank. These are areas where Israel has a particular interest in appropriating land, usually for the expansion of Israeli settlements and related infrastructure or with a view to its possible future annexation to Israel.

Rainwater harvesting cisterns have been used in the region for centuries. Household cisterns are mostly small, with an average capacity of 50m<sup>3</sup>. Agricultural cisterns, with a slightly larger capacity, are built in the ancient Nabataean tradition - located at the lowest point of a specially contoured area that is created with slopes and berms to increase rain run-off and collect the rainwater. The cisterns are circular or square, dug into the ground and lined with stones or concrete to prevent leakages, with an opening at the top that is kept covered to prevent evaporation and contamination. The water collected during the rainy season is stored for use in the dry season.

A Nabataean cistern belonging to Hathaleen shepherds in the Southern Hebron Hills © AI

Some 200 rural communities throughout the West Bank are not served by water networks and depend on rainwater and water purchased and brought in by tanker from other areas to meet their needs. For such communities, rainwater has traditionally been a very important source of drinking water and for other domestic uses and for their animals and crops. Water consumption in



these communities is generally much lower than average, often as little as 20 litres per person per day, so that when there is good annual rainfall the water they collect and store in their underground rain harvesting cisterns can meet families' water consumption needs for up to several months. When the stored rainwater runs out, villagers buy additional water from water tankers and store that in their cisterns.

Tanker-delivered water has become increasingly expensive in recent years, particularly in rural areas, because of the long detours that water tankers must make, often along unpaved roads, because Palestinians are barred from or have only restricted access to main roads, and due to the presence of Israeli army checkpoints. As a result, journeys can take up to 10 times longer than would be required if the most direct route could be taken, adding significantly to fuel costs and vehicle maintenance costs due to the tankers having to travel on bad roads.

Tanker-delivered water is on average five times more expensive than piped water, and even more in some cases. As Palestinian unemployment and poverty have increased due to the Israeli closure regime, so Palestinian families have been forced to spend a larger proportion of their income on obtaining water for their basic domestic needs and many families now have to spend as much as a quarter or even a third of their income on water. Many families wish to grow food for themselves or to augment their income, but they are unable to do so because they cannot afford to buy enough water to cultivate crops. Others have been forced to sell their livestock, their main source of livelihood, because they could not afford to buy water and fodder for them. The prolonged drought experienced in recent years has further exacerbated the problem, especially for herder communities who are unable to collect sufficient water during the rainy season while the yield of fodder crops and grazing plants has declined. Increased restrictions imposed by the Israeli army on areas where villagers are permitted to graze their flocks has further compounded their problems.

At the same time as rainwater harvesting has become increasingly critical for many Palestinians, the Israeli army has stepped up its efforts to demolish their rainwater harvesting cisterns and prevent villagers from building new ones or rehabilitating old ones.

*"The human right to water is indispensable for leading a life in human dignity." [UN Committee on Economic, Social and Cultural Rights, General Comment No. 15, para 1]*

The Committee on Economic, Social and Cultural Rights notes the importance of ensuring sustainable access to water resources for agriculture to realize the right to adequate food. Attention should be given to ensuring that disadvantaged and marginalized farmers, including women farmers, have equitable access to water and water management systems, including sustainable rain harvesting and irrigation technology. Taking note of the duty in article 1, paragraph 2, of the Covenant, which provides that a people may not "*be deprived of its means of subsistence*", States parties should ensure that there is adequate access to water for subsistence farming and for securing the livelihoods of indigenous peoples.

## THE SOUTHERN HEBRON HILLS

In the Southern Hebron Hills Palestinian villagers largely depend on herding sheep and goats for their livelihood and they are particularly vulnerable, therefore, to the consequences of the drought that has prevailed for several consecutive years. During the 2007-2008 winter rainfall in the area was a mere 13 per cent of the yearly average, resulting in growing water scarcity and increasing the cost of fodder. In January 2008 the UN reported that many Palestinian villages were selling their animals and had almost exhausted their resources, and warned that those who could not sustain their livelihood via herding were likely to become dependent on international aid.<sup>89</sup>

In the small village of **Tuwani**, on the afternoon of 20 July 2009, a group of Israeli soldiers delivered "stop the work" orders for nine Palestinian structures – a water cistern, a cave and seven new homes.<sup>90</sup> A year before, on 26 June 2008 the Israeli army had delivered a "stop the work" order for a large water cistern which the villagers had begun building earlier in the year with the help of a Spanish NGO. Tuwani, like all the villages in the Southern Hebron Hills, is not connected to the piped water network and the villagers rely on cisterns to harvest rainwater and store the water they purchase from tankers. In recent years Tuwani and nearby

villages have been facing a dire water shortage due to three factors: the prolonged draught; increasingly stringent restrictions imposed by the Israeli army on the movement of Palestinians in the area, requiring long detours by water tankers and increasing costs; and frequent attacks by Israeli settlers on the villagers and their property, damaging and restricting access to water cisterns around the village.

Tuwani is home to some 150-200 people. The oldest houses in the centre of the village date from two or more centuries ago and some of the cave dwellings that the villagers still use are believed to date back to Roman times. In recent years, several newly built homes, simple and small structures, have been destroyed by the Israeli army. A small clinic, built by the villagers with the help of Israeli and international volunteers, also has a demolition order pending. The village has a small primary school, to which children from neighbouring villages walk several km daily to attend.

A spring-fed well provides water to the villagers for drinking and cooking, but they depend on rainwater harvesting and water delivered by tankers for their washing and other domestic needs, and for their animals. The village has no electricity other than that provided by a diesel-powered generator that is run for a few hours each night.

The village is surrounded by several Israeli settlements: Ma'on (established in 1982) to the northeast, and the more recent Havat Ma'on and Avigail "outposts" to the east and south-west respectively.

Aisha Hereni, a mother of five young children who lives in Tuwani, told Amnesty International: *" I have five children; we need water for drinking, for cooking, for our personal hygiene, to wash the clothes, to clean the house, and for the goats. We save every drop but it's never enough. It is a daily struggle. And in addition, with the little water we have, we are constantly worried about Israeli settlers soiling the cisterns; it has happened many times. They have thrown soiled diapers, dead chickens and all sorts of garbage into our water cisterns. Also, many times we cannot get water from our cisterns because when we go to them to get water the settlers or the soldiers come and make problems for us."*<sup>91</sup>

Her husband, Hafez Hereni, a community activist, said: *" This area is dry, but we used to have more water, enough for our needs; but the more the Israeli settlements have expanded the more difficult it has become for us to get water. And in recent years, with all the main roads closed to us, getting water has become a huge problem. From Yatta, the water tankers have to come over a very bad road, so the bigger tanker of 10m<sup>3</sup> cannot make it along those roads and instead we have to use a smaller, 3m<sup>3</sup> tanker attached to a tractor. The trip takes a long time and with the small tankers more trips are needed and the water works out even more expensive. We spend a lot of money on water and never have enough. They are trying to force us out of the area by all means, taking our land is one way and limiting our access to water is another way."*

A water conduit from the Israeli water utility, that serves the nearby Israeli settlement of Ma'on passes through the outskirts of Tuwani village. For years the villagers have been asking the Israeli army for permission to connect the village to the Israeli water line but the requests were rejected. The Israeli settlements in the area, although unlawful under international law, face no similar difficulties. The Ma'on settlement, established on land

previously used by Tuwani's villagers, today boasts a large dairy and chicken farm and well-irrigated orchards, all sustained by ample quantities of water. The Sussia settlement also has a swimming pool, as well as large irrigated farms.<sup>92</sup>

The water cistern that the Tuwani villagers were building until the Israeli army ordered its construction to stop could have significantly eased the water problem in the village. As well as collecting rainwater, it would have provided a larger, more accessible storage facility for water brought in and purchased from tankers, reducing delivery costs. The Israeli army is reported to have agreed in June 2009 to allow a filling point from the Mekorot water main, which passes by the village, to be installed, though this has yet to be done. In the meantime the residents of Tuwani and other nearby villages continue to face severe water shortages.<sup>93</sup>

Their plight is worsened by Israeli settlers from the nearby Ma'on settlement and Havat Ma'on "outpost" who have not only appropriated some of Tuwani's land and water cisterns but frequently harass or attack the villagers when they approach the remaining cisterns and have also deliberately contaminated the water stored in some of these cisterns by dumping dead chickens, soiled diapers and other pollutants into them.

In another Palestinian village nearby, **Daraj al-Hathaleen**, the Israeli army delivered demolition orders for nine water cisterns on 3 January 2008. These cisterns had been built in 2006 as part of a project funded by the Union of Agricultural Work Committees (UAWC) and the Palestinian Agricultural Relief Committees (PARC). There is no piped water network in the village but an old water pipe that formerly served an Israeli military base then located in the area passes nearby and villagers are able to take some water from it for their domestic needs. However, it is insufficient and the villages built rainwater harvesting cisterns around the village to supplement their supply and provide drinking water for themselves and to take to their flocks when they are grazing. A lawyer working for a local NGO has lodged an appeal against the demolition orders with the Israeli army's planning committee at Beit El on behalf of the villagers; the case is still pending.

Israel's destruction of Palestinians water cisterns in the West Bank violates Article 53 of the Fourth Geneva Convention which prohibits the destruction of private or public property, *except where such destruction is rendered absolutely necessary by military operations*. And it is a clear violation of the right to water, a component of the right to an adequate standard of living, protected by Article 11 (1) of the International Covenant on Economic, Social and Cultural Rights (ICESCR). (See international law section).

## CONFISCATION OF WATER TANKERS IN THE JORDAN VALLEY

In recent years, during the summer months, the Israeli army has also stepped up pressure on Palestinian herder communities to force them out of the Jordan Valley by confiscating their water tankers and depriving the villagers and their flocks of water at the height of the hot season.

In the hamlet of Ras al-Ahmar, on 4 June 2009 Israeli soldiers destroyed the homes of 18 families and their animal pens and confiscated a water tanker, a tractor and a trailer, which the villagers used to fetch water. More than 130 people, many of them children, were rendered homeless and left without either shelter or water at the hottest times of the year.

In **Hadidiya and Humsa**, neighbouring hamlets, the Israeli army has been using similar methods to press their inhabitants to vacate the area. For three summers running, Israeli soldiers have confiscated water tankers and restricted villagers' access to water by restricting their movements in the area.

On 28 July 2007 the soldiers confiscated two water tankers and one of only two tractors in the village from Ahmad Abdallah Bani Odeh, a resident of Humsa. The soldiers stopped him at the Hamra military checkpoint as he was going to the 'Ain Shibli spring to fill a water tanker for his family and animals. They told him that he would have to pay a fine of 4,500 NIS (more than US\$1,000) - an unaffordable sum for villagers who are struggling to make a living from herding - and would have to sign a pledge to leave and not return to the area in order to get his tractor and water tanker back. When Amnesty International called the Israeli army's District Coordination Office (DCO) in Jericho about the incident, an officer confirmed that the tractor and water tanker would be returned only upon payment of the fine and a signed pledge to leave the area. He said that as the villagers had not been authorized by the army to live in the area, any activity that they undertook to enable them to remain, such as collecting water, was not permitted. The Israeli army considers that the villagers reside in a "closed military area" designated for army use as a shooting range.<sup>94</sup>



Muhammad Bani Odeh of Hadidiya stands with his sheep in front of a water tanker © AI

A few weeks later, the army confiscated a second water tanker from Ahmad Abdallah Bani Odeh's family and eventually the villagers were forced to move back to nearby Hadidiya, from where they had also previously been forced to leave. They later recovered the tractor and water tankers upon payment of a reduced fine.

The Israeli army adopted the same practice the following summer, confiscating two water tankers from villagers in Hadidiya and two water tankers and a tractor from villagers in nearby Hamra in September 2008. Again the villagers were forced to pay hefty fines to recover the vehicles on which they depend to obtain access to water.

Palestinians who live in Hadidiya, Humsa and other local communities must travel several km

to buy water,<sup>95</sup> although there is at least one large well close by which the Israeli army does not permit them to use, even for payment, as it was drilled for the exclusive use of Israeli settlers in the nearby settlements of Ro'i, Beka'ot and Hamdat. Like other Israeli settlements in the area, these all have large irrigated farms. Indeed, according to the website of the Israeli settlements in the Jordan Valley, their agricultural production is worth 500 million NIS per year (about US\$130 million) with most of their agricultural produce being exported.<sup>96</sup> The vast green expanses of the Israeli settlement farms contrast tellingly with the parched and impoverished Palestinian villages situated close by them.

In'am Bisharat, a mother of seven children who lives in Hadidiya, told Amnesty International: *" We live in the harshest conditions, without water, electricity or any services. The lack of water is the biggest problem. The men spend most of the day going to get water and they can't always bring it. But we have no choice. We need a little bit of water to survive and to keep the sheep alive. Without water there is no life. The [Israeli] army has cut us off from everywhere. The roads are closed. The road to Tammun, where the children go to school, is only opened three days a week (Sunday, Tuesday and Thursday) and only for half an hour in the morning and half an hour in the afternoon (8 to 8.30am, and 3 to 3.30pm). So the children have to stay in Tammun with our relatives during the week. We don't choose to live like this; we would also like to have beautiful homes and gardens and farms, but these privileges are only for the Israeli settlers and we are not even allowed basic services."*



Children in Humsa © AI

The villagers survive on no more than 20 litres of water per person per day – a miniscule amount compared to the minimum 100 litres recommended by the WHO. They are unable to cultivate the land, or even to grow small amounts of food for their personal consumption or for animal fodder, and they have been forced to reduce the size of their flocks.

Palestinian residents of the Jordan Valley have traditionally been farmers and herders, living off their crops and the dairy products from their sheep and goats. Today, however, they face an increasing challenge to survive due to the restrictions that the Israeli army has imposed on their movement, the demolition of their homes and water cisterns, the confiscation of their property and other measures to deny them access to water and pressure them to leave.<sup>97</sup>



## DESTRUCTION OF AGRICULTURAL WATER FACILITIES

On 15 January 2008, Israeli soldiers demolished nine rainwater harvesting cisterns south-west of **Beit Ula**, a village north-west of Hebron. Each cistern belonged to one family. They had been built in June 2006 as part of an agricultural project to improve food security that was funded by the European Union (EU) through two local NGOs, PARC and the Palestinian Hydrology Group (PHG). PARC had built eight of the cisterns and PHG one. The land had been levelled in the traditional terrace style and more than 3,000 trees, mostly olive, almond, lemon and fig, had been planted at considerable cost. The cisterns were a vital part of the project, with each cistern intended to provide water for a plot of 10 – 12 dunums (1 – 1.2 hectares). The farmers had also contributed a significant percentage of the overall cost of the project.

An Amnesty International delegate who visited the area on 15 March 2008 found that everything had been destroyed – apart, that is, from a plaque on which it was written: “European Union - Palestinian Agricultural Relief Committees - Project 2005/106-391.” The cisterns had been systematically smashed and with the exception of a few saplings the orchard trees had been uprooted and destroyed. Bulldozers had been used to churn up the land, the fencing around the fields had been torn down and even old olive trees, planted many years before, had been uprooted and crushed. It was a scene of devastation.



Destroyed cisterns and orchards in Beit Ula © AI

One of the farmers, Mahmoud al-'Adam, told Amnesty International: “*We invested a lot of money and worked very hard on this project. This is good land and it was a very good project. We put in a lot of thought to shape the terraces and build the cisterns in the best way, to make the best use of the land, and we planted trees which only need little water, because this is a dry area. The cisterns had a capacity of about 80-100m<sup>3</sup> each; even if there was not enough rain this year to fill them, the water harvested was useful for the saplings; they were growing well. You can see how well the saplings were doing. But they destroyed everything; they went up and down several times with the bulldozer and uprooted everything; there is hardly a sapling still standing. My cousin received a call at 6.30 in the morning from another farmer saying the army was bulldozing the land. We rushed here but the soldiers did not allow us to get close. There were some 25 army jeeps and three bulldozers, two big ones. There were many soldiers and some foreign workers in plain clothes, from Asia. We asked the soldiers to show us demolition orders but they didn't. We tried to reason with them but they didn't listen. It is very painful for me every time to come here and see the destruction; everything we worked for is gone. Why would anyone want to do this? What good can come*

*from such destruction? These orchards are far from where the army is building the wall; this is what is left of our land; Israel already confiscated much of it a long time ago, and more recently they took yet more land to build the wall; why also come here and destroy this?"*

Commenting on the destruction, an Israeli army spokesman was reported to have said: "*It's a routine action. It's nothing special. We do these activities every day in Judea and Samaria [the West Bank]... We are very strict about these things. If you let one person do it unauthorized all the others will come after him.*"<sup>98</sup>

One of the farmers told Amnesty International that the year before he had found a military order on the land instructing him to stop working it and to return it to its previous status. He said: "*We know that our land is in Area C and we cannot build houses because the army does not give permits, but all we did was to improve the land for cultivation and plant trees and dig some cisterns to collect a bit of rainwater for the trees. This is absolutely normal for land which is zoned as agricultural land. It is our land, why should we not be allowed to take care of it and cultivate it?"*

Cases such as these are far from uncommon and are not confined to one particular area of the West Bank. In most villages they visited in recent years Amnesty International delegates found that rainwater harvesting cisterns had either been recently destroyed by the Israeli army or had demolition orders pending against them. In the first week of July 2009 the army delivered 10 orders to villagers in al-Khader, near Bethlehem, for the demolition of five houses and four rainwater harvesting cisterns. Other cisterns in the village also have demolition orders pending against them. Although the demolition orders have yet to be enforced, the villagers live under constant threat that their homes and water storage facilities will be destroyed at any time.

In the Khirbet al-Tawil area of 'Aqraba village, home to 9,000 Palestinians, the Israeli army issued demolition orders for three rainwater harvesting cisterns, as well as 11 agricultural shacks and an electricity pylon, in January 2008 and another demolition order for another cistern in February 2009. The head of the village council, Jawda Bani Jaber, told Amnesty International: "*In the area where these water cisterns are [Area C, but very close to Area B] there is no other source of water; collecting a bit of rainwater is the only way for cultivating the land; even for non-irrigated crops, the farmers still need a bit of water, for some plants and some goats; even to drink and to wash when they work the land. Why should this be forbidden? Should we just leave the land to go to waste? Even in the village, we have no water and have to buy water from tankers; it costs 200 NIS for a 10m<sup>3</sup> tanker. It is the same for the other villages around here. We are keenly awaiting the Rujib well to be completed, as then we will have water. But until then we continue to face a difficult situation and for the past few years with the drought it has been even more difficult."*

As with many other villages in the West Bank, the Israeli army blocked the entrance to 'Aqraba from the main road. Access to the village requires a detour of several km, adding time and cost to their journey, including for trucks supplying water and other services.



While in 'Aqraba and other nearby villages Palestinians have no running water and are prevented even from collecting small amounts of rainwater, the nearby Israeli settlements of Eli and Shilo have swimming pools. Itamar settlement has a fish farm on top of a hill.<sup>99</sup>

Above: Israeli settlers in Maaleh Adumim enjoy a swim. © Angela Godfrey-Goldstein  
Right: An empty Palestinian agricultural reservoir near Jiftlik in the West Bank. © AI



## UNLAWFUL ISRAELI SETTLEMENTS CONNECTED TO THE WATER NETWORK

The Israeli army's deliberate targeting of water facilities, through demolitions and in other ways, is common in Palestinian villages but is absolutely unheard of in the Israeli settlements in the OPT. Even so-called unauthorized settlement "outposts" that the Israeli authorities maintain were established without official permission and which they have repeatedly promised to dismantle receive water directly from the Israeli utility company Mekorot or from officially authorized Israeli settlements nearby which are connected to the Israeli water network in the West Bank.

Former state attorney Talya Sasson documented such abuses in a report prepared in 2005 for the then Prime Minister Ariel Sharon:<sup>100</sup> *"Connections to the Mekorot water network ...are subject to a permit from the Water KMT ...of the Civil Administration. I found that some of the unauthorized outposts were connected to these networks."* Sasson went on to note that the Israeli army was *"responsible for permitting connections of buildings to water"* and that the Ministry of Construction and Housing had *"assisted regional councils in Judea, Samaria [the West Bank] and Gaza, by financing foundations and infrastructure (such as... connecting water...), and establishing public buildings in unauthorized outposts."*

A resident of Migron, an unauthorized settlement "outpost" established in 2003, boasted: *"We are connected to the water grid, we have phone lines from the national company Bezeq, we have been hooked up by the electricity company and have street lighting.... How can we be 'illegal'?"* The Israeli authorities have repeatedly and publicly undertaken to dismantle the Migron "outpost", including under the US-sponsored Road Map peace plan and to the Israeli Supreme Court,<sup>101</sup> but, to date, they have taken no steps to remove this or many other settler "outposts".

## THE FENCE/WALL - BARRING ACCESS TO WATER

*"We are here and our water is there. Many farmers don't have permits to go to cultivate their land where the water is, and on this side of the wall we suffer from lack of water."*

Abdellatif Khaled, a hydrologist from Jayyus, describing the impact of the fence/wall to Amnesty International

A 700 kilometre fence/wall which has been under construction by Israel since 2002 has further reduced Palestinian access to water in the West Bank. Although described by the Israeli authorities as "a defensive measure, designed to block the passage of terrorists, weapons and explosives into the State of Israel..."<sup>102</sup> more than 80 per cent of the fence/wall is located on occupied Palestinian land inside the West Bank, rather than along the Green Line between Israel and the West Bank.<sup>103</sup> The route of the fence/wall has been planned in such a way that it prevents access by Palestinian to areas of the West Bank which include some of the best access to water, notably the Western Aquifer.

The fence/wall has yet to be completed but it has already had a devastating impact on the Palestinian communities living in its vicinity. To make way for the fence/wall the Israeli army has uprooted tens of thousands of olive and other trees, destroyed large areas of fertile

cultivated land, and demolished dozens of homes. Tens of thousands of Palestinians have been cut off from their land, farms and water resources, and have thus lost their means of livelihood.

The Israeli army has designated the lands to the west of the fence/wall as “closed military areas” which Palestinians can only access if they have a permit from the army. Even then, passage is restricted to the gates’ opening hours and is sometimes refused.<sup>104</sup> In recent years the army has progressively curtailed access by Palestinians to areas to the west of the fence/wall.<sup>105</sup>

## WATER-RICH LAND INACCESSIBLE

Much of the land which has been cut off from the rest of the West Bank by the fence/wall is among the most fertile and valuable in the West Bank, not least because it has good access to the best fresh water resource, the Western Aquifer.

The Western Aquifer and its recharge area is located mostly in the West Bank but its best extraction potential is in Israel except for the strip of land within the West Bank to the east of the Green Line, which Israel has effectively appropriated firstly by building illegal settlements and now by building the fence/wall.

Israel does not need this land in order to extract water from the Western Aquifer, as it can and does so very successfully within Israel. By appropriating this land, however, Israel denies the Palestinians access to that part of the West Bank that has the best potential for drawing water from the Western Aquifer. For the Palestinians the loss of this potential for future development of their water resources is as important as their loss of access to the land and wells today.

*“[It is] of vital importance not only to secure all water resources already feeding the country, but also to control them at their source.”*

Chaim Weizmann, President of the World Zionist Organization and the first President of Israel, at the 1919 Paris Peace Conference.

*“Israel must hold on to the West Bank to make sure that Tel-Aviv’s taps don’t run dry.”*

Rafael Eitan, Chief of Staff (1978 to 1993) and subsequently Minister of Agriculture and Environment (cited in Lonergan and Brooks, 2004).

In December 1990 Agriculture Minister Rafael Eitan published advertisements in newspapers warning Israelis that the country would lose nearly 60 per cent of its water if Israel gave up the occupied West Bank.<sup>106</sup>

*“And when I talk about the importance to Israel’s security, this is not an abstract concept. . . It means that a housewife in Tel Aviv can open the tap and there’s water running to it, and it’s not been dried up because of a rash decision that handed over control of our aquifers to the wrong hands.”<sup>107</sup>*

Prime Minister Benjamin Netanyahu, 17 May 1998.

The International Court of Justice (ICJ) has declared the construction of the fence/wall inside the West Bank unlawful and has also recognized the impact of the fence/wall on Palestinian water resources. In its advisory opinion of 9 July 2004, the ICJ called on Israel to cease construction of the fence/wall, dismantle the sections already built, return the land to its previous status and pay reparation for the destruction and damage caused.<sup>108</sup>

The Israeli authorities, however, have consistently disregarded the ICJ's advisory opinion and pressed ahead with the construction of the fence/wall, some 60 per cent of which has now been completed.<sup>109</sup>

The Israeli Supreme Court, for its part, has rejected scores of petitions lodged by Palestinian villagers seeking to stop or reverse the construction of the fence/wall on their land inside the West Bank. Only in four cases has the Supreme Court ordered the Israeli army to change the small sections of the route of the fence/wall, but then only to *lessen* - not to prevent - the damage caused to the Palestinian villagers. Even in these few exceptional cases, on which the Supreme Court ruled in 2004-2005, the army failed to comply until 2008, when it began preparatory work to amend a small section of the fence/wall route.

### JAYYUS

An examination of the map showing the line of the fence/wall around Jayyus indicates that its route was determined with land grabbing, rather than "security" considerations, in mind. The fence/wall makes a large loop around the Israeli settlement of Tzufim, itself built on Palestinian land, incorporating an area of Palestinian land ten times the size of the settlement, with a view to expanding the settlement in the future.<sup>110</sup>



Jayyus' land with the fence/wall snaking through the landscape © AI

Jayyus village, north of Qalqilya, is home to some 3,000 Palestinians whose livelihoods depend on farming but when the fence/wall was constructed in the area in 2003 it cut off the villagers from two thirds of their land, amounting to some 9,000 dunums (900 hectares), and all six of the wells that had provided most of the water for the villagers' domestic needs and to irrigate their crops.<sup>111</sup> The loss of access to the wells has had a drastic impact on the lives of the Jayyus villagers. Water consumption in the village dropped to a mere 23 litres per person per day,<sup>112</sup> far below the minimum level recommended by the WHO and less than a tenth of the average daily consumption of Israelis. In the summer, water has had to be rationed to two hours a day and often villagers have had no water supply at all for days at a time.

Abdellatif Khaled, a hydrologist with PHG and Jayyus resident, told Amnesty International: *"Before the wall, villagers could easily carry the water from the wells to the village whenever necessary, but since Israel built the wall this is no longer possible as the water tankers cannot pass since the wells are on the other side of the wall. Many farmers don't have permits to go to cultivate their land there, where the water is, and on this side of the wall we suffer for lack of water. I have land on the other side of the wall and I also need to cross the wall to carry out my work as a hydrologist, but I have been waiting for a permit for two months now. This is not exceptional. Refusals of permits are so frequent that we have got to the point that getting a permit is the exception. We are here and our water is there."*

The construction of the fence/wall and their loss of access to their wells caused the Jayyus villagers to turn to a well belonging to the nearby village of Azzun for their water, but this is located next to a rubbish dump which is thought to have contaminated its water a number of times. In 2008, however, the Jayyus villagers began to obtain some water also from another well at Azzun. This has helped alleviate, but not solve, their acute water shortage.

#### LOST LIVELIHOOD

Prior to the construction of the fence/wall Jayyus was known as the food basket of the region. Its land was among the most fertile in the West Bank due to the ready availability of water, and the village produced some 9 million kilograms of fruit and 7 million kilograms of vegetables annually.<sup>113</sup> Today, the level of production has fallen to a fraction of that and most families are now dependent on international humanitarian aid. When building the fence/wall around Jayyus, the Israeli army uprooted some 4,000 of the Palestinian villagers' trees and bulldozed some 500 dunums [50 hectares] of cultivated land.

Much of the cultivation at Jayyus requires irrigation, so farmers need regular access to their land to water their crops, but due to the fence/wall such access was removed except for those farmers fortunate enough to obtain permits from the Israeli army allowing them to pass through the fence/wall to reach their fields. Yet, even these farmers frequently have had to wait months to obtain such permits or have them renewed, during which time they cannot cultivate their land. Many have lost their harvest, the outcome of months of hard work, because they were not permitted to access their land or water their crops. The number of permits granted by the Israeli army to Jayyus Municipality decreased from 630 in October 2003 to approximately 100 in May 2009.<sup>114</sup>

According to the UN, by August 2004, one year after the completion of the fence/wall around Jayyus, local Palestinian agricultural production had fallen by more than a third due to the

obstacles put in the way of local farmers, and since then the situation has continued to worsen.

Sharif Omar, a Jayyus farmer who has a large area of land to the west of the fence/wall, has been battling with the permit system ever since the fence/wall was built. In 2007 he was unable to obtain a permit for six months. When his permit expired on 23 June 2007 he sought for months to renew it, but in vain. He had no permit and was unable to reach his fields throughout the hottest months, when his crops needed watering, but was eventually issued with a new permit on 30 January 2008, but only for three months. When it expired at the end of April, he had again to wait several weeks to have it renewed at a time when again, irrigation was crucial if he was to be able to cultivate successfully.

Abdelkarim Baaji, a shepherd told Amnesty International: *"Me and my brothers have 150 sheep. Before the wall we could keep the sheep on the land or take them there during the day to graze and drink and bring them back to the village for the night. Since the wall, it has become very difficult. We need access to the land on the other side of the wall for the sheep, especially for the water; even if we could find land to graze on this side of the wall, it would be impossible because the water is on the other side of the wall. So, now we keep the sheep on the land on the other side of the wall all the time. But we have been having great difficulties with the permits. We are five brothers and before we could share the work. Now only two of my brothers have permits and it is very difficult for them to manage and we cannot help because we have not permits to cross the wall."*

Operating the wells since the construction of the fence/wall has also become increasingly challenging with operators also facing permit problems and restrictions on the passage of fuel and spare parts to maintain the wells' pumps and generators. One well operator told Amnesty International that he had a permit but that the permit of his wife, who works with him and drives him, had expired, and that they had no way of knowing whether or when it would be renewed.

Another well operator told Amnesty International: *"To pump 70 to 75 m<sup>3</sup> per hour requires some US\$35 worth of diesel per hour. It would be more economical to use electricity. We have asked the Israeli authorities but they don't allow it. The engine for this well is very old, about 35 years. We have a new engine but no permit for the engineer to come to install it and the new turbine has been sitting in the port of Ashdod in Israel for months and we have no permit to bring it. With a new engine the well could produce 120 m<sup>3</sup> per hour, instead of the current 85-90 m<sup>3</sup>, and instead of 23 litres of fuel per hour it would only use some 15 litres. It would be much more efficient. Any repair is more expensive here because the engineers have to waste time getting the permit and can only come at the specific times when the gate is open and often the soldiers make them wait."*

The residents of Jayyus petitioned the Israeli Supreme Court in 2004, challenging the route of the fence/wall. The Court asked the army to present an alternative route that would not encompass an excessive amount of land around the Israeli settlement of Tzufim. The army took no action to comply for several years, until early 2009 when it moved a small section of the fence/wall. This brought little relief to the villagers, however, as half of the village land and all the village's wells remain on the far side of the fence/wall and most villagers are unable to obtain permits to access them.



## BEARING THE COST – SOLVING THE PROBLEMS CREATED BY THE FENCE/WALL

On 6 June 2004 the PWA submitted an application to the JWC for a permit to build pipelines under the fence/wall in order to bring water from the six wells on its far side to Jayyus and its surroundings.<sup>115</sup> The Israeli authorities on the JWC granted conditional approval on 11 September 2005, more than 15 months later, but the approval was conditional on “submitting the information requested by the sub-committee on projects”.<sup>116</sup> In the meantime, in 2006 the Israeli Supreme Court asked the Israeli army to move a section of the fence/wall, which the army only did in early 2009. During the intervening three years the planned project was set aside due to the uncertainty about the possible location of the new route of the fence/wall.

After the army eventually moved a section of the fence/wall in early 2009, the PWA applied to the Israeli army in May for a permit to lay the pipeline beneath it to connect the wells to Jayyus. As this was happening, a new problem arose when the army refused to issue a permit to allow the booster pump to be installed in its planned location because the Israeli authorities have earmarked that area for the expansion of the Tzufim settlement. The army’s demand that the booster pump be located elsewhere means that the PWA must identify a new site, convince its owner to sell the land and obtain funding from international donors to buy the new site, and also obtain a permit from the Israeli army to carry out the work. In practice, however, the PWA may be unable to obtain funding from international donors until it has obtained an Israeli army permit indicating that the work can proceed, yet such permit is unlikely to be granted until the new site for the booster pump has been located and the land purchased. Five years on since the original application from the PWA to the JVC, the project remains in limbo, snared in a veritable catch-22.

## RAS AL-TIRA, DAB’A, WADI AL-RASHA, RAMADIN SOUTH

These four small villages to the south of Jayyus were similarly cut off and trapped in the “Alfei Menashe enclave”, so-called because here the fence/wall loops around to encompass the Alfei Menashe settlement and a large swathe of land around it, including the settlement’s swimming pools.<sup>117</sup>

Prior to the construction of the fence/wall the inhabitants of these four villages relied for their domestic and agricultural needs partly on rainwater-harvesting cisterns located on their land and partly on water brought in by tanker from wells in nearby villages. The fence/wall cut them off from all of these sources. Five water cisterns and much of Dab’a’s land remained on the eastern side of the fence/wall, outside the enclave which encircles the village, and water tankers could no longer reach the villages because non-resident Palestinians and vehicles are not permitted to enter the enclave. In this case, the Israeli authorities allowed pipelines to be built to connect a well and reservoir in the nearby village of Ras ‘Atiya to two of the villages in the enclave, Ras al-Tira and Dab’a, apparently because they did not wish to grant permits allowing water tankers access to the two villages from the rest of the West Bank. Only the villages’ residents are permitted access to the enclave, and even they face stringent restrictions.

Here too, having created a major problem for the Palestinian villagers by building the fence/wall around the villages, the Israeli authorities have taken no steps to provide remedy

and left the Palestinians to bear the costs of constructing pipelines and other infrastructure to connect the villages to their wells. PHG, a Palestinian NGO, carried out the project at a cost of some US\$100,000 but then encountered another problem. The engine of the well in Ras 'Atiya needed upgrading to enable more efficient pumping to the two villages. Its diesel-powered turbine was replaced with one powered by electricity only to suffer recurrent breakdowns because the voltage of the electricity supply is too low. Now the villagers need to upgrade the electricity supply to the well. If and when they do obtain the funds, they will need a permit from the Israeli army to carry out the work. Again, the burden of finding solutions to the problems caused by the fence/wall is falling heavily on the Palestinians.

#### HEALTH AND ENVIRONMENTAL HAZARDS CAUSED BY THE FENCE/WALL

Qalqilya, a town of some 43,000 residents, is surrounded on three sides by the fence/wall, which has cut off access to 80 per cent of its agricultural land and 11 wells.<sup>118</sup>

In February 2005 heavy rain fell for several days and the eight-metre high concrete section of the fence/wall that almost encircles Qalqilya formed a dam, preventing the water from draining westward, its natural direction of flow. The drainage canals under the wall became blocked by the large volume of water and the debris it bore but the Israeli army failed to open the canal hatches. Severe flooding ensued causing widespread damage. The flood water rose to the first floor level of many houses and completely submerged greenhouses and chicken farms, killing thousands of chickens and destroying the harvest. In some areas the flooding blocked sewage pipes, causing sewage to overflow and mix with the stormwater, contaminating residential homes, polluting local water sources and cultivated fields and posing a health hazard for the residents. By the time the Israeli army eventually opened the draining canals' hatches, three days later, the flooding had caused irreparable damage.

## MOVEMENT RESTRICTIONS AFFECTING ACCESS TO WATER

*"In the West Bank, there are over 144 communities (227,000 people) that are not connected to water networks. In the last few years, their traditional water sources such as springs and wells have either been depleted as a result of the drought or they, no longer, have access to these water sources due to the closing of large areas for settlements and military zones. More and more vulnerable families and communities are becoming dependent on expensive water purchased by tankers. It is estimated that some families are spending more than 25% of their income on drinking water (far more than the international affordability rate of 3-5% of income). This is affecting the health and hygiene conditions and is also pushing more families deeper into the poverty line."*

UN Children's Fund (UNICEF), 2009 projects<sup>119</sup>

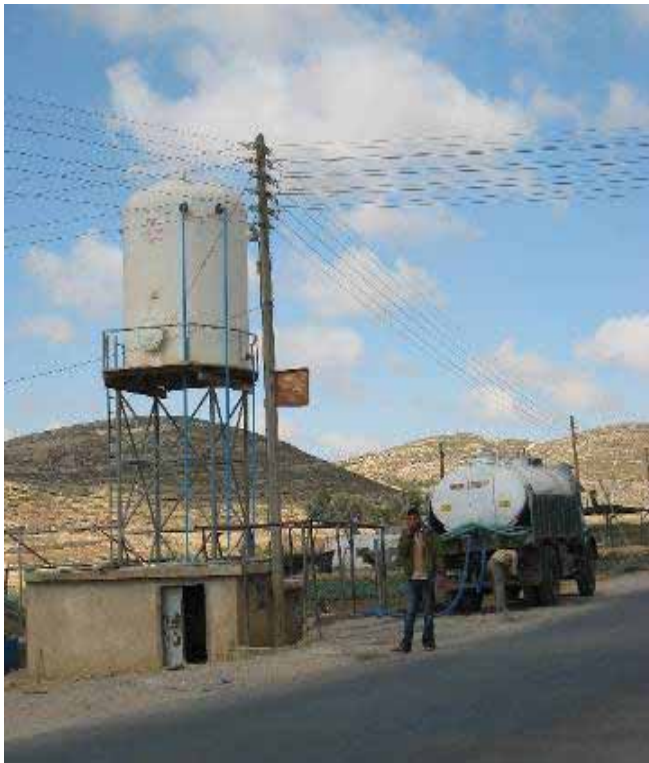
In addition to the fence/wall more than 500 military checkpoints, barriers and obstacles of various kinds - most commonly, cement blocks, earth mounds and gates - block access to roads for Palestinians throughout the West Bank. Journeys of just a few km, where they are

possible, often take hours, following lengthy detours to avoid the areas surrounding Israeli settlements and “bypass roads”, which connect the settlements to each other and to Israel, and which are mostly prohibited to Palestinians. Where the settlements are closest to Palestinian villages, movement in and out of these villages is even more tightly restricted than elsewhere.

These restrictions mean that it requires significant time and effort, and is more costly – due to the additional fuel needed and damage caused to vehicles by travelling on ragged roads - for Palestinians to move around the West Bank. As a result, the cost of water delivered by tankers has risen steeply in recent years, in large part due to mounting transport costs.

While the Israeli army has ostensibly undertaken to allow vehicular access to and from every village, its blocking of so many roads means that the routes into and out of some villages are along very poor roads that are virtually impossible to negotiate other than with four-wheel-drive vehicles or tractors. This is the case particularly for some of villages in the Southern Hebron Hills. However, even where Palestinians can access settler roads from their villages, in many places they are not permitted to drive on them and they risk being fined or having their tractors and tankers confiscated as these are not licensed to drive on main roads.

Saber Hereni, who is responsible for providing water to some of the Palestinian communities



in the area on behalf of Yatta's Service Council, told Amnesty International: *“ It is not possible for the larger water tankers, which hold 10 or 12m<sup>3</sup> to reach some of the villages and the water has to be delivered by a smaller tanker or by small tankers attached to tractors. This requires more trips and each trip is several times longer than it would be if the roads were open. So, we spend more time and consume more fuel. As well, the vehicles break down all the time because of the bad roads and often the army sets up flying checkpoints and these cause further delays.*

A water tanker at a filling point in Rihiyeh, in the southern West Bank © AI

*In addition, the paucity of water available at filling points means that water tankers take a long time to fill and the drivers have to be paid for the time they waste waiting for the tankers to fill up. All this makes the water much more expensive, up to five or six times as much as*

*the water from the network. This at a time when people are already much impoverished due to the closures. Water has become a major expense for families; for many it is the biggest expense, more than food".*

As well as having to take longer routes to reach villages, water tankers are sometimes unable to reach their destination because the army blocks all access roads. In late June 2008, for example, the Israeli soldiers erected an earth mound to block vehicular access into Tuwani village for several weeks. This was removed after several weeks, on 10 August, but replaced two days later by a smaller earth mound which allowed some access but left the road still impassable for water tankers.

At the beginning of August 2009 the Israeli army blockaded the main road connecting Tuwani village with several hamlets to the south, isolating the hamlets' 900 or more residents from their main water and animal fodder suppliers in the town of Yatta.<sup>120</sup> To bypass the road closure, residents had to make a long detour through rugged terrain which lengthened their journey by an hour or more.

One resident of Susya told Amnesty International: *" It takes me most of the day to go to the well, fill up the tanker and bring the water to the village. The tractor is slow and with the water tanker on tow and on such bad roads it is even slower, hardly faster than walking pace. I have to rent the tractor, pay for the fuel and spend a lot of money and time just to bring some water for our basic needs. At such a high cost we cannot afford to buy water to irrigate the land and so we have no fodder for the sheep. We are being forced to sell some sheep because we cannot afford to feed them, but the sheep are our livelihood and if we are forced to sell them we will lose our livelihood for good."*

On 26 September 2009 Israeli forces set up roadblocks and stopped a convoy of Israeli, Palestinian and international peace activists on their way to deliver water to the villages in the Southern Hebron Hills. The activists were eventually able to deliver the water to some of the villages by taking long detours and using a bulldozer to open some of the paths which had been blocked by the Israeli army at the beginning of August.<sup>121</sup>

Drought, lack of access to water and movement restrictions are having a particularly serious impact on Bedouins, farmers, shepherds and marginalized communities who live in Area C.

*" Water has become expensive due to the drought and transportation costs over difficult roads. Communities that largely relied on rainwater in the past now need to purchase water throughout the year for people and livestock. Reduced access to grazing areas has caused greater dependence on fodder, but fodder prices have also increased, and herders are going deeper into debt. These pressures lead herders to sell their flocks, thus threatening their ability to continue living on these lands. The community of Rashayida in the southern Bethlehem governorate has 50 families... This community reports a decline in the number of small ruminants from 8,000 three years ago to fewer than 5,000 today. The cost of trucking water to the community is 25 NIS per m<sup>3</sup> of water."*

UN OCHA Special Focus, May 2009<sup>122</sup>

The town of **al-Dhahriya**, south-west of Hebron, home to some 30,600 Palestinians, is surrounded on three sides by Israeli settlements and by roadblocks and earth mounds which

restrict movement to and from other towns and villages in the area.<sup>123</sup> Access to the main road (Road 60) which connects the town to Hebron, the main city and regional economic centre, was blocked at the beginning of 2002. Since then, residents have been forced to use secondary roads which are in poor condition and more than double the journey time to Hebron – one hour instead of 25 minutes. The town is connected to the water network, but often receives no water for months. Access to the water filling points in the area is likewise hindered and requires a long detour. The result has been an increase in the cost of water, at a time when the prolonged drought has exacerbated the water shortage caused by Israel's discriminatory policies,<sup>124</sup> and when more residents have been forced to rely on herding for subsistence because they no longer have access to jobs in Israel.

The village of **Qaryut**, south of Nablus, is in Area B but most of its infrastructure is in Area C, which surrounds the village. Also next to the village are two Israeli settlements, Eli and Shilo, both with large swimming pools.<sup>125</sup> Qaryut is not connected to the network and its 2,700 inhabitants have two possible sources of water – a spring at the edge of the village and a filling point of the Mekorot water company 1.5 km away.

A 1.5 km dirt road leads from the village to the main road (Road 60). In 1999 the village council applied to the Israeli army for a permit to pave and upgrade the dirt road, but it was not granted. After the outbreak of the *intifada*, the army blocked this road with an earthmound, forcing villagers to take a long detour through the villages, of Talfit and Qabalan – 23 km instead of 1.5 km - to reach the main road by car. This left the villagers with two options for getting water from the filling point: either make a 46 km round trip with water tankers instead of the 3 km journey that was previously required (significantly increasing the cost), or collect the water by foot or by donkey cart, conveying it the 3 km in small containers. In 2006 the Israeli army blocked another road near the spring, damaging the spring. The villagers then secured funding from the Finnish government to rehabilitate the spring but they were not able to obtain a permit from the army to carry out the work. At the beginning of October 2009 the villagers removed part of the earthmound blocking access to Road 60, located between the Israeli settlements of Eli and Shilo. However, shortly after, settlers from Eli settlement set fire to Palestinian land belonging to the village, and the Israeli army later replaced the earthmound.<sup>126</sup>

These are but a few examples of the stringent restrictions on movement imposed for years by the Israeli authorities which are having a devastating effect on access to water and to other components of the right to health and to an adequate standard of living. These restrictions, imposed on the more than 2.5 million Palestinians who live in the West Bank, are unlawful as they are disproportionate, discriminatory and violate the right to freedom of movement. The restrictions are imposed on all Palestinians *because* they are Palestinians and in order to benefit the Israeli settlers whose presence in the occupied West Bank violates international law.

# WATER INFRASTRUCTURE DESTROYED IN MILITARY ATTACKS

“Water resources in the Gaza Strip were already in the throes of an environmental crisis prior to the latest escalation of hostilities; the recent events aggravated the situation... the collapse of sewage treatment during the period accelerated the pollution load into the underlying aquifer.”

UNEP, September 2009

Demolition of Palestinian property during Israeli military operations is best known and documented in relation to homes and orchards, but water facilities have not been spared.<sup>127</sup> Scores of wells, rainwater harvesting cisterns and roof water tanks have been destroyed or damaged by Israeli forces during their military operations, as well as many km of water mains and other facilities and irrigation networks. Water mains and sewage conduits have been routinely crushed by tanks and armoured vehicles during Israeli military incursions into Palestinian towns and refugee camps in both the West Bank and Gaza, and residents' water tanks have often been shot at and damaged by soldiers. While some of the damage has been incidental, much of the destruction by the Israeli army has resulted from deliberate, direct or indiscriminate attacks, in violation of international humanitarian law. The already overstretched water infrastructure and facilities in the OPT have sustained significant damage in recent years. At the same time, Israeli restrictions on the movement of people and goods in the OPT have hindered or prevented the timely repair of damaged water networks and facilities, exposing some Palestinian residents to long periods without any water.

The most extensive destruction to water supplies and sanitation facilities has resulted from Israeli air strikes and incursions by ground forces into Palestinian towns and villages, often involving armed confrontations with Palestinian armed groups. In conducting military actions, Israeli forces have resorted to reckless use of force and carried out indiscriminate attacks endangering, and taking, the lives of Palestinian civilians, as well as retaliatory strikes that constitute a form of collective punishment on the Palestinian inhabitants of certain areas – seemingly as in reprisal for attacks by Palestinian armed groups.

Such damage and destruction to the water infrastructure, and to the electricity network required for its operation, have often hit the hardest the poorest and most vulnerable Palestinian communities. Refugee camps and other poor and densely populated areas of the OPT, whose residents can least afford to buy water supplies or fuel for generators, have

generally borne the brunt of Israeli military incursions. Living in close and often cramped and impoverished conditions, they are also at heightened risk of disease and illness from contamination of water sources caused by Israeli military attacks that damage sewage and sanitation facilities.

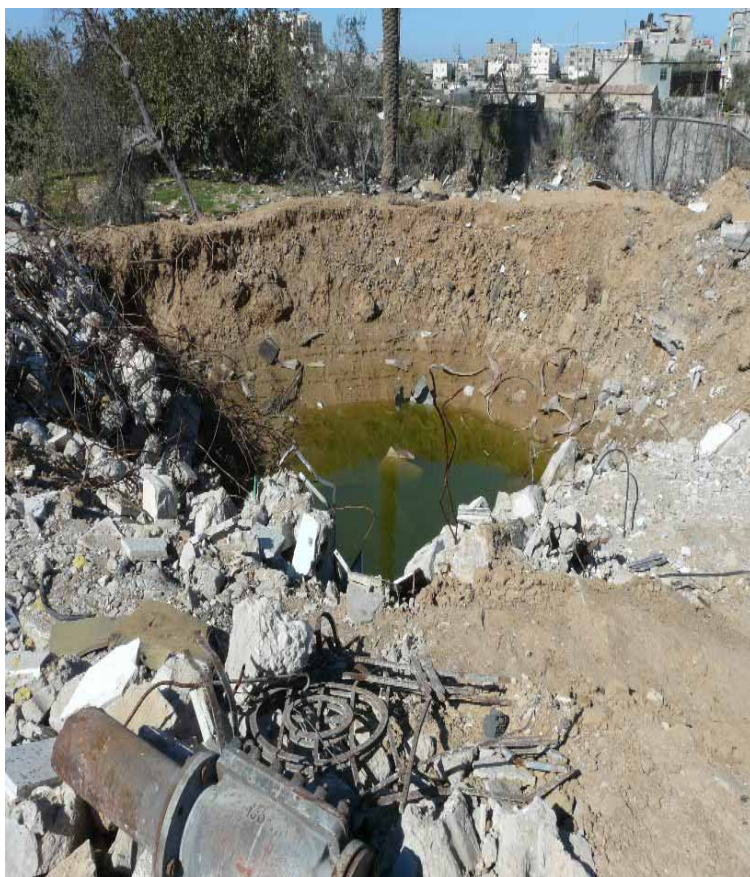
On 31 January 2001, at the height of the conflict which followed the outbreak of the Palestinian uprising, Israeli and PA officials of the JWC held a meeting brokered by US diplomats at the Erez crossing between Israel and Gaza and issued a *Joint Declaration for Keeping the Water Infrastructure out of the Cycle of Violence*. This included a "... call on the general public not to damage in any way the water infrastructure, including pipelines, pumping stations, drilling equipment, electricity systems and any other related infrastructure."<sup>128</sup>

The meeting and the statement were hailed as an example of positive cooperation between the Israeli and Palestinian authorities at a time of heightened tension. Yet, at the very same time air strikes and other attacks by Israeli forces were causing widespread damage and destruction to Palestinian property, including water facilities.<sup>129</sup> In the following year, Israeli forces were estimated to have caused more than US\$7.4 millions of damage to water facilities and infrastructure in the West Bank and Gaza.<sup>130</sup>

Israeli forces have also damaged water facilities when demolishing Palestinian houses and property, often using D9 armoured bulldozers to dig up roads and rip through water and

sewage pipes.

These bulldozers have claw-like rippers which are attached at the rear and thus not of use in detecting or protecting the bulldozer operators against hidden explosive devices. These are used to dig up the road or terrain behind the bulldozers as they drive forward and are clearly intended to cause serious damage to roads and anything else in the bulldozers' wake.



Sewage mains in northern Gaza destroyed by Israeli air strikes in December 2008/January 2009 © AI

## DAMAGE TO WATER FACILITIES IN GAZA DURING OPERATION “CAST LEAD”

Israel's recent military offensive in Gaza, operation “Cast Lead”, lasted from 27 December 2008 to 18 January 2009. During these 22 days, Israeli attacks caused some US\$6 million worth of damage to Gaza's water supply and sewage and wastewater facilities and infrastructure. In northern Gaza, three water facilities were destroyed and the emergency sewage treatment plant was damaged, as well as water distribution networks. In central Gaza, Israeli attacks damaged the Sheikh 'Ajlin sewage treatment plant, causing the raw sewage to inundate more than a square kilometre of agricultural and residential land ruining the crops.<sup>131</sup> In both northern and eastern Gaza, Israeli tanks and bulldozers dug up or damaged water mains. At the height of the hostilities, more than 800,000 people, over half Gaza's population, were without running water. Months later, the WHO reported that samples taken from the public water supply, water storage tanks, and water wells in areas that sustained serious damage during operation “Cast Lead” were still contaminated, and that this was reflected in higher rates of acute watery diarrhoea, especially in young children, and viral hepatitis.

As was the case with the vast majority of homes and property destroyed in the Israeli military offensive, there is no indication that any of these water-related installations were being used for military purposes by the Palestinians. Moreover, much of the destruction of water-related facilities was carried out at the very end of the offensive when there was no fighting occurring in the areas concerned and appeared to be nothing other than wanton destruction.

The impact of the damage has been particularly acute and long-standing because of Israel's continuing blockade of Gaza, and the impact this has in preventing the import of the spare parts, equipment and other materials needed to repair and improve the water supply and sanitation systems and other infrastructure.

In March 2009 the UN Food and Agriculture Organization (FAO) expressed concern that:

*“Following Operation Cast Lead, a twenty-two months-long blockade, restricted access to vital agricultural areas and prolonged water stress, the agriculture community in the Gaza Strip remains on the brink of collapse. In one year alone, the number of people employed in agriculture fell by 60 percent.<sup>1</sup> Coupled with an estimated USD 180 million in direct damages to agricultural assets, agriculture-dependent families have exhausted options for maintaining their livelihoods. Without urgent action this once vital economic sector will take years rather than months to regain even pre-December 2008 productivity levels. Meanwhile, the blockade continues to restrict the import of agricultural inputs needed for the immediate response, rehabilitation and reconstruction process to begin, thus restricting any real, long-term improvement of agricultural livelihoods.”<sup>132</sup>*

A report published in September 2009 by the UNEP (*Environmental Assessment of the Gaza Strip following the escalation of hostilities in December 2008 – January 2009*) details extensive damage and the serious consequences this has had for Gaza's water supply. It notes: “Water resources in the Gaza Strip were already in the throes of an environmental crisis prior to the latest escalation of hostilities. However, the recent events aggravated the situation in several ways. First, the collapse of sewage treatment during the period accelerated the pollution load into the underlying aquifer. Second, the lack of reliable and sufficient drinking water supply during the fighting meant that the population used whatever



*water it had access to, irrespective of its supply source. Third, even water supplied through municipal systems and private tankers was both untreated and untested, leaving the population exposed to contamination".*<sup>133</sup>

Added to the direct destruction and damage caused to wells, pumping system, mains and other water infrastructure, Israeli attacks during "Cast Lead" had disastrous consequences for the underlying Coastal Aquifer, already in a seriously deficient state. These include:

- **Sewage** overspill from the Gaza wastewater treatment plant in al-Zaytoun, a suburb of Gaza City, caused by an Israeli airstrike which damaged one of the sewage lagoons' embankments. According to UNDP, more than 100,000m<sup>3</sup> of wastewater and sewage sludge flooded nearby agricultural fields, damaging 55,000m<sup>2</sup>.
- **Hazardous waste**, including large quantities of asbestos and other toxic materials, was dispersed widely as a result of the destruction of buildings.
- **Animal remains**: tens of thousands of animals were killed, including thousands of chickens at a large poultry farm destroyed by an Israeli attack, and their carcasses were left to contaminate groundwater resources.

Further contamination of wells and groundwater sources may occur when rainfall intensifies in December 2009/January 2010.

## DAMAGE TO WATER FACILITIES DURING ISRAELI MILITARY CAMPAIGNS

In a series of military incursions codenamed operation "Defensive Shield", between the end of February and the end of June 2002, the Israeli army inflicted an unprecedented level of destruction in towns and refugee camps throughout the West Bank.<sup>134</sup> In **Jenin**, a whole section of the refugee camp was reduced to rubble rendering 4,000 residents homeless; in **Nablus**, there was also severe destruction. Israeli forces using D9 armoured bulldozers, tanks and armoured personnel carriers (APCs) smashed through buildings, shops, cars, electricity pylons and whatever they found in their path, and dug up roads and alleys, tearing through water mains and sewage pipes without justification.

Water supply and sanitation systems were badly disrupted. According to the Donor Support Group,<sup>135</sup> direct damage to water supply and sewerage infrastructure caused by the actions of Israeli military forces in the West Bank governorates between March and May 2002 cost some US\$7 million, not counting the substantial damage done to local facilities such as cisterns, roof tanks and springs.<sup>136</sup>

The Director of the Water Sector for Jenin city told Amnesty International that the pumps in one pumping station supplying Jenin city and western villages had been inoperable and that damage to the network was extensive: "*mainlines from the reservoirs or pumping stations were cut intentionally by bulldozers or indirectly through heavy tank traffic. Seven of 11 booster pumps [which are used to pump water to more elevated areas] were hit or destroyed by heavy machine gun fire or tanks. Damage to the network inside the refugee camp was beyond repair.*"<sup>137</sup>

Between March and May 2002 Amnesty International delegates saw damaged electric feeders and water pipes in many Palestinian towns and refugee camps, and concluded that much of the damage appeared to have been caused deliberately and without any justification

## IMPACT ON HEALTH

Following this Israeli military incursion into the West Bank, the WHO and UNRWA reported: *"Military activities have also caused serious damage to the camps' water and sewerage networks, increasing the risk of disease outbreaks due to cross-contamination. In evidence, an outbreak of Shigella sonnei took place in Balata [refugee] camp, Nablus area in the West Bank, during July 2002 due to cross-contamination of water and sewerage networks. A total of 667 cases were reported, mainly children below 16 years of age".*<sup>138</sup> In September 2002 the WHO cited damage caused to water supplies as a factor generally affecting adversely the health of Palestinians.<sup>139</sup>

Israeli forces have regularly damaged and destroyed water-supply and waste disposal facilities during their military incursions into the OPT. For example, during an incursion into Rafah, the southernmost and poorest town in the Gaza Strip, between 22 January and 6 February 2003 Israeli forces demolished 46 houses, partially destroyed 23 others and destroyed two public wells which provided drinking water for half of the town's 120,000 residents.<sup>140</sup> Well No. 144, commonly known as "Canada Well" because it had been built with funding from the Canadian government in the late 1990s, and Well No. 103T were destroyed on 30 January 2003. They were among 102 wells in the Gaza Strip that the Israeli army destroyed between 1 July 2002 and 31 March 2003, according to the Gaza-based Palestinian Centre for Human Rights. This caused residents, by necessity, to turn to other often unsafe, water sources, such as agricultural wells whose waters are not intended for drinking and, therefore, are not monitored and adequately chlorinated by the water authorities.

In certain areas the same water facilities were repeatedly damaged, compounding the problems of an old and already overstretched water infrastructure. For example, another Israeli military incursion into **Rafah** in May 2004 resulted in the destruction of some 300 houses and damage to many more, making some 3,800 people homeless, and the destruction of more than half of the town's water and sewage pipes – more than 30km of pipes. Amnesty International delegates who visited the area in the days following the incursion witnessed the impact of the destruction and were told by residents and medical staff of the serious consequences for public health.

In a needs-assessment report prepared shortly after the incursion UN aid agencies reported: *"In the aftermath of the May incursions, public health degenerated as a consequence of damage to water and sewage networks and overcrowded facilities. The Ministry of Health clinic in Tal es Sultan reported that between 1-17 May, 848 children – around 50 per day – were brought to the clinic suffering from ailments including diarrhoea and skin diseases. The clinic was then closed for three days. Between 22 and 31 May, when the clinic reopened, 1363 children – 151 per day – were brought to the clinic. The increased caseload is clearly a consequence of cramped, unsanitary conditions prevailing since the incursions. IDF operations also resulted in substantial damage to water and sanitation infrastructure, the electricity network and roads in Rafah. Crops, greenhouses, water irrigation systems and farm equipment were also destroyed or damaged".*<sup>141</sup>

At the beginning of November 2006 Amnesty International delegates visited the northern Gaza town of **Beit Hanoun** as Israeli forces ended a six-day incursion codenamed "Operation Autumn Clouds".<sup>142</sup> Scores of homes had been destroyed and roads systematically dug up in a pattern consistent with the use of military bulldozers fitted with back rippers. The streets were flooded by a mix of water and sewage and residents had had no water in their homes for several days. The UNDP assessed the damage and reported: "... *The last incursion that took place between 1 and 7 November 2006 has been very harsh and most damaging ... the town's infrastructures including houses, water and wastewater networks, electricity and telecommunication networks, roads, public buildings and agricultural facilities have been severely damaged. Upon the withdrawal of the Israeli forces from the town of Beit Hanoun, UNDP/PAPP Gaza Office formed a large team of engineers to carry out an immediate wide assessment of all damages incurred...The main findings of the assessment are the partial destruction of 28 roads in the town including water, wastewater, telephone, electricity and storm water lines...*"<sup>143</sup>

A few months earlier, on 28 June 2006 Israeli aircraft bombed Gaza's only electricity power plant in reprisal for a Palestinian attack on an Israeli military base two days before during which two soldiers were killed and one was captured. The destruction of the power plant, which provided electricity to half of Gaza's inhabitants, seriously affected water supplies, as water pumps depend on electricity to function. Most of Gaza's inhabitants were left without electricity and water for much of the time during the hottest months of the year, leading to an increase in the incidence of diarrhoea among small children.<sup>144</sup>

#### "TARGET PRACTICE" – SOLDIERS SHOOTING AT WATER TANKS

A feature which distinguishes the roofs of homes in Palestinian towns and villages from the Israeli settlements in the OPT are the rainwater collection tanks. Virtually every Palestinian house has at least one such tank and most have several. The reason is the perennial water shortage which the Palestinians face but which does not affect Israeli settlers.

In the past eight years the water tanks on the roofs of Palestinian houses have been frequently targeted by Israeli soldiers for no apparent reason other, than, it would seem, shooting practice. Tens, possibly hundreds, of thousands of water tanks have been shot at and damaged – many beyond repair. In some neighborhoods virtually every water tank has at least one bullet hole visible. Even if some were hit by mistake or were struck in legitimate circumstances during clashes with members of Palestinian armed groups, the sheer number of those damaged suggests that many have been targeted by Israeli soldiers without justification or provocation and with reckless disregard for the lives and livelihoods of their Palestinian owners. Solar water heaters, though much less common than water tanks, have also been shot and damaged by both Israeli soldiers and settlers.<sup>145</sup>

One Israeli soldier told Amnesty International: "*Water tanks are good for target practice; they are everywhere and are the right size to aim at and calibrate your weapon, to relieve your frustration, to teach a lesson to the kids of the neighbourhood who threw stones at you and you couldn't catch; or to break the monotony of a stint of guard duty.*"

TESTIMONIES OF ISRAELI SOLDIERS:

*"I remember once, on entering Tul Karem, it happened right after a big suicide attack on a casino in Rishon Lezion. The I.D.F was getting ready to enter Gaza, and a lot of reserves troops were called. The operation was cancelled and I was with a team of paratroopers that worked in Tul Karem. We used to patrol there with what we called "a heavy brick": armoured vehicles and tanks that patrol the streets. Mainly to draw fire at them, but with otherwise no real purpose in a curfew... Sometimes we shot towards a wall or something... we always hoped to make a contact. So we went towards the refugee camp in Tul Karem, a fire was opened at us, nobody got hurt, and after a while all the water-tanks in the area were shot. Later I saw them leaking."*

Rank: Staff sergeant, Unit: 401 brigade, Armoured forces<sup>146</sup>

*"This is the thing: sometimes people would shoot at televisions for fun. My paratroops friends used to tell me that they lay on roofs in Nablus and shoot the water tanks in order to see how they explode..."*

Rank: First Sergeant, Unit: "Sting"<sup>147</sup>

Much of the destruction to Palestinian water infrastructure in Gaza and the West Bank was wanton and resulted from deliberate and unnecessary demolition of property, direct attacks on civilian objects and indiscriminate attacks that failed to distinguish between legitimate military targets and civilian objects. Such attacks violated fundamental provisions of international law, notably the prohibition on direct attacks on civilian objects, the prohibition on indiscriminate or disproportionate attacks, the prohibition of attacks on objects indispensable to the survival of the civilian population, and the prohibition of destruction of property not required by imperative military necessity, and the prohibition on collective punishment (See section on applicable law).

## ISRAELI SETTLERS' ATTACKS ON WATER FACILITIES

Israeli settlers frequently carry out attacks against Palestinians and their property in the West Bank, including causing damage to their water facilities, yet the Israeli authorities rarely investigate such attacks and those responsible generally enjoy impunity. Indeed, settler attacks on Palestinians or their property have often been perpetrated in the presence or with the knowledge or tacit consent of Israeli soldiers, and in some cases with their active participation. Even when physical injuries or deaths have occurred, settler attacks have usually gone unpunished.<sup>148</sup> Israeli settlers, unlike Palestinians in the West Bank, are not subject to Israeli military law and the army, though usually present near settlements, does not arrest settlers; rather, the soldiers have often made it clear that their task is to protect the settlers, not Palestinians. Palestinians may complain to the Israeli police, but their complaints are rarely followed up and many Palestinians do not report settler attacks for fear of retaliation. International human rights activists, including Amnesty International delegates, have been physically assaulted by Israeli settlers while investigating or documenting settlers' attacks.<sup>149</sup>



Settlers bathe in a watering spot for Palestinian livestock and harass shepherds who approach it in Ein al-Hilwe, West Bank © AI

*" I am sitting here holding in my hands, metal spikes that were used today by Israeli settlers to sabotage a truck carrying water (supplied by international aid organization Oxfam) to nearby Palestinian village Susiya. This entire area has been affected by serious drought, and the water brought by Oxfam is a necessity. Dozens of spikes were placed across the road before the time of the water truck's regularly scheduled arrival. The truck was disabled, three tires punctured... After a delay, the driver was able to deliver the water." <sup>150</sup>*

Palestinian residents of small and isolated hamlets are most vulnerable to settler attacks. One village that has been frequently targeted is Tuwani in the Southern Hebron Hills. On 9 December 2007, a group of Israelis from a nearby settlement "outpost" entered the village and threw a substance into the rainwater harvesting cistern that contaminated the water. Representatives of the Spanish NGO Action Against Hunger took a sample of the water for laboratory analysis, which showed that the water was highly acidic (with a pH level of 2.4 whereas water that is safe for drinking has a pH level around 7), contained a high number of solubles and was no longer fit for human or animal consumption.

Previous to this, Israeli settlers had thrown soiled children's nappies and dead chickens into the village's water reservoirs and in March 2005 had spread large quantities of toxic chemicals around the main water reservoir and in the Tuwani villagers' fields and those of two other Palestinian villages nearby, Mufaggara and Khorouba.

Samples collected by Amnesty International were analysed by the Israeli Nature Protection

Authority<sup>151</sup> and the Center for Environmental and Occupational Health Sciences at Bir Zeit University. These identified the chemicals as 2-Fluoracetamide, which is banned in Israel and several other countries and severely restricted under international trade regulations, and Brodifacoum, an anticoagulant used for killings rodents. Several sheep belonging to the villagers, wild birds and a gazelle were reported to have died after exposure to the chemicals, and the villagers had to cease using the village's water reservoirs due to fears that the water had become contaminated.

A few days before the first field poisoning incident at Tuwani an Israeli security guard from the nearby Ma'on settlement told villagers that he wanted Palestinian farmers to stop grazing their flocks near the settlement and that if they persisted in doing so he and the settlers would make them stop. Around the same time settlers from the nearby Havat Ma'on "outpost" were carrying out repeated attacks on Palestinian villagers and international peace activists based in Tuwani.

In the Tel Rumeida neighbourhood of Hebron Israeli settlers have repeatedly cut the water mains outside the homes of Palestinian families leaving them without running water for weeks. Hashem al-'Azzeh and his wife, Nisrin, and their two young children were among those targeted. An Israeli settlement has been located very close to the family's house and they are not allowed to leave their home through the front door as a result, and must instead climb through the yards of their neighbours' houses when leaving and entering their home. As well, no Palestinian vehicles are allowed to approach the house from any side, so the family cannot have trucks deliver water to their house.

Hashem al-'Azzeh told Amnesty International: *"When the Israeli settlers cut our water pipes we are left with a big problems as there is no way for us to bring supplies to the house. We bring a few jerry cans and bottles of water from our neighbours, to drink and cook; that is all we can do. It makes our life even more difficult."*

Nearby, Hana' Abu Haikel, together with her elderly mother, her daughter and her sister have been suffering similar harassment. She told Amnesty International: *"My mother is ill and cannot leave the house. Not having water in the house makes life impossible. The settlers cut our water pipes off all the time, sometimes immediately after we repair them. The army does not allow the water truck to come to deliver water and so when the water is cut we have to struggle to bring gallons of water or we try to run a hose from the neighbours' house."*

In August 2008 Israeli settlers from the settlement of Elon Moreh, north-east of Nablus, cut a pipeline carrying drinking water to the nearby Palestinian village of Deir al-Khatib then re-routed the pipe to fill a children's new swimming pool. They then discharged the used swimming pool water through another pipe into Deir al-Khatib, polluting the villagers' drinking water.<sup>152</sup>

The UN Committee on Economic, Social and Cultural Rights has stated: "Violations of the obligation to protect follow from the failure of a State to take all necessary measures to safeguard persons within their jurisdiction from infringements of the right to water by third parties. This includes, inter alia: (i) failure to enact or enforce laws to prevent the contamination and inequitable extraction of water; (ii) failure to effectively regulate and control water services providers; (iv) failure to protect water distribution systems (e.g., piped networks and wells) from interference, damage and destruction".<sup>153</sup>

Regardless, the Israeli military and other authorities continue to violate the right to water of the Palestinians by failing to take the necessary measures to protect them from attacks by Israeli settlers, to investigate such attacks when they occur, to ensure those responsible are held to account, and to provide reparation to the Palestinians affected for the damage done to their lives and property.

## PA/PWA FAILURES AND MISMANAGEMENT

Allegations of corruption, mismanagement and lack of transparency and accountability have blighted the PA since it was established in the mid-1990s and have been substantiated, at least to some extent, by PA officials themselves and others.

The PWA too has not been immune from these problems. A November 2008 water sector audit observed that: *"policy and strategy formulation have been exceptionally poorly represented in the work of the PWA during the past decade"* and *"it is little exaggeration to state that total chaos reigns in the water sector"*. The audit report continued: *"political/personal infighting has created a plethora of water service providers and utilities at many levels none of which is fully effective"*.<sup>154</sup>

A new PWA Chairman was appointed in 2008. However, it is unclear as yet whether under his direction the PWA will be able to overcome the legacy of bad practice and undergo the necessary reforms to transform itself into an effective and efficient institution.

In addition to their internal problems, the PA and the PWA have been hamstrung by the high degree of control that Israel continues to exercise over land and water resources in the OPT, and by the restrictions it imposes on their activities and on the movement of people and goods.

Upon its foundation in the mid-1990s, the PWA was immediately confronted with a set of formidable challenges, including:

- a water and sanitation sector suffering dire problems;
- lack of access to an adequate water supply to meet the population's needs;
- a near-total dependence on international donors, with their own preferences and priorities;
- severe restrictions imposed by Israel on the type, location and timing of projects which the PWA is allowed to carry out;

- a population disenfranchised by decades of foreign occupation that is inclined to mistrust, and to resist, any impositions from a central authority.

Within Israel, the authorities had developed a very advanced water infrastructure, which they extended to the unlawful Israeli settlements in the OPT, but they grossly neglected the Palestinian water sector. Consequently, at its formation the PWA inherited a water infrastructure in dire need of rehabilitation, upgrading and development.<sup>155</sup>

The challenge faced by the PWA then was how to provide sufficient water to the four million Palestinians it is expected to serve. It was, and remains, an impossible challenge due, at root, to Israel's continued monopolization of a disproportionately large share of the available water resources.

The PWA's inability to satisfy the population's needs has greatly undermined its authority and thus, its ability to confront and overcome long-standing practices that further weaken the water structure, including: water theft through illegal connections and unauthorized water extractions; inadequate disposal of sewage and solid waste, which pollutes water resources; the monopoly of local land owners and municipalities over some water sources, limiting still further the overall quantity of water available for distribution to Palestinians; and the sale at inflated prices of water of often dubious quality by unlicensed private vendors.<sup>156</sup>

For example, in the summer of 2007 Palestinian farmers' illegal connections to the Mekorot water mains close to the village of Bani Na'im, south of Hebron, left the village with a large water bill but virtually no water. In 2008, overpumping by villagers from the Wadi al-Fara'a spring north of Nablus added to damage that had already been caused by the prolonged drought.

Such practices violate the Palestinian Water Law (Law 2/2002), notably:

- Article 3.1, according to which all water resources available in Palestine are considered public property;
- Article 4, which prohibits drilling, exploring for, extracting, collecting, desalinating or treating water for commercial purposes and makes it illegal to operate a facility for water or wastewater without obtaining a licence;

Articles 35 to 37, which prescribe penalties of up to two years' imprisonment and/or fines for breaches of the law.

In practice, the PA and PWA have generally been unable or unwilling to enforce the water law, with the PWA hindered by its lack of control over many of the areas where abuses occur that are located in Areas B and C, under Israeli security control and outside the PA's jurisdiction. Even in Area A, where the PA has the authority for law enforcement, the PWA is ill-placed to enforce the water law due to its inability to provide adequate water and sanitation services for the population. As poverty has increased since 2001 due to harder economic conditions and the impact of Israeli-imposed restrictions, many Palestinians have been left with little option but to contravene the water law in order to cope with severe water shortages that the PWA has been powerless to prevent or overcome.



Those affected have resorted to four main coping strategies: reducing their water consumption to levels far below the minimal requirements prescribed by the WHO; relying on NGOs and charities which supply small quantities of water as part of their emergency relief programmes; undertaking unauthorized drilling and connections, in breach of the water law; and withholding payment for the water that they do receive from the PWA via their local municipalities, village councils and the water utilities. This last problem has imposed an additional burden on the PWA, which has to pay for the water - for extracting it from its own wells or buying it in from Mekorot, and for distributing it to the Palestinian population. It has been a worsening problem over the past eight years as the Palestinian economy has been at a virtual standstill and poverty within the Palestinian population has soared to an unprecedented level.

## SEWAGE DISPOSAL MALPRACTICE – ENDANGERING WATER RESOURCES

For years studies have found nitrate levels well above those deemed acceptable by the WHO as well as coliform bacteria in the groundwater in several parts of the OPT, indicating contamination from untreated sewage and fertilizers.<sup>157</sup> Periodic outbreaks of diarrhoea, especially among children, and other waterborne diseases also indicate water contamination. The situation is particularly dire in Gaza.

Although the pollution of the aquifers is of concern to both the Israeli and Palestinian sides, the consequences are far greater for the Palestinians because the Mountain and Coastal Aquifers, in the West Bank and Gaza respectively, are their sole sources of water, whereas Israel has other substantial water resources.

The pollution of the Mountain Aquifer is a subject of contention with the Israeli and Palestinian sides each accusing the other of causing it. In practice, both sides have failed to comply with their obligations and they have both failed to take adequate measures to stop and reverse the damage.



Cesspit being emptied in Gaza © AI

The Committee on Economic, Social and Cultural rights has emphasized the obligation of States to ensure the quality of water. " *The water required for each personal or domestic use must be safe, therefore free from micro-organisms, chemical substances and radiological hazards that constitute a threat to a person's health*" (General Comment 15, para 12 (b)). Environmental hygiene, as an aspect of the right to health, according to the Committee, also encompasses taking steps on a non-discriminatory basis to prevent threats to health from unsafe and toxic water conditions. It has stated that states parties should ensure that natural water resources are protected from contamination by harmful substances and pathogenic microbes (para 8). It has also emphasised that " *ensuring that everyone has access to adequate sanitation is not only fundamental for human dignity and privacy, but is one of the principal mechanisms for protecting the quality of drinking water supplies and resources*" (General Comment No. 15, para 29). The Committee has emphasized that actions by States such as " *pollution and diminution of water resources affecting human health*" and the " *failure to enact or enforce laws to prevent the contamination*" of water violate the right to water. (para 44 (a) and (b)).

## FAILURE TO PROTECT THE WATER SUPPLY IN THE OPT: ISRAEL

The Israeli authorities blame the PA for the pollution of the Mountain Aquifer because the PWA has failed to set up the infrastructure needed to collect and treat most of the sewage produced by the Palestinian population of the West Bank, and this is causing contamination of the aquifer. The PWA, clearly, has been at serious fault in this regard and should take

prompt action to remedy this problem and meet its obligations to preserve and protect the natural water resources on which the population depends.

The PWA's failures, however, cannot conceal Israel's even greater share of the blame for the polluted state not only of the Mountain Aquifer but also the West Bank streams and, particularly, the Jordan River, the other major water resource of the West Bank, whose flow under Israel's stewardship has been reduced to little more than a trickle of sewage and contaminated water.

**Firstly**, the pollution of both the Mountain Aquifer and the Jordan River predates the establishment of the PWA in 1996 and occurred on a large scale during the preceding 30 years when Israel had full responsibility for civil affairs throughout the entire OPT. It is also continuing in the 60 per cent of the West Bank in which Israel retains full control of civil affairs and where the PA has no jurisdiction. During four decades of occupation, the Israeli authorities have consistently failed to take even the most basic measures to provide effective sewage and waste treatment facilities in the OPT, so endangering the shared water resources. In Israel, by contrast, they have developed advanced systems for sewage and wastewater treatment for their own citizens

The only sewage pre-treatment facility established by Israel for the Palestinian population in the West Bank during 42 years of occupation is located in Tulkarem, on the Green Line. It comprised a set of collection and infiltration ponds which were highly polluting until they were lined and rehabilitated as aeration ponds by the PWA, with funding assistance from international donors.

**Secondly**, Israel has caused damage to the aquifer by establishing more than 200 unlawful Israeli settlements and "outposts" in the West Bank and allowing them to discharge large quantities of untreated domestic and industrial sewage over the recharge area of the aquifer. In recent years, many of the settlements have been equipped with sewage treatment plants but others still discharge raw sewage and hazardous industrial waste into the fields and streams of the West Bank.

According to a report about groundwater pollution in the West Bank issued by Israel's Environmental Protection Ministry, the Nature and Parks Authority and the Civil Administration (the branch of the Israeli army which handles civil affairs in the OPT) in August 2008, only 81 out of 121 Israeli settlements in the West Bank were then connected to waste water treatment facilities<sup>158</sup>. In June 2009, the Israeli NGO B'Tselem reported that none of the settlement "outposts" had waste water treatment facilities and that existing facilities in settlements often were not functioning or only provided limited and insufficient treatment for the wastewater they receive.<sup>159</sup>

B'Tselem noted: "*This neglect has also been documented in reports of the State Comptroller and publications of the Ministry of Environmental Protection over the past two decades. Among other things, these reports addressed defective maintenance of the treatment plant in the Ma'aleh Ephraim industrial area, lack of connection to electricity in treatment plants in the Tene and Telem settlements, seepage of raw industrial wastewater into groundwater in the Barkan industrial area, "usually primitive" treatment of factory wastewater in the Barkan industrial area, and pollution caused by the cow pens of the Rosh Tzurim settlement.*"<sup>160</sup>

In East Jerusalem which, under international law, forms part of the occupied West Bank although it has been unlawfully annexed by Israel and is subject to Israeli law, sanitation has been neglected in much the same way as in the rest of the West Bank. The PWA has no jurisdiction in and around East Jerusalem and is not permitted to carry out any water-related projects there. All around, more than 200,000 Israelis live in unlawful settlements but the Israeli authorities have failed to establish adequate sewage treatment facilities to deal with the waste produced by the hundreds of thousands of inhabitants of East Jerusalem, parts of West Jerusalem, and of the Israeli settlements around East Jerusalem. Some 17.5 MCM of sewage flow eastwards, mostly in open streams, causing environmental damage to the soil and water resources and posing a public health hazard for the Palestinian communities along the route. Some 10.5 MCM is raw sewage which flows along the Kidron stream for some 30km to the Dead Sea, adding to the significant environmental damage already caused by the drying up and pollution of the Jordan River, the Dead Sea's main feeder. The remaining 7.5 MCM flow to the Og reservoir north of the Dead Sea, where the wastewater only receives partial treatment before being reused mostly for irrigating date trees and crops in Israeli settlements north of the Dead Sea and in the Jordan Valley.<sup>161</sup>

In their August 2008 report, the Israeli authorities mostly blamed Palestinian sewage - 56 MCM per year according to the report but 25 MCM according to the World Bank<sup>162</sup> - for the pollution of streams, groundwater and springs in the West Bank. However, they failed to take account of the 17.5 MCM sewage produced annually by the inhabitants of East Jerusalem and parts of West Jerusalem, which brings the amount of untreated or inadequately treated sewage flowing through the West Bank for which the Israeli authorities are directly responsible to 35 MCM per year - some 38 per cent of the total amount of sewage that pollutes the aquifer underlying the West Bank.

**Thirdly**, in the past 42 years Israel has effectively used the OPT as a dumping ground for its waste, establishing dumpsites throughout the OPT without lining them, leaving dangerous substances, including hazardous industrial waste, to permeate through the soil and pollute the aquifer. In recent years the Israeli authorities have closed some of these dumpsites but without taking action to rehabilitate them and prevent further pollution. Others continue to be used both by Israelis and Palestinians.

Examples of hazardous dumpsites include that at 'Azzun, established in the early 1990s and sited near the village's well, in Area C, controlled by Israel. The dumpsite was not lined and since its closure in 2002 no measures have been taken to sanitize the site, which continues to exude noxious fumes and to leak and pollute the soil and nearby water supply. Similarly, the Deir Sharaf dumpsite opened by the Israeli army in 2002 to receive industrial waste from Israeli companies, was closed in 2005 but has never been made safe.

For decades, the Israeli authorities have also allowed random dumping of mostly industrial waste by Israeli contractors in rural areas throughout the West Bank. In recent years they have committed to take measures to stop such abuses<sup>163</sup> but such dumping persists in Palestinian villages in West Bank areas under Israeli security control and the authorities have not taken action to clean up the waste dumped by Israeli contractors in the past.

**Fourthly**, the permit requirements and other restrictions imposed by Israel on Palestinians in the West Bank have contributed to the pollution of the aquifer because they have delayed or

prevented the establishment of sewage treatment facilities and landfills in the West Bank. Projects for which the PWA and local municipalities have secured funding from international donors have been delayed, in some cases for several years, because of the Israeli authorities' refusal to grant permits or because they have imposed unreasonable conditions relating to the type of treatment and reuse of the wastewater. In some cases, Israel's insistence that unlawful Israeli settlements be connected as a condition for authorizing Palestinian projects has stalled the development of sewage treatment facilities; in other cases, their failure to provide facilities to treat sewage from nearby Israeli settlements has led international donors to delay or suspend funding for Palestinian projects.

**In Gaza**, Israeli policy might well be described as de-development. Decades of financial and other neglect left the water supply and wastewater sector in disrepair and in urgent need of rehabilitation and development. With the establishment of the PA, funding from international donors became available to help rectify the situation but the increasingly stringent restrictions imposed by Israel on the passage of people and goods into Gaza have severely limited potential, and caused desperately needed water and sanitation projects to be delayed, threatening public health. On 27 March 2007 the bank of a sewage collection lagoon in the Beit Lahia sewage treatment plant in northern Gaza collapsed, flooding the Bedouin village of Um al-Nasser. Five people, two of them children, died and hundreds were left homeless. Since then, rehabilitation of the plant and construction of a new facility have proceeded at snail's pace for lack of materials due to the Israeli blockade of Gaza. The few other existing sewage treatment plants in Gaza are facing similar problems and with each day passing as Israel's blockade of Gaza continues, precious time is lost and Gaza's meager water supply is further compromised.

## FAILURE TO PROTECT THE WATER SUPPLY IN THE OPT: PA/PWA

The PA and PWA, for their part, have repeatedly blamed the pollution of the Mountain Aquifer on sewage emanating from Israeli settlements. They point out that the 450,000 Israeli settlers in the West Bank - including East Jerusalem - produce almost as much waste water as the almost 2.5 million Palestinian residents, as Israeli settlers use much larger quantities of water per capita than Palestinians. They have pointed also to frequent reports of domestic sewage and industrial waste from Israeli settlements flooding Palestinian orchards and contaminating water sources because they contain harmful chemicals from pesticides and fertilizers used in Israeli settlements, and widespread dumping of solid waste by Israelis in the OPT.

However, the PA and PWA have been far less forthcoming about pollution caused by Palestinians in the OPT – the sewage from some 2.3 million Palestinians, the waste from Palestinian factories and olive presses, the harmful pesticides and fertilizers used by Palestinian farmers, and the random dumping of solid waste by Palestinians – all of which pose precisely the same dangers to the Mountain Aquifer as Israeli practices. The failings on the Israeli side cannot serve as a pretext for the PA's failure to take appropriate action to prevent pollution of the aquifer in the, albeit limited, areas where it does have jurisdiction.

The PWA undoubtedly has to operate within both external and internal constraints which severely hinder the PWA's capacity to develop adequate sanitation infrastructure. In the West

Bank, the PWA's inability to access and operate in the 60 per cent of the territory that is designated as Area C and under Israeli military jurisdiction is its most severe constraint. The Israeli army has consistently refused to allow Palestinians to build homes or infrastructure in Area C while it has simultaneously expanded unlawful Israeli settlements there, yet this is the most suitable area in which to locate the water supply and sanitation infrastructure – sewage treatment plants and adequately equipped landfills for solid waste – that is so desperately needed by the Palestinian population. The 40 per cent of the West Bank that comprises Areas A and B and is under PA jurisdiction is already crowded and barely sufficient for the growing population.

A second constraint is the unreasonably high requirement set by Israel for effluent quality (the level of treatment of waste water) to 10/10 standards, which requires tertiary treatment of the waste water. This advanced standard of treatment demanded by Israel of the sewage treatment plants to be established in the OPT is higher than the standard applied in practice in Israel itself, where sewage treatment has mostly been secondary (20/30). In 2001 only 46 per cent of the wastewater treated in Israel met the 20/30 standard.<sup>164</sup> The requirement for tertiary treatment to 10/10 standards was only introduced in Israel in recent years, with provision for a phased application over 10 years.<sup>165</sup> Currently, a significant percentage of the sewage treated in Israel does not receive the tertiary treatment that the Israeli authorities have been demanding of the Palestinians as a condition to approve the construction of sewage treatment plants in the West Bank. As well, a significant percentage of sewage produced in Israel and in Israeli settlements in the West Bank is not even treated to secondary level, or is not treated at all. This quantity (167 MCM per year in 2005 in Israel alone) is three times more than the quantity (56 MCM per year according to the Israeli authorities) of untreated Palestinian sewage in the West Bank.<sup>166</sup>

The construction and operation cost of plants which treat wastewater to the advanced 10/10 standard is significantly higher - up to 100 per cent more<sup>167</sup> - than for plants which provide secondary treatment. Israel's demand for tertiary treatment by Palestinian sewage treatment plants has deterred international donors, who are unwilling to meet what they see as the unjustifiably high construction, operation and maintenance costs that would be required. Cost is a particularly relevant factor because it seems unlikely that there would be sufficient users willing and able to pay the high cost of effluents treated to 10/10 standards to make the plants financially viable, and considering that Palestinian sewage treatment plants in the OPT could be at risk in any future Israeli military operations if past practice is any guide.

In Gaza, several constraints have hindered the PWA's ability to carry out water and sewage projects, notably, in recent years: the Israeli blockade, which prevents most of the material and equipment needed from entering Gaza; the reluctance of donors to commit to large-scale projects in a climate of heightened political instability and insecurity; and the growing division between the two main Palestinian factions as reflected by their separate administrations in the West Bank and Gaza.

The PWA has also been constrained by its total reliance on international donors to fund not only the construction phase of sewage treatment facilities but also, in all likelihood, the costs of operating and maintaining them, at least initially. In this respect, the PWA needs to make greater efforts to raise awareness among Palestinians, particularly those engaged in farming, about the benefits and necessity of treating and reusing wastewater. Unless international

donors are confident that treated wastewater will be reused they will remain reluctant to fund projects for which they will likely have to bear the operational and maintenance costs, in addition to the construction costs.

## THE ROLE OF INTERNATIONAL DONORS

The impact of Israeli restrictions and delays in obtaining permits, if they are granted at all, has been extensively documented by local and international NGOs and UN agencies which have been involved in or have funded projects in the water sector in the OPT.<sup>168</sup> International donors mostly have borne the costs of emergency water projects in the OPT, repairing water infrastructure damaged or destroyed in Israeli military attacks or providing emergency water and sanitation services to Palestinians who have had their homes and property destroyed or who have no access to adequate water supplies. Yet, international donors are generally reluctant to make public the problems they face in implementing specific water-related and other projects out of concern that this will lead the Israeli authorities to impose even more obstacles.

An international water expert working for an international agency on a water project that was being blocked by the Israeli army in 2008 told Amnesty International: *"It would not be helpful to raise this issue publicly. We already face so many difficulties to get permits and access for our projects, and this could create tensions with the Israeli authorities and make our life even more difficult."*

In July 2009 a foreign staff member of an international NGO assisting with water-related projects in the OPT told Amnesty International about "stop-the-work orders" delivered by the Israeli army to NGOs: *"This is a new practice. Before the Israeli army addressed demolition or stop-the-work orders to the Palestinian villagers, or left them on the water cisterns, but this year they have started to address them to the foreign NGOs who are implementing the projects. We have been building and rehabilitating water cisterns for years but we never before received a stop-the-work order addressed to us. Effectively the army is accusing us of breaking the law and this puts us in a very difficult situation. For now we don't want to make a big issue of this publicly. We will try to see how we can resolve the problem with the Israeli authorities, but for now it means that we cannot carry out certain projects in Area C, as we used to do before."*

Another NGO worker observed: *"It is difficult to fundraise for projects which may be blocked or subjected to delays and problems which increase their cost and diminish their efficiency, or for projects which risk being demolished because effectively it means that funds are being wasted. So organizations avoid publicizing such problems, and this means that the Israeli authorities are not held accountable for such practices."*

Another international water expert involved in water projects on behalf of international donors

told Amnesty International: "*The army usually gives written demolition orders for small rain-harvesting cisterns, but to stop or refuse a multi-million dollar project they pick up the phone, or give the information in a meeting. Refusals aren't usually given in writing; they just don't give the necessary permits. Hence, there is often no paper trail.*"

The efficient delivery and management of essential services such as water and sanitation requires the development of country-wide infrastructure. In the first decade after the State of Israel was established, the Israeli authorities began construction of the national water carrier, Israel's largest water project, which consists of a single network linking all the regional water projects throughout the country. However, hardly any infrastructure for water supply to the population of the OPT was developed by the Israeli authorities in the three decades that Israel administered the Palestinian water sector prior to the Oslo Accords.

Since the Oslo Accords and the establishment of the PWA, the complicated and multi-layered bureaucratic procedures necessary to obtain permits to carry out projects in the OPT have hindered the development and implementation of an efficient national water plan and structure. A situation where even laying water mains between towns and villages requires obtaining a series of permits for the work to be carried out and where a large-scale project may be delayed or suspended because a small part the project is located in a "sensitive" area - near an Israeli settlement, a road used by Israeli settler or a military base - is a major obstacle to the efficient delivery of large-scale projects.

A recent audit of the Palestinian water sector identifies, in addition to the restrictions imposed by Israel and other problems, a lack of donor coordination and the political and other repercussions of the Hamas election victory, which resulted in the suspension of many internationally funded water projects.<sup>169</sup>

Inadequate coordination between foreign donors appears, at times, to have had the effect of deepening problems of coordination and tensions within the PWA, and between the PA and PWA and other Palestinian bodies involved in water projects. At the same time, effective coordination between foreign donors has been hampered because of the PWA's lack of effective control over the Palestinian water sector.

Foreign donors suspended major water and sanitation projects, notably between 2001 and 2004 due to the increased restrictions on Palestinian movement and activities that Israel imposed after the outbreak of the *intifada*. Donors have been generally unwilling to challenge even the most unreasonable Israeli restrictions and obstacles, which have delayed the implementation of many crucial water projects. Rather, international donors chose to deal with the growing restrictions, by diverting significant funds from water supply and sanitation development to short-term projects, such as repairing damage caused by Israeli military attacks, or providing tankered water (at several times the cost) and other humanitarian relief to the Palestinian population.

Internal Palestinian political developments have complicated matters further. In the last years of the late President Yasser Arafat's presidency international donors generally avoided engaging with the PA presidency and privileged direct dealings with other PA bodies and with municipalities. However, after Hamas' victory in municipal and legislative elections in 2005 and 2006, international donors reversed course to avoid dealing with elected Hamas



municipal and government officials, and re-engaged with the PA presidency. After the collapse of the Fatah-Hamas “national unity” government in June 2007, donors re-engaged with the West Bank-based caretaker government of President Mahmoud Abbas. Since most water projects have a timeframe of several years, many projects which were at different stages of implementation when these politically driven shifts occurred, were suspended for prolonged periods while others that were in the planning phase were scrapped altogether.

In Gaza the situation is particularly acute, mainly due to the stringent Israeli blockade but also in part because foreign donors do not engage with the Hamas de facto administration. The main exception is the repair of the old waste water treatment plant in the north of Gaza and the construction of a new plant. This ongoing project is being funded by the World Bank but it has suffered serious delays due to Israel’s refusal to allow the import of necessary materials into Gaza. The combined impact of the suspension of water-related projects and the lack of spare parts, equipment and other materials caused by Israel’s continuing blockade of Gaza has brought what was already a dire situation to the point of crisis. More than one year ago, on 7 May 2008, the UN Secretary-General reported: “*The efficiency of water networks deteriorated from 70 per cent in June 2007 to 55 per cent in February 2008, owing to a lack of spare parts and materials. From January 2008 onwards, 40 million litres of raw and partially treated sewage per day were emptied into the sea*”.<sup>170</sup> Since then, Gaza and its 1.5 million people have been mercilessly pounded under operation “Cast Lead” and stifled by Israel’s unremitting blockade, causing further drastic deterioration of the water sector and increased poverty and misery for the people who have to depend upon it for their survival.<sup>171</sup>

As described above, the support for the development, maintenance and delivery of water and sanitation infrastructure and services in the OPT, by international donors, is being hindered by restrictions and obstacles which prevent its effective and optimal use. One of the effects of such restrictions and obstacles is that international donors tend to resort to short-term stop-gap measures such as the delivery of water by water tankers, which is usually far more expensive than delivery through piped water networks. This undermines the need to invest in long-term water and sanitation infrastructure and services for the people of the OPT and the coordinated and effective use of development assistance in support of the Palestinian population’s access to such services.

## INTERNATIONAL LAW: THE RIGHT TO ACCESS TO WATER

**Resolution 181** of 29 November 1947, which partitioned the territory of Mandate Palestine and led to the establishment of the State of Israel, contains a provision for: “*Access for both States and for the City of Jerusalem on a non-discriminatory basis to water and power facilities.*” (4.D.2.e).

Under international law Israel, as the occupying power in the OPT, has well defined

responsibilities to respect the Palestinians' human right to water. It must not only refrain from taking actions that violate this right or undermine the Palestinian population's opportunity to realize the right, but also protect the Palestinian population from interference by third parties in their enjoyment of the right to water, and it must take deliberate, concrete and targeted steps to ensure that this right is fulfilled and fully realized.

Two sets of complementary legal frameworks apply to the conduct of Israel, as the occupying power with effective control over the OPT: international human rights law and international humanitarian law. International law on the management and regulation of transboundary ground water sources is also relevant.

Applicable international **human rights law** relevant to the issues discussed in this report includes a number of human rights treaties to which Israel is a state party, notably the International Covenant on Economic, Social and Cultural Rights (ICESCR), the International Covenant on Civil and Political Rights (ICCPR), the International Convention on the Elimination of All Forms of Racial Discrimination, the UN Convention on the Rights of the Child (CRC), and the UN Convention on the Elimination of All Forms of Discrimination against Women (CEDAW).

Also applicable are the provisions of **international humanitarian law** governing belligerent occupation, notably: the Fourth Geneva Convention relative to the Protection of Civilian Persons in Time of War of 12 August 1949 (hereafter the Fourth Geneva Convention) and the rules of customary international law, including the Hague Convention (IV) respecting the Laws and Customs of War on Land and its annexed Regulations respecting the Laws and Customs of War on Land of 18 October 1907 (hereafter Hague Regulations); Israel is also bound by the customary rules of international humanitarian law governing the conduct of hostilities, codified, inter alia, in the Protocol Additional to the Geneva Conventions of 12 August 1949, relating to the Protection of Victims of International Armed Conflicts (Additional Protocol I)

The Israeli government stands alone in contending that the international human rights treaties it has ratified and the Fourth Geneva Convention, to which it is a party, do not apply to the OPT.<sup>172</sup> The UN bodies which monitor the application of these treaties and other relevant bodies, including the International Court of Justice have all recognized that Israel's obligations under these treaties apply equally to the OPT.<sup>173</sup>

## INTERNATIONAL HUMAN RIGHTS LAW

The right to water has been recognized as a component of the right to an adequate standard of living under Article 11 (1) of the **International Covenant on Economic, Social and Cultural Rights (ICESCR)**.<sup>174</sup> The right to water is also protected under other international treaties<sup>175</sup> and is also essential to the enjoyment of the rights to health, adequate housing and food.<sup>176</sup> The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses.<sup>177</sup>

The Committee on Economic, Social and Cultural Rights has stated that the elements of the right to water must be adequate for human dignity, life and health, in accordance with

articles 11 (1) and 12 of the ICESCR. While the adequacy of water required for the right to water may vary according to different conditions, the following factors apply in all circumstances:<sup>178</sup>

(a) Availability. The water supply for each person must be sufficient and continuous for personal and domestic uses. The quantity of water available for each person should correspond to World Health Organization (WHO) guidelines.<sup>179</sup>

(b) Quality. The water required for each individual's personal and domestic use must be safe, and so free from micro-organisms, chemical substances and radiological hazards that constitute a threat to a person's health.

(c) Accessibility. Water and water facilities and services have to be accessible to everyone without discrimination, within the jurisdiction of the state party. Accessibility has four overlapping dimensions:

- (i) Physical accessibility: water, and adequate water facilities and services, must be within safe physical reach for all sections of the population.
- (ii) Economic accessibility: water, and water facilities and services, must be affordable for all.
- (iii) Non-discrimination: water and water facilities and services must be accessible to all, including the most vulnerable or marginalized sections of the population, in law and in practice, without discrimination on any of the prohibited grounds; and
- (iv) Information accessibility: accessibility includes the right to seek, receive and impart information concerning water issues.

As is the case with other rights, states have an obligation to respect, protect and fulfill the right to water. As part of its obligation to respect the right to water, Israel, as a state party to the ICESCR, is obligated to refrain from interfering directly or indirectly with the enjoyment of the right to water. The obligation includes "*refraining from engaging in any practice or activity that denies or limits equal access to adequate water; arbitrarily interfering with customary or traditional arrangements for water allocation; unlawfully diminishing or polluting water, for example through waste from State-owned facilities or through use and testing of weapons; and limiting access to, or destroying, water services and infrastructure as a punitive measure, for example, during armed conflicts in violation of international humanitarian law.*"<sup>180</sup>

In this respect, the destruction of water harvesting and storage infrastructure constitutes an egregious violation of the right to water. In a context where communities are already struggling to access water, the destruction of cisterns and other water harvesting, storage and distribution facilities denies communities access to even the minimum amounts of water that they are able to collect themselves. It is a clear violation of Israel's obligation not to interfere with the right to water, represents an arbitrary interference with customary or traditional arrangements for water allocation and unlawfully diminishes the availability of water to vulnerable communities.<sup>181</sup> It also breaches Israel's obligation, identified by the Committee

on Economic, Social and Cultural Rights, not to limit "access to, or destroying, water services and infrastructure as a punitive measure".<sup>182</sup> The Committee has also emphasized that "Under no circumstances shall an individual be deprived of the minimum essential level of water."<sup>183</sup> The restrictions Israel imposes on the movement of Palestinians, which in themselves arbitrarily interfere with the right to freedom of movement and thus violate Article 12 of the ICCPR, also constitute barriers to the accessibility of water and water facilities and breach the prohibition on non-discrimination as they are applied in a discriminatory manner between Israeli settlers and the Palestinian population.

As part of the obligation to protect the right to water, Israel must prevent third parties from interfering in any way with the enjoyment of the right to water.<sup>184</sup> The obligation includes adopting the necessary and effective legislative and other measures to restrain third parties from denying equal access to adequate water; and polluting and inequitably extracting from water resources, including natural sources, wells and other water distribution systems.<sup>185</sup>

The obligation to fulfill, requires state parties to adopt the necessary measures directed towards the full realization of the right to water, including by taking positive measures to assist individuals and communities to enjoy the right. States parties are also obliged to provide the right when individuals or a group are unable, for reasons beyond their control, to realize that right themselves by the means at their disposal.<sup>186</sup>

The Committee has also identified core obligations of immediate effect, which states parties are under a duty to prioritize in order to ensure, at the very least, achievement of minimum essential levels of each of the rights enunciated in the Covenant. In relation to the right to water, these core obligations include ensuring:<sup>187</sup>

access to the minimum essential amount of water that is sufficient and safe for personal and domestic uses to prevent disease;

the right of access to water and water facilities and services on a non-discriminatory basis, especially for disadvantaged or marginalized groups;

physical access to water facilities or services that provide sufficient, safe and regular water; that have a sufficient number of water outlets to avoid prohibitive waiting times; and that are at a reasonable distance from the household;

personal security is not threatened when having to physically access water;

equitable distribution of all available water facilities and services;

that measures are taken to prevent, treat and control diseases linked to water, and in particular ensuring access to adequate sanitation.

With specific regard to the restrictions imposed by Israel on the Palestinians' access to water, the Committee on Economic, Social and Cultural Rights has expressed concern: "...about limited access to and distribution and availability of water for Palestinians in the occupied territories, as a result of inequitable management, extraction and distribution of shared water resources, which are predominantly under Israeli control." The Committee has strongly urged

Israel "...to take immediate steps to ensure equitable access to and distribution of water to all populations living in the occupied territories, and in particular to ensure that all parties concerned participate fully and equally in the process of water management, extraction and distribution. In that connection, the Committee refers the State party to its general comment No. 15 on the right to water."<sup>188</sup>

The Committee on Economic, Social and Cultural Rights has also emphasized that while water is required for a range of purposes, "*priority in the allocation of water must be given to the right to water for personal and domestic uses. Priority should also be given to the water resources required to prevent starvation and disease, as well as water required to meet the core obligations of each of the Covenant rights.*"<sup>189</sup>

The Committee has also highlighted the importance of ensuring sustainable access to water resources for agriculture to realize the right to adequate food<sup>190</sup> and the need to ensure access to safe and potable water as one of the underlying determinants of health under the right to health.<sup>191</sup>

Article 11 of the ICESCR requires states parties to "*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*". States must refrain from impeding access to the resources needed for the realization of this right, including income-generating activities that allow individuals to maintain an adequate standard of living.<sup>192</sup>

As well as the above-mentioned provisions, Israeli policies and practices which restrict the Palestinians' access to water also violate a number of other provisions contained in international human rights treaties that Israel has ratified and is obliged to uphold. These include:

**Natural wealth and resources:** Article 1 (2) of both the ICESCR and the International Covenant on Civil and Political Rights (ICCPR) stipulates that: "*All peoples may, for their own ends, freely dispose of their natural wealth and resources... In no case may a people be deprived of its own means of subsistence.*" Given the centrality of water as a an indispensable resource for the subsistence and social and economic development of communities, the restrictions which Israel has imposed on the Palestinians' access to water – both in general and as a means to force communities to vacate land they inhabit in parts of the OPT – violate this provision.

**Discrimination:** The stark discrepancy in the allocation of water, both in terms of the quantity and the quality of the facilities provided to Palestinians and Israelis, especially Israeli settlers living in the OPT, amounts to discrimination and violates Article 5 of the International Convention on the Elimination of All Forms of Racial Discrimination (ICERD), which requires that: "*... States Parties undertake to prohibit and to eliminate racial discrimination in all its forms and to guarantee the right of everyone, without distinction as to race, colour, or national or ethnic origin, to equality before the law, notably in the enjoyment of... Economic, social and cultural rights...*"

## INTERNATIONAL HUMANITARIAN LAW

As the occupying power in the West Bank and Gaza, Israel has specific obligations under international humanitarian law. It must comply with the international humanitarian law provisions applicable to belligerent occupation. In addition, in situations where violence in the OPT has reached the threshold of armed conflict, its military operations must adhere to international humanitarian law's rules governing the conduct of hostilities. Some of these provisions are particularly relevant to Palestinians' access to water.

The Fourth Geneva Convention imposes obligations on an occupying power in relation to the inhabitants of the occupied territory, who are entitled to special protection and humane treatment. The occupying power is responsible for the welfare of the population under its control. This means it must ensure that law and order is maintained and basic necessities are provided for. According to Article 55, Israel *"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."* This obligation includes ensuring access to water.

The **Hague Regulations** impose limitations on an occupying power's use of requisitioned property and the natural resources of the occupied territory. Article 55 of the Hague Regulations forbids the occupying state from changing the character and nature of property and natural resources in the occupied territory, which it must safeguard and administer in accordance with the rules of usufruct. As such, changes are permitted only for security needs and for the benefit of the local population. Israel's building of water (and all other) infrastructure for Israeli settlements located in the OPT does not meet these two exceptional criteria. Article 43 also states that the occupying power should *"take all measures in his power to restore, and ensure, as far as possible, public order and safety, while respecting, unless absolutely prevented, the laws in force in the country."*

In addition, the Fourth Geneva Convention explicitly prohibits the establishment of settlements in occupied territory. Article 49 states: *"The Occupying Power shall not deport or transfer parts of its own civilian population into the territory it occupies."* The Rome Statute of the International Criminal Court, which includes the most contemporary and comprehensive enumeration of war crimes agreed by the international community, includes among the war crimes within the jurisdiction of the court the *"transfer, directly or indirectly, by the Occupying Power of parts of its own civilian population into the territory it occupies... when committed as part of a plan or policy or a part of a large scale commission of such crimes."*<sup>193</sup>

There are several other key provisions of international humanitarian law relevant to Palestinians' access to water that are not specific to situations of occupation.

The 1977 Protocol Additional to the Geneva Conventions relating to the Protection of Victims of International Armed Conflicts (Additional Protocol I) stipulates in Article 54 (2): *"It is prohibited to attack, destroy, remove or render useless objects indispensable to the survival of the civilian population, such as foodstuffs, agricultural areas for the production of foodstuffs, crops, livestock, drinking water installations and supplies and irrigation works, for the specific purpose of denying them for their sustenance value to the civilian population or to the adverse Party, whatever the motive, whether in order to starve out civilians, to cause*

them to move away, or for any other motive." <sup>194</sup> Article 54(4) prohibits reprisal attacks on such objects.

Attacks in reprisal and other deliberate attacks by Israeli forces on water facilities and infrastructure in the OPT, and on power generation and other facilities which directly affect the supply and quality of water violate this and other provisions of international humanitarian law. These include Article 33 of the Fourth Geneva Convention and Article 50 of the Hague Regulations, which prohibit collective punishment, and Article 53 of the Fourth Geneva Convention, which prohibits the destruction of private or public property, "*except where such destruction is rendered absolutely necessary by military operations.*" Such attacks constitute war crimes. Article 147 of the Fourth Geneva Convention lists as a grave breach "*extensive destruction and appropriation of property, not justified by military necessity and carried out unlawfully and wantonly.*"

## APPLICABILITY OF INTERNATIONAL LAW IN THE OPT

**International humanitarian law:** While recognizing the de jure applicability of the Hague Regulations, which it has not signed, Israel has consistently rejected the applicability to the OPT of the Fourth Geneva Convention, to which it is a party.<sup>195</sup> Nevertheless, Israel maintains that, in practice, it applies what it has termed "humanitarian provisions" of the Geneva Convention to the OPT, though without ever specifying what it deems the "humanitarian provisions" of the Convention to comprise. Israel stands alone in contending that the Fourth Geneva Convention does not apply to its occupation of the West Bank and Gaza Strip. The International Committee of the Red Cross (ICRC), which works to ensure the application of international humanitarian law (including as set out in the 1949 Geneva Conventions and their two Additional Protocols), as well as the other states that are party to this treaty (known as High-Contracting Parties), fundamentally reject the Israeli government's view. The most recent Conference of the High Contracting Parties to the Fourth Geneva Convention in December 2001 reaffirmed "*the applicability of the [Fourth Geneva] Convention to the Occupied Palestinian Territory, including East Jerusalem*" and reiterated the need for full respect of its provisions.<sup>196</sup> This position of the ICRC and the High Contracting Parties of the Geneva Conventions on the applicability of Israel's obligations under the Fourth Geneva Convention to the OPT has been supported by numerous resolutions of the UN Security Council.<sup>197</sup>

**International human rights law:** Israel has never recognized its obligation to abide by the international human rights treaties to which it is a state party in the OPT, and contends that under international law it is not required to apply these treaties to areas that are not part of its sovereign territory. It argues that limited provisions of humanitarian law should be applied in the OPT to the exclusion of international human rights law. However, all of the UN bodies entrusted with monitoring adherence by Israel to the treaties it has ratified have categorically rejected Israel's contention that its human rights obligations do not apply in the OPT.

In addition, since it signed the Oslo Accords, which led to the establishment of the PA, Israel contends that it cannot be internationally responsible for ensuring the implementation of these human rights treaties in the OPT because in many areas the majority of civil powers and responsibilities have been transferred to the PA. However, under the Oslo Accords the PA

is clearly dependent on Israel's cooperation to exercise such powers and responsibilities as it has, and Israel continues to exercise overall effective control over the OPT, including control over the Palestinian population's access to vital resources – notably land and water, neither of which was included in the Oslo Accords.<sup>198</sup>

As well, according to the Fourth Geneva Convention: "*Protected persons who are in occupied territory shall not be deprived, in any case or in any manner whatsoever, of the benefits of the present Convention by any change introduced as the result of the occupation of a territory, into the institutions or government of the said territory, nor by any agreement concluded between the authorities of the occupied territory and the Occupying power, nor by any annexation by the latter of the whole or part of the occupied territory.*" (Article 47)

Moreover, during the past nine years Israel has withdrawn many of the powers it transferred to the PA under the Oslo Accords and Israeli government officials have repeatedly stated that the Accords' provisions no longer apply.<sup>199</sup> Since the outbreak of the Palestinian uprising in September 2000 Israeli forces have been redeployed in the towns and villages that were placed under PA jurisdiction by the Oslo Accords, and in which most Palestinians live. Indeed most of the houses, water installations and other properties that have been destroyed and damaged by Israeli forces have been located in areas that, according to the Oslo Accords, fall within the PA's area of jurisdiction.

All the UN human rights treaty bodies have rejected Israel's contention that the UN human rights conventions do not apply in the OPT, including in concluding observations issued after the creation of the PA.<sup>200</sup> The Committee on Economic, Social and Cultural Rights, for example, has made clear in relation to Israel "*its view that the State party's obligations under the Covenant apply to all territories and populations under its effective control*".<sup>201</sup> The Committee has also stated that "*the applicability of rules of humanitarian law does not by itself impede the application of the Covenant or the accountability of the State under article 2 (1) for the actions of its authorities*".<sup>202</sup> The Committee has also stated "*Even during armed conflict, fundamental human rights must be respected and ... basic economic, social and cultural rights as part of the minimum standards of human rights are guaranteed under customary international law and are also prescribed by international law.*"<sup>203</sup>

## INTERNATIONAL LAW AND THE USE OF TRANSBOUNDARY GROUNDWATER RESOURCES

As noted in a 1998 World Bank Technical Paper, entitled *Identification of Joint Management Structures for Shared Aquifers A Cooperative Palestinian-Israeli Effort*, "*Groundwater, like surface water, does not conform to either administrative or international boundaries. While there is extensive experience in the management and adjudication of crossboundary surface water, less information exists on the management of transboundary groundwater. Consequently, the need to establish a mechanism for identifying and establishing cross-boundary management institutions for groundwater has become more pressing*".<sup>204</sup>

International laws and instruments governing shared water resources provide a regulatory framework for sovereign states. In this case, however, only one of the parties, Israel, is a



sovereign state and it continues to occupy the other party, the OPT, retaining sole effective control over that territory and its surface and groundwater resources. Consequently, as it is not a sovereign state, the PA does not have access to the arbitration or enforcement mechanisms provided for in such international laws and instruments. However, the basic principles that provide the basis for defining the international regulatory instruments between sovereign states and which reflect customary international law serve as a guide for the standards and principles that should be applied between Israel and the Palestinians in the OPT, regardless of the anomalous, non sovereign status of the PA.

One widely accepted principle governing the use of international watercourses is the principle of equitable utilization. This principle, included in **the UN Convention on the Law of the Non-Navigational Uses of International Watercourses**,<sup>205</sup> requires consideration of all relevant factors and circumstances in determining what is an equitable and reasonable use of an international watercourse by a state. The Convention obliges states to use international watercourses in an equitable and reasonable manner and includes a non-exhaustive list of the relevant factors and circumstances that will determine this.<sup>206</sup> It obliges states to refrain from causing significant harm to other watercourse states,<sup>207</sup> to cooperate<sup>208</sup> and to prevent or reduce pollution of watercourses.<sup>209</sup> It provides too that conflicts over usage of international watercourses are to be resolved in accordance with the equitable and reasonable use and no substantial harm principles, "*with special regard being given to the requirements of vital human needs*".<sup>210</sup> The Convention, which took 27 years to be formulated and adopted, has not yet entered into force and has not been signed by Israel.<sup>211</sup>

The application of the Convention is limited to international watercourses defined as "*system[s] of surface waters and groundwaters constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus*,"<sup>212</sup> and excludes groundwater which is not related to a surface water system.<sup>213</sup> However, it is arguable that the basic principles of the Convention reflect customary international law applicable to all categories of surface and ground water.<sup>214</sup> In a verdict issued in 1997, the International Court of Justice (ICJ) ruled that "*...states have a basic right to an equitable and reasonable share of an international watercourse*",<sup>215</sup> a principle which arguably extends to groundwater.

Whereas some dispute the applicability of the 1997 Convention to the Mountain Aquifer, because it is an "unrelated" groundwater resource,<sup>216</sup> the Convention's applicability to the Jordan River is clear cut. Article 5 of the Convention stipulates the right of co-riparians to "*equitable and reasonable*" use of the watercourse, "*consistent with adequate protection of the watercourse*". In this regard, there is no doubt that Israel's practices are contrary to the rules of the Convention – notably by denying the Palestinians access to the Jordan River and appropriating their share of the river's water, and by engaging in practices which have caused significant and long-term damage to the river (diverting its flow upstream, virtually drying up the river, and allowing the discharge of sewage and waste which has polluted the river).

A specific international instrument - the **Law of Transboundary Aquifers (Shared Natural Resources)** – has been under development by the UN International Law Commission (UNILC) since 2000.<sup>217</sup> At its 60<sup>th</sup> session in June 2008 the UNILC adopted on second reading a set of 19 draft articles and a preamble on the Law of Transboundary Aquifers,<sup>218</sup> and submitted the draft to the UN General Assembly. In December 2008 the UN General Assembly adopted a resolution which "*Encourages the States concerned to make appropriate bilateral or*

*regional arrangements for the proper management of their transboundary aquifers, taking into account the provisions of these draft articles.*"<sup>219</sup> This draft international law applies to both related and unrelated groundwater.

Article 4 of the draft Law of Transboundary Aquifers provides for "*equitable and reasonable utilization*" and Article 5 identifies key factors relevant to establish equitable and reasonable utilization:

1. Utilization of a transboundary aquifer or aquifer system in an equitable and reasonable manner within the meaning of article 4 requires taking into account all relevant factors, including:<sup>220</sup>

- (a) The population dependent on the aquifer or aquifer system in each aquifer State;
- (b) The social, economic and other needs, present and future, of the aquifer States concerned;
- (c) The natural characteristics of the aquifer or aquifer system;
- (d) The contribution to the formation and recharge of the aquifer or aquifer system;
- (e) The existing and potential utilization of the aquifer or aquifer system;
- (f) The actual and potential effects of the utilization of the aquifer or aquifer system in one aquifer State on other aquifer States concerned;
- (g) The availability of alternatives to a particular existing and planned utilization of the aquifer or aquifer system;
- (h) The development, protection and conservation of the aquifer or aquifer system and the costs of measures to be taken to that effect;
- (i) The role of the aquifer or aquifer system in the related ecosystem.

Article 3 of the draft law stipulates that: "*Each aquifer State has sovereignty over the portion of a transboundary aquifer or aquifer system located within its territory. It shall exercise its sovereignty in accordance with international law and the present draft articles.*"

While it is not known when or if this law may be adopted, the content of the current draft can be a useful indication of international experts' reasoning on key principles such as equitable use and sovereignty over groundwater resources in a given territory.

# CONCLUSION AND RECOMMENDATIONS

Israel's actions and policies have greatly diminished existing water sources and restricted the availability of water for the Palestinian population in the OPT in breach of Israel's obligations under international human rights and humanitarian law. These actions and policies include diversion of the Jordan River and its tributaries, leading to the denial of access to water from this source for the Palestinians, the imposition of quotas and restrictive allocations of water from the aquifers as well as restrictions on construction of new water installations. Through these actions and policies, Israel breaches its obligation under the ICESCR to respect the right to water, which requires that state parties refrain from interfering directly or indirectly with the enjoyment of the right to water.<sup>221</sup> The obligation which Israel has breached includes its obligation to refrain from engaging in any practice or activity that denies or limits equal access to adequate water, arbitrarily interfering with customary or traditional arrangements for water allocation and unlawfully diminishing water.<sup>222</sup>

The military orders imposed and maintained by Israel create substantial barriers to the availability and accessibility of water for the Palestinian population and are applied in a discriminatory manner between Israeli settlers and the Palestinians living in particular areas. They amount, therefore, to a violation of the right to water as they are "*policies which are manifestly incompatible with pre-existing domestic or international legal obligations in relation to the right to water*".<sup>223</sup> They also breach the Hague Regulations' prohibition on the occupying power changing the character and nature of property and natural resources in the occupied property, and the obligation to safeguard and administer these resources in accordance with the rule of usufruct and not to utilize the resources of the occupied territory for the benefit of its own civilian population.

Israel must uphold its obligations as the occupying power by putting an immediate end to current policies and practices which arbitrarily restrict the Palestinians' access to and availability of water in the OPT. In particular Amnesty International is calling on the Israeli authorities to take the following actions:

- Act as a matter of priority to permit the Palestinians to access and extract an equitable share of water from the shared aquifers and surface water resources in the OPT (including the Jordan River and river bank springs). Limit their own extraction of water from the shared water resources to a level that respects the principle of equitable and reasonable utilization, including by stopping extraction in excess of the aquifer's yearly sustainable yield. Ensure that the Palestinian population has access to a sufficient, safe, and regular supply of water to satisfy their personal and domestic needs and for their economic development, including the development of their industrial and agricultural activities and other activities necessary to enjoy their rights to an adequate standard of living, water, food, adequate housing, health and work.
- Act as a matter of priority to permit the construction of water and sanitation infrastructure sufficient to ensure Palestinians' physical access to sufficient, safe, and regular water, and to

prevent damage to water resources.

- Transfer responsibility for planning and building policies and regulations for water and sanitation facilities in the OPT to the Palestinian communities.

- Pending transfer of planning authority to the Palestinians communities, permit requirements must be reasonable, serve a legitimate purpose, be limited in time and be applied without discrimination. The management of water supplies should be undertaken in a manner that respect the principles of non-discrimination and the right of individuals and groups to participate in decision-making processes that may affect their rights to water, food, health, work and an adequate standard of living. Alleged permit violations should never result in summary destruction of hoses, pipes, and other equipment necessary for the delivery of water. Under no circumstances should any individual be deprived of the minimum essential amount of water.

- As a first step and pending further measures to ensure Palestinian access to an equitable share of the shared water resources, allow Palestinians to drill new wells and rehabilitate or upgrade existing wells and to access springs throughout the West Bank, including the East Jerusalem area, so as to ensure the realization without further delay of the water supplies for the Palestinians (196 MCM/Y) provided for in Schedule 10 of Article 40 of the Israeli-Palestinian Interim Agreement on the West Bank and Gaza (the Oslo Accords) of 28 September 1995.

- Immediately allow the transfer of water from the West Bank to Gaza.

- Allow into Gaza as a matter of urgency the material and equipment necessary for the construction and repair of water and sanitation facilities, and the quantities of fuel necessary for operating these facilities, and ensure that water is never used as an instrument of political or economic pressure under any circumstances.

- Lift the restrictions on the movement of Palestinians and remove the obstacles – both procedural and physical - currently in place, which arbitrarily deny or restrict access to the Palestinians to adequate water supplies and to the land where water resources are located in the OPT, and which hinder the implementation and delivery of water and sanitation projects and services. Any restrictions on movement or other security measures may only be imposed if they are absolutely necessary, are related to a specific security threat and are non-discriminatory and proportionate in terms of their impact and their duration.

- Put an immediate end to the destruction of water harvesting and storage cisterns, spring canals, and other water facilities, revoke all outstanding orders for demolitions and place a moratorium on demolitions of such facilities in [Area C of] the West Bank.

- Put an immediate end to policies and practices which discriminate against Palestinians and which confer privileged access to water for Israeli settlers in the West Bank and immediately halt the construction and expansion of Israeli settlements and related infrastructure in the West Bank, including East Jerusalem – which are unlawful under international law - as a first step pending the removal of the Israeli settlements from the OPT.

- Halt the construction of the fence/wall and other barriers or other permanent structures inside the OPT which restrict or deny access to the Palestinians to water and other resources; remove the sections of the fence/wall that have already been constructed within the OPT, restore seized properties and water related infrastructure and provide reparations for land, property and water-related infrastructure that was seized, damaged or destroyed.
- Ensure that any action taken in military operations in armed conflict rigorously adheres to the rules on the conduct of hostilities and applicable human rights law. In particular, Israeli forces must never deliberately attack water facilities and related infrastructure, and must take all necessary precautions during attacks to ensure that these and other civilian objects are not damaged as a result of indiscriminate or disproportionate attacks.
- Take effective steps to prevent soldiers, settlers and companies from violating the right to water of Palestinian individuals and communities in the OPT. Such steps should include full investigation, prosecution, and punishment of those responsible for unlawful acts.
- Ensure that adequate restitution and compensation are provided to those who have incurred damage to and loss of water facilities and other property as a result of violations by Israeli forces or settlers.
- Take immediate and concrete measures to put an end to, and enforce, the prohibition on dumping of waste in Area C of the West Bank and in any other areas where PA law-enforcement agents are not allowed to operate.
- Take concrete measures to put an end to the discharge of sewage and other wastewater from Israeli settlements in the OPT and allow the construction of Palestinian sewage treatment plants in Area C of the West Bank.

#### **TO THE PWA**

Amnesty International is calling on the PA and PWA to:

- Take measures to maximize existing water resources, by prioritizing measures which reduce the unacceptably high water losses;
- Take immediate and concrete measures to put in place the necessary oversight mechanisms to ensure that all water supplies under Palestinian control are rigorously monitored for quality so as to ensure that all the water delivered to consumers, whether through the network or via mobile water tankers, is safe and complies with WHO standards;
- Take immediate and concrete measures to put in place and enforce regulatory mechanisms to put an end to the activities of unlicensed vendors who sell water from private agricultural wells which is not monitored for quality and which is potentially unsafe;
- Take action against individuals who through unlicensed connections deprive their neighbours of water supplies;

- Take immediate and concrete measures to put an end to, and enforce, the prohibition on dumping of waste outside licensed dumps and landfills in the areas under PA jurisdiction;
- Take concrete measures to put an end to the discharge of untreated sewage and other wastewater into the environment, notably by prioritizing the development of sewage collection networks and treatment facilities;
- Carry out educational campaigns to raise awareness about the dangers to drinking water supplies and to health posed by the discharge of untreated sewage and the disposal of waste into the environment.

## **TO INTERNATIONAL DONORS**

Amnesty International is calling on international donors to:

- Take steps to improve coordination among donors so as to maximize existing resources and the outcome of individual projects;
- Ensure a high level of oversight at all stages of each project to avoid mismanagement and malpractice;
- Ensure transparent reporting of difficulties and obstacles, including clearly identifying the causes and sources of such obstacles, which delay or prevent the implementation of water and sanitation projects;
- Commit to funding long-term sustainable water and sanitation infrastructure projects; challenge and publicly report restrictions and malpractices which delay or prevent the implementation of such projects; and refrain from just resorting to diverting funds to short-term stop-gap projects instead of addressing such delays and restrictions;
- Put in place an effective mechanism to monitor and report on activities by Israeli and Palestinian authorities which hinder the effective implementation and delivery of water and sanitation projects and services; and recommend corrective measures to be adopted by the concerned parties;
- Ensure that Israel, as the occupying power, fulfils its obligation to provide for the protection and welfare of the Palestinian population, and refrain from imposing sanctions that negatively affect the provision of water and sanitation services and other humanitarian assistance to the Palestinian population;
- Ensure that any peace process includes concrete provisions that address fundamental human rights issues at the heart of the conflict, including Palestinian access to an equitable share of the shared water resources and to land, the removal of Israeli settlements from the OPT, the dismantling of the fence/wall and other barriers which restrict Palestinian access to water resources inside the OPT.

# GLOSSARY

## Acronyms

CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CRC	Convention on the Rights of the Child
COGAT	Coordinator of Government Activities in the Territories
ICCPR	International Covenant on Civil and Political Rights
ICERD	International Convention on the Elimination of All Forms of Racial Discrimination
ICESCR	International Covenant on Economic, Social and Cultural Rights
ICJ	International Court of Justice
ICRC	International Committee of the Red Cross
IDF	Israel Defence Force (Israeli army)
JWC	Joint Water Committee
JWU	Jerusalem Water Undertaking
Lpcd	Litres per capita per day
m <sup>3</sup>	Cubic metres
MCM	Millions of cubic metres
MCM/Y	Millions of cubic metres per year
NIS	New Israeli Shekels
OCHA	Office for the Coordination of Humanitarian Affairs
OPT	Occupied Palestinian Territories
PA	Palestinian Authority
PWA	Palestinian Water Authority
PARC	Palestinian Agricultural Relief Committees
PHG	Palestinian Hydrology Group
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNRWA	United Nations Relief and Works Agency for Palestine Refugees in the Near East
WBWD	West Bank Water Department
WHO	World Health Organization
WWTP	Wastewater treatment plant

## ENDNOTES

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<sup>1</sup> The destruction was apparently a retaliatory measure, in revenge for the killing of an Israeli settler in the area – even though the Palestinian villagers were not involved in the killing. Also see, B'Tselem, *Means of Expulsion: Violence, Harassment and Lawlessness Toward Palestinians in the Southern Hebron Hills*, July 2005: [http://www.btselem.org/Download/200507\\_South\\_Mount\\_Hebron\\_Eng.pdf](http://www.btselem.org/Download/200507_South_Mount_Hebron_Eng.pdf)

<sup>2</sup> “Access to quality water and sanitation increasingly problematic: The total water supply in the oPt declined in 2007 compared to 2006. Current water supply in the oPt is estimated at 75 litres per capita per day (l/c/d) - 65.3 l/c/d in the West Bank and 80.5 l/c/d in the Gaza Strip. This constitutes only half the international standard of 150 l/c/d.35” (UN Agencies Consolidated Appeal 2008: [http://www.ochaopt.org/documents/CAP\\_2008\\_oPt\\_VOL1\\_SCREEN.pdf](http://www.ochaopt.org/documents/CAP_2008_oPt_VOL1_SCREEN.pdf)), and “Water availability is scarce in the region [OPT] and present supplies barely meet the needs of the Palestinian people. 13% of the population do not have access to a supply of running water and many of the existing water facilities are dilapidated. Water quality particularly in the Gaza Strip is very poor to the extent that only 7% of the water supplied for domestic use meets international and World Health Organization standards”. (UNDP, June 2007): <http://www.undp.ps/en/focusareas/engenv/engenv.html>

<sup>3</sup> WHO Technical Note No 9 - *Minimum water quantity needed for domestic use in emergencies*: [http://wedc.lboro.ac.uk/resources/who\\_notes/WHO\\_TN\\_09\\_How\\_much\\_water\\_is\\_needed.pdf](http://wedc.lboro.ac.uk/resources/who_notes/WHO_TN_09_How_much_water_is_needed.pdf)

<sup>4</sup> See for example: <http://www.kibbutz.co.il/kibbutzhotels/kalia.htm>  
<http://www.amana.co.il/Index.asp?ArticleID=249&CategoryID=100>,  
[http://go.ariel.muni.il/ariel/en/index.php?option=com\\_expose&Itemid=55](http://go.ariel.muni.il/ariel/en/index.php?option=com_expose&Itemid=55)

<sup>5</sup> This figure excludes the more than 200,000 Palestinian residents of East Jerusalem; though part of the OPT, East Jerusalem has been annexed by Israel. For population statistics see: <http://www.pcbs.gov.ps/>

<sup>6</sup> The PWA is part of the PA; it is the public authority responsible for managing water supplies

<sup>7</sup> The main donors in the water and sanitation sector in the OPT include the US, the EU and EU governments and UN agencies

<sup>8</sup> Video clip by the Israeli NGO Machsom Watch (Checkpoint Watch) filmed at the farm five months later: <http://uk.youtube.com/watch?v=oBbae-BD53k>

<sup>9</sup> <http://www.m-s-m.org/hostel-english.htm>

<sup>10</sup> Israel also occupied Syria's Golan Heights, which it annexed in 1980 in violation of international law, and the Sinai Peninsula, which was later returned to Egypt

<sup>11</sup> More than 2,500,000 other Palestinian refugees live in Jordan, Syria and Lebanon

<sup>12</sup> The number of Israeli settlers in the OPT virtually doubled in the 1990s. “Bypass” roads are so called because their purpose is to allow Israeli settlers to travel between settlements and to Israel, bypassing Palestinian towns and villages.

<sup>13</sup> Also see: [http://uk.encyarta.msn.com/encyclopedia\\_781528316/aquifer.html](http://uk.encyarta.msn.com/encyclopedia_781528316/aquifer.html) and <http://books.google.co.uk/books?id=Mr->



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[Gn3oHmhsC&pg=PA180&lpg=PA180&dq=groundwater+aquifer+definition&source=bl&ots=bykUs\\_Gq36&sig=VCjjaAeW145PoFOYN9mZbMIG0dk&hl=en&ei=qwwJSvPtDeigjAeHxYQ](http://www.mfa.gov.il/MFA/Peace+Process/Guide+to+the+Peace+Process/THE+ISRAELI-PALESTINIAN+INTERIM+AGREEMENT+-+Annex+III.htm#sch-10)

<sup>14</sup> As detailed in the Oslo Accords (The Israeli-Palestinian Interim Agreement on the West Bank and the Gaza Strip): Schedule 10 for Article 40 – Data concerning Aquifers:

<http://www.mfa.gov.il/MFA/Peace+Process/Guide+to+the+Peace+Process/THE+ISRAELI-PALESTINIAN+INTERIM+AGREEMENT+-+Annex+III.htm#sch-10>

<sup>15</sup> According to the Geological Survey of Israel some 100 MCM/Y of this aquifer's yield is fresh water, while the rest is saline water; see:

<http://www.gsi.gov.il/Eng/Index.asp?ArticleID=159&CategoryID=112&Page=1>

<sup>16</sup> According to the Israeli Ministry of Environmental Protection: " In 2001/2, 525 MCM were pumped from the coastal aquifer..., 49 MCM above the replenishment rate for that year" ,

[http://www.environment.gov.il/bin/en.jsp?enPage=bulletin&infocus=1&enDisplay=view&enDispWhat=object&enDispWho=News%5E1694&enZone=march\\_bull04&enVersion=0&](http://www.environment.gov.il/bin/en.jsp?enPage=bulletin&infocus=1&enDisplay=view&enDispWhat=object&enDispWho=News%5E1694&enZone=march_bull04&enVersion=0&)

<sup>17</sup> Israeli Ministry of Environmental Protection:

[http://www.sviva.gov.il/Environment/bin/en.jsp?enPage=e\\_BlankPage&enDisplay=view&enDispWhat=Zone&enDispWho=Lake\\_Kinneret&enZone=Lake\\_Kinneret](http://www.sviva.gov.il/Environment/bin/en.jsp?enPage=e_BlankPage&enDisplay=view&enDispWhat=Zone&enDispWho=Lake_Kinneret&enZone=Lake_Kinneret)

<sup>18</sup> Israeli Central Bureau of Statistics: [http://www.cbs.gov.il/shnaton60/st21\\_05.pdf](http://www.cbs.gov.il/shnaton60/st21_05.pdf)

<http://www.cbs.gov.il/publications/haklaut07/pdf/t11a.pdf>

<sup>19</sup>

[http://www.sviva.gov.il/Environment/bin/en.jsp?enPage=e\\_BlankPage&enDisplay=view&enDispWhat=Object&enDispWho=Articals^I2060&enZone=Quality\\_Water](http://www.sviva.gov.il/Environment/bin/en.jsp?enPage=e_BlankPage&enDisplay=view&enDispWhat=Object&enDispWho=Articals^I2060&enZone=Quality_Water) and

[http://www.sviva.gov.il/Environment/bin/en.jsp?enPage=e\\_BlankPage&enDisplay=view&enDispWhat=Zone&enDispWho=Lake\\_Kinneret&enZone=Lake\\_Kinneret](http://www.sviva.gov.il/Environment/bin/en.jsp?enPage=e_BlankPage&enDisplay=view&enDispWhat=Zone&enDispWho=Lake_Kinneret&enZone=Lake_Kinneret)

<sup>20</sup>

<http://domino.un.org/unispal.nsf/3822b5e39951876a85256b6e0058a478/064d5ab9db510b6d85256f38005c1dad!OpenDocument>

<sup>21</sup> <http://www.foeme.org/projects.php?ind=23>

<sup>22</sup>

[http://www.sviva.gov.il/Environment/bin/en.jsp?enPage=e\\_BlankPage&enDisplay=view&enDispWhat=Object&enDispWho=Articals^I2060&enZone=Quality\\_Water](http://www.sviva.gov.il/Environment/bin/en.jsp?enPage=e_BlankPage&enDisplay=view&enDispWhat=Object&enDispWho=Articals^I2060&enZone=Quality_Water)

<sup>23</sup> *Assessment of Restrictions on Palestinian Water Sector Development* , the World Bank, April 2009, p.

11:[http://siteresources.worldbank.org/INTWESTBANKGAZA/Resources/WaterRestrictionsReport18Apr2009\\_9.pdf](http://siteresources.worldbank.org/INTWESTBANKGAZA/Resources/WaterRestrictionsReport18Apr2009_9.pdf)

<sup>24</sup>

[http://www.sviva.gov.il/Environment/bin/en.jsp?enPage=e\\_BlankPage&enDisplay=view&enDispWhat=Object&enDispWho=Articals^I2060&enZone=Quality\\_Water](http://www.sviva.gov.il/Environment/bin/en.jsp?enPage=e_BlankPage&enDisplay=view&enDispWhat=Object&enDispWho=Articals^I2060&enZone=Quality_Water)

<sup>25</sup> *Assessment of Restrictions on Palestinian Water Sector Development*, the World Bank, April 2009:

<http://siteresources.worldbank.org/INTWESTBANKGAZA/Resources/WaterRestrictionsReport18Apr2009.pdf>

<sup>26</sup> Extraction includes water from both wells and springs

<sup>27</sup> *Assessment of Restrictions on Palestinian Water Sector Development*, the World Bank, April 2009, p. 12:

<http://siteresources.worldbank.org/INTWESTBANKGAZA/Resources/WaterRestrictionsReport18Apr2009.pdf>

<sup>28</sup> *The Issue of Water between Israel and the Palestinians*, Israeli Water Authority, March 2009, p.27:

<http://www.mfa.gov.il/NR/rdonlyres/71BC5337-F7C7-47B7-A8C7-98F971CCA463/0/IsraelPalestiniansWaterIssues.pdf>

<sup>29</sup> Losses in municipal and industrial conveyance average 34 per cent. *Assessment of Restrictions on Palestinian Water Sector Development*, The World Bank, April 2009, p.17:

<http://siteresources.worldbank.org/INTWESTBANKGAZA/Resources/WaterRestrictionsReport18Apr2009.pdf>

<sup>30</sup> *Ibid*

<sup>31</sup> Opinion differs as to the extent to which extraction inside Israel to the east of Gaza reduces the aquifer's yield in Gaza and no reliable figures exist.

<sup>32</sup> *Hydrological analysis of Wadi Gaza Wetland Area*, Hydrology Study, MedWetCoast (regional United Nations Development Programme [UNDP]), November 2001:

[http://vinc.s.free.fr/article.php3?id\\_article=106](http://vinc.s.free.fr/article.php3?id_article=106)

<sup>33</sup> The annual flow of Wadi Gaza is estimated at 20-30 MCM/Y in *The flow of the Water resources in the Middle East: Israeli-Palestinian water issues, From conflict to cooperation*, by Hillel I. Shuval and Hassan Dwiek, Springer, 2007, page 21. Other estimates vary.

<sup>34</sup> There is no reliable figure for the number of unlicensed wells in Gaza. Even the PA has no figures. There are thousands of mostly shallow wells typically producing small quantities of mostly contaminated water for one or several families.

<sup>35</sup> In Gaza, Military Orders 498 and 558 of 1974 and 1977, respectively, similarly granted all powers for water-related issues to the Israeli army.

<sup>36</sup> The WBWD was established in 1966 by Jordan under Jordanian Law No. 37

<sup>37</sup> B'Tselem, 2000, footnote 78:

[http://www.btselem.org/Download/200007\\_Thirsty\\_for\\_a\\_Solution\\_Eng.doc](http://www.btselem.org/Download/200007_Thirsty_for_a_Solution_Eng.doc)

<sup>38</sup> *Developing the Occupied Territories, an investment in peace*; Volume 5, Infrastructure; The World Bank, September 1993

<sup>39</sup> See photos at: <http://torahalive.com/YardenValley.htm>

<sup>40</sup> *Assessment of Restrictions on Palestinian Water Sector Development*, The World Bank, April 2009: <http://siteresources.worldbank.org/INTWESTBANKGAZA/Resources/WaterRestrictionsReport18Apr2009.pdf> and: *The Economic Effects of Restricted Access to Land in the West Bank*, The World Bank, March 2008: <http://siteresources.worldbank.org/INTWESTBANKGAZA/Resources/EconomicEffectsofRestrictedAccessstoLandintheWestBankOct.21.08.pdf>

<sup>41</sup> UN Secretary-General report to the UN Economic and Social Council, 7 July 1992:

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<http://unispal.un.org/UNISPAL.nsf/361eea1cc08301c485256cf600606959/b67f568df56362c0852571250076384a?OpenDocument>

<sup>42</sup> Testimony given to the Israeli human rights organization B'Tselem on 1 March 2009:

[http://www.btselem.org/english/testimonies/20090301\\_water\\_shortage\\_in\\_yatta\\_witness\\_fatma\\_zein.asp](http://www.btselem.org/english/testimonies/20090301_water_shortage_in_yatta_witness_fatma_zein.asp)

<sup>43</sup> *The Water Issue in the West Bank and Gaza*, Israeli Ministry of Foreign Affairs, June 1999:

<http://www.mfa.gov.il/MFA/Peace+Process/Guide+to+the+Peace+Process/The+Water+Issue+in+the+West+Bank+and+Gaza.htm>

<sup>44</sup> *The issue of ownership of water and sewage related infrastructure in the West Bank will be addressed in the permanent status negotiations*, Interim Agreement, Annex 3, Article 40(5)

<sup>45</sup> " *The Palestinian Authority shall pay Mekoroth for the cost of water supplied from Israel and for the real expenses incurred in supplying water to the Palestinian Authority*". Cairo Agreement of 4 May 1994, Annex II (Protocol on Civil Affairs), Article II, 31e. Before the establishment of the PA the Israeli authorities were not always able to force the Palestinian communities in the OPT to pay water bills, but since the PA was established the Israeli authorities withhold PA funds (notably the import tax which Israel collects on behalf of the PA) to pay for outstanding bills.

<sup>46</sup>

[http://www.sviva.gov.il/bin/en.jsp?enPage=e\\_BlankPage&enDisplay=view&enDispWhat=Object&enDispWh o=Articals^I2419&enZone=wat\\_law](http://www.sviva.gov.il/bin/en.jsp?enPage=e_BlankPage&enDisplay=view&enDispWhat=Object&enDispWh o=Articals^I2419&enZone=wat_law)

<sup>47</sup> Supreme Court ruling, Civ. App. 535/89, *Water Commissioner v. Perlmutter et al.*, *Piskei Din* 56(5) 695-696.

<sup>48</sup> [http://www.pwa.ps/en/index.php?option=com\\_content&view=article&id=51%3Awater-law&catid=39%3Aalaw](http://www.pwa.ps/en/index.php?option=com_content&view=article&id=51%3Awater-law&catid=39%3Aalaw)

<sup>49</sup> The PWA was established by Law No.2/1996 and the PWA Internal Regulations were passed the following year by Resolution No 66/1997. Both were amended in 2002 by the Water Law No 3/2002. A National Water Council (NWC) was established under Law No.2/1996, but it has never functioned.

<sup>50</sup> With the establishment of the PWA the WBWD, which had been under the control of the Israeli army since 1967, was put under PWA management but Israel retained significant control over it. In 2009 tensions arose within the WBWD as the new PWA Chairman appointed a new head of the WBWD, a move apparently opposed by the Israeli authorities.

<sup>51</sup> Article 40.1, at:

<http://www.mfa.gov.il/MFA/Peace+Process/Guide+to+the+Peace+Process/THE+ISRAELI-PALESTINIAN+INTERIM+AGREEMENT+-+Annex+III.htm#app-40>

<sup>52</sup> Cairo Agreement of 4 May 1994, Annex II (Protocol Concerning Civil Affairs), Article 2, - 31b and c. at: <http://www.mfa.gov.il/MFA/Peace+Process/Guide+to+the+Peace+Process/Gaza-Jericho+Agreement+Annex+II.htm>

<sup>53</sup> The quantities are detailed in Schedule 10 for Article 40 – Data concerning Aquifers. Article 4 (3.a) stipulates that " *existing quantities of utilization from the resources*" are to be maintained.

<sup>54</sup> As mentioned in the chapter WATER RESOURCES IN ISRAEL AND THE OPT, in this report, the average yield of the Mountain Aquifer observed by the HSI, the most authoritative source on this issue, is 734 MCM/Y. The lower estimate seems to have been used by Israel to restrict the quota allocated to the

Palestinians for the Western Aquifer, where Israeli extraction reflects HSI figures.

<sup>55</sup> *Ibid*, Article 40 (6): Schedule 10 for Article 40 – Data concerning Aquifers – stipulates: “ 78 mcm remaining quantities to be developed from the Eastern Aquifer”.

<sup>56</sup> *Assessment of Restrictions on Palestinian Water Sector Development*, the World Bank, April 2009, p.11:  
<http://siteresources.worldbank.org/INTWESTBANKGAZA/Resources/WaterRestrictionsReport18Apr2009.pdf>

<sup>57</sup> *Ibid*, p 12. The biggest decline has been in extraction from the Eastern Aquifer.

<sup>58</sup> *Report of the Parliamentary Committee of Inquiry on the Israeli Water Sector*, June 2002:  
<http://www.knesset.gov.il/committees/eng/docs/englishwater.pdf>

<sup>59</sup> *The Issue of Water between Israel and the Palestinians*, Israeli Water Authority, March 2009  
<http://www.mfa.gov.il/NR/rdonlyres/71BC5337-F7C7-47B7-A8C7-98F971CCA463/0/IsraelPalestiniansWaterIssues.pdf>

<sup>60</sup> *Ibid*, p. 13

<sup>61</sup> *Ibid*, p. 27

<sup>62</sup> [http://www.ochaopt.org/documents/hc\\_aida\\_statement\\_gaza\\_watsan\\_20090803\\_english.pdf](http://www.ochaopt.org/documents/hc_aida_statement_gaza_watsan_20090803_english.pdf)

<sup>63</sup> UNEP (September 2009) gives a figure of 80 lpcd:  
[http://postconflict.unep.ch/publications/UNEP\\_Gaza\\_EA.pdf](http://postconflict.unep.ch/publications/UNEP_Gaza_EA.pdf).

The World Bank (March 2009) gives a figure of 152 lpcd, but one third of which is lost, leaving about 100 lpcd:

<http://siteresources.worldbank.org/INTWESTBANKGAZA/Resources/WaterRestrictionsReport18Apr2009.pdf>

<sup>64</sup> In a recent studies 90 per cent of water samples were found to contain nitrate concentrations between two and eight times higher than the limit recommended by the WHO. See:

<http://www.sciencedaily.com/releases/2008/08/080814091214.htm>

Also see: <http://www.rsc.org/chemistryworld/News/2008/August/21080803.asp>

<sup>65</sup> [http://www.who.int/hac/crises/international/wbgs/gaza\\_unrwa\\_epi\\_15feb2009.pdf](http://www.who.int/hac/crises/international/wbgs/gaza_unrwa_epi_15feb2009.pdf)

<sup>66</sup> UNEP, September 2009: [http://postconflict.unep.ch/publications/UNEP\\_Gaza\\_EA.pdf](http://postconflict.unep.ch/publications/UNEP_Gaza_EA.pdf)

<sup>67</sup> *Ibid*

<sup>68</sup> The World Bank, March 2009, p.27-28

<http://siteresources.worldbank.org/INTWESTBANKGAZA/Resources/WaterRestrictionsReport18Apr2009.pdf>

<sup>69</sup> There are also concerns that desalinated water lacks the basic minerals since the majority of minerals are removed by the reverse osmosis process, *Ibid*

<sup>70</sup> Article 4, Israel-PLO Declaration of Principles, 1993.

<sup>71</sup> Plans at the beginning of the decade by USAID to build a large desalination plant were suspended after three US government contractors were killed by unidentified gunmen in October 2003

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<sup>72</sup> [http://postconflict.unep.ch/publications/UNEP\\_Gaza\\_EA.pdf](http://postconflict.unep.ch/publications/UNEP_Gaza_EA.pdf)

<sup>73</sup> The impact of the blockade on water and sanitation in Gaza:  
[http://www.ochaopt.org/cluster/admin/output/files/ocha\\_opt\\_wash\\_cluster\\_fact\\_sheet\\_20090903\\_english.pdf](http://www.ochaopt.org/cluster/admin/output/files/ocha_opt_wash_cluster_fact_sheet_20090903_english.pdf)

<sup>74</sup> [http://www.ochaopt.org/documents/hc\\_aida\\_statement\\_gaza\\_watsan\\_20090803\\_english.pdf](http://www.ochaopt.org/documents/hc_aida_statement_gaza_watsan_20090803_english.pdf)

<sup>75</sup> Article 40 (14)

<sup>76</sup>

<http://siteresources.worldbank.org/INTWESTBANKGAZA/Resources/WaterRestrictionsReport18Apr2009.pdf>

<sup>77</sup> So-called “settlement outposts” are settlements which in theory have been established without the authorization of the Israeli government but which in practice have the backing of senior government and army officials and which receive services such as connections to the water and electricity networks. See notably the report on the issue by former State Attorney Talya Sasson:  
<http://www.mfa.gov.il/MFA/Government/Law/Legal+Issues+and+Rulings/Summary+of+Opinion+Concerning+Unauthorized+Outposts+-+Talya+Sason+Adv.htm>

<sup>78</sup> <http://www.mfa.gov.il/NR/rdonlyres/71BC5337-F7C7-47B7-A8C7-98F971CCA463/0/IsraelPalestiniansWaterIssues.pdf>

<sup>79</sup> *A dry and thirsty land* By Yotam Feldman and Uri Blau, Haaretz, 13 August 2009:  
<http://haaretz.com/hasen/spages/1107419.html>

<sup>80</sup> *Ibid*

<sup>81</sup> USAID *Program Data Sheet 294-002*, 2002 at: <http://www.usaid.gov/pubs/cbj2003/ane/wbg/294-002.html>

<sup>82</sup> Information from documents of the exchanges

<sup>83</sup> Minutes of the meeting.

<sup>84</sup> Civil Administration presentation dated November 2007

<sup>85</sup> Between 1996 and 2008 Israel deducted some 170 million NIS (some US\$ 45 million) from Palestinian tax revenues for the construction of sewage treatment facilities in Israel and for the treatment of Palestinian sewage there.

<sup>86</sup> Correspondence from the German donors

<sup>87</sup> See: <http://www.channel4.com/news/articles/society/health/the+politics+of+shopping/2320772>  
and: <http://www.guardian.co.uk/world/2008/jul/06/israelandthepalestinians.supermarkets>

<sup>88</sup> See: *Settler vineyards take root in West Bank*, BBC, 17 June 2009:  
[http://news.bbc.co.uk/1/hi/world/middle\\_east/8101110.stm](http://news.bbc.co.uk/1/hi/world/middle_east/8101110.stm)

<sup>89</sup> *The Humanitarian Monitor*, January 2008, UN OCHA:  
[http://www.ochaopt.org/documents/Humanitarian\\_Monitor\\_Jan\\_08.pdf](http://www.ochaopt.org/documents/Humanitarian_Monitor_Jan_08.pdf)

<sup>90</sup> “Stop-the-work” orders are sometimes issued prior to the demolition orders. Any work carried out after

receipt of stop-the-work orders is considered a further violation and can lead to immediate demolition or fines. The only way to avoid demolition is to obtain a permit from the Israeli army, but it does not issue permits to Palestinians in these areas.

<sup>91</sup> In several visits to the area over the years Amnesty International delegates have witnessed such attacks on several occasions and frequent attacks are also documented by the NGOs Christian Peacemaker Team (CPT) and Operation Dove, which have maintained a continuous presence in the village for more than five years. See: <http://www.cpt.org/work/palestine/tuwani>

<sup>92</sup> <http://www.amana.co.il/Index.asp?ArticleID=357&CategoryID=100> and <http://www.amana.co.il/Index.asp?ArticleID=249&CategoryID=100>

<sup>93</sup> The water shortage and the villagers' difficulties in accessing water continue. See for example: <http://www.youtube.com/watch?v=Ok2wpCZYZTE> about Israeli peace activists being stopped by Israeli army and police while attempting to bring two water tankers of water to Tuwani and other villages in the South Hebron Hills on 26 September 2009.

<sup>94</sup> The army's claim is not borne out by the evidence on the ground. Amnesty International and other NGOs have visited the area on numerous occasions and have never seen or heard Israeli forces shooting. As well, Humsa and Hadidiya are very near two Israeli settlements and Israeli forces shooting ranges are usually further removed from Israeli settlements.

<sup>95</sup> See video clip by the Israeli NGO Machsom Watch (Checkpoint Watch) of Hadidiya villagers on their way to buy water stuck at an Israeli army roadblock: <http://uk.youtube.com/watch?v=yGREJVDwNo>

<sup>96</sup> <http://www.jordanvalley.org.il/?categoryId=38842>

<sup>97</sup> See Amnesty International reports: <http://www.amnesty.org/en/news-and-updates/news/Evictions-crisis-deepens-for-Palestinian-villagers-20070820> and <http://www.amnesty.org/en/news-and-updates/news/palestinian-homes-demolished-without-warning-20080311>

<sup>98</sup> <http://www.theage.com.au/news/world/west-bank-farms-fall-to-israeli-bulldozers/2008/02/22/1203467386462.html>

<sup>99</sup> Photograph of Itamar's fish farm at: <http://www.shechem.org/eindex.html> (see under: photo collection). Water from a local spring is pumped all the way to the top of the hill to feed the fish farm. Photographs of Eli settlement swimming pool at: <http://www.shushan.net/eliSite/> and descriptions of Shilo's at <http://www.amana.co.il/Index.asp?ArticleID=245&CategoryID=100>

<sup>100</sup> The report, available at: <http://www.mfa.gov.il/NR/rdonlyres/5AD2CBB2-851D-4917-89B2-CFF60C83C16C/0/SummaryoftheOpinionConcerningUnauthorizedOutposts.doc> states that: " *The outposts are mostly established by bypassing procedure and violating the law, displaying false pretense towards some of the State authorities, and enjoying the cooperation of other authorities in harsh violation of the law.*"

<sup>101</sup> <http://www.peacenow.org.il/site/en/peace.asp?pi=370&docid=2006>

<sup>102</sup> Israeli Ministry of Defense, at: <http://www.seamzone.mod.gov.il/Pages/ENG/purpose.htm> and <http://www.seamzone.mod.gov.il/Pages/ENG/news.htm>

<sup>103</sup> The 1949 armistice line which separates Israel from the occupied West Bank is commonly known as the Green Line. The total length of the fence/wall is 709 km, more than twice the 320-km Green Line

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<sup>104</sup> There are 73 gates and most only open weekly or seasonally. Eleven of them open daily for one hour in the morning, noon and late afternoon; and 11 stay open all day:

[http://www.ochaopt.org/documents/ocha\\_opt\\_barrier\\_report\\_july\\_2009\\_english\\_low\\_res.pdf](http://www.ochaopt.org/documents/ocha_opt_barrier_report_july_2009_english_low_res.pdf)

<sup>105</sup> A UN OCHA-UNRWA survey in 2007 found that less than 20 per cent of Palestinians who used to work the land prior to the construction of the fence/wall could get permits:

[http://www.ochaopt.org/documents/OCHA\\_SpecialFocus\\_BarrierGates\\_2007\\_11.pdf](http://www.ochaopt.org/documents/OCHA_SpecialFocus_BarrierGates_2007_11.pdf)

<sup>106</sup> - Daniel Arsenault, Royal Military College of Canada: <http://www.ipcri.org/watconf/papers/daniel.pdf>

and AP, 10 December 1990:

<http://community.seattletimes.nwsources.com/archive/?date=19901210&slug=1108789>

- Also see: *Report Cites Way to Guard Water Assets*, 10 October 1993, New York Times:

<http://query.nytimes.com/gst/fullpage.html?res=9FOCE6D6163CF933A25753C1A965958260>

and: "*Hydrostrategic*" *Territory in the Jordan Basin: Water, War, and Arab-Israeli Peace Negotiations*, -- Aaron T. Wolf, University of Alabama, March 1996:

<http://www.diak.org/water/CES%20Hydrostrategic%20Territory%20in%20the%20Jordan%20Basin%20Water,%20War,.htm>

<sup>107</sup> Address by Prime Minister Netanyahu to AIPAC's 39th Conference, Washington, 17 May 1998, at:

<http://www.mfa.gov.il/MFA/Foreign%20Relations/Israels%20Foreign%20Relations%20since%201947/1998-1999/40%20Address%20by%20Prime%20Minister%20Netanyahu%20to%20AIPAC-s>

<sup>108</sup> On 8 December 2003, the UN General Assembly passed resolution ES-10114 requesting the ICJ to issue an Advisory Opinion on the "*Legal consequence of the construction of a wall in the Occupied Palestinian Territory*", available at: <http://www.icj-cij.org/docket/index.php?p1=3&p2=4&k=5a&case=131&code=mwp&p3=4>.

<sup>109</sup> So far, 58.3 % of the fence/wall has been built, a further 10.2 % is under construction and 31.5 % is planned but not yet constructed:

[http://www.ochaopt.org/documents/ocha\\_opt\\_barrier\\_report\\_july\\_2009\\_english\\_low\\_res.pdf](http://www.ochaopt.org/documents/ocha_opt_barrier_report_july_2009_english_low_res.pdf)

<sup>110</sup> See: *Under the Guise of Security - Routing the Separation Barrier to Enable the Expansion of Israeli Settlements in the West Bank* (see notably: Case Study: The Zufin Settlement) at:

[http://www.btselem.org/Download/200512\\_Under\\_the\\_Guise\\_of\\_Security\\_Eng.pdf](http://www.btselem.org/Download/200512_Under_the_Guise_of_Security_Eng.pdf)

<sup>111</sup> See UNRWA's profile of Jayyus at: <http://www.un.org/unrwa/emergency/barrier/profiles/jayyus.html>

and [http://www.ochaopt.org/?module=displaysection&section\\_id=106&static=0&edition\\_id=&format=html](http://www.ochaopt.org/?module=displaysection&section_id=106&static=0&edition_id=&format=html)

<sup>112</sup> See:

[http://www.ochaopt.org/documents/TheHumanitarianImpactOfIsraeliInfrastructureTheWestBank\\_full.pdf](http://www.ochaopt.org/documents/TheHumanitarianImpactOfIsraeliInfrastructureTheWestBank_full.pdf) , p.112-113

and: [http://www.ochaopt.org/documents/Barrier\\_Report\\_July\\_2008.pdf](http://www.ochaopt.org/documents/Barrier_Report_July_2008.pdf) , p.112

<sup>113</sup> See: [http://www.ochaopt.org/documents/ocha\\_opt\\_barrier\\_report\\_july\\_2009\\_english\\_low\\_res.pdf](http://www.ochaopt.org/documents/ocha_opt_barrier_report_july_2009_english_low_res.pdf) , p.28

<sup>114</sup> *Ibid*

<sup>115</sup> The date of application on the application form is listed as 6 June 2004, not 19 December 2004 as

mentioned in Annex 12 of the World Bank report *Assessment of Restrictions on Palestinian Water Sector Development* of April 2009:

<http://siteresources.worldbank.org/INTWESTBANKGAZA/Resources/WaterRestrictionsReport18Apr2009.pdf>

<sup>116</sup> JWC application form No 89 (Project No 265.2004), signed by Israel's Water Commissioner Shimon Tal on 11 September 2005. The condition requesting further information is annotated and signed by Israel's Water Commission official Yosef Draisen. Receipt of the information requested by the Israeli officials is recorded on 11 September 2005.

<sup>117</sup> Photograph of the Alfei Menashe settlement's swimming pools at: <http://muni.tik-tak.co.il/web/index.asp?codeclient=1209&codesubweb=0&f=1>

<sup>118</sup> Qalqilya Profile, UNRWA, at: <http://www.un.org/unrwa/emergency/barrier/profiles/qalqilya.html>  
Some 25 nearby villages, home to some 45,000 Palestinians who depend on Qalqilya for their health, economic, social and municipal services.

<sup>119</sup>

[http://ocha.unog.ch/CAPprojectsPDF/Reports/projectsheets/CAPProjectSheet\\_834\\_21924\\_200998.pdf](http://ocha.unog.ch/CAPprojectsPDF/Reports/projectsheets/CAPProjectSheet_834_21924_200998.pdf)

<sup>120</sup> See: <http://www.youtube.com/watch?v=Mb83n4zogs>

<sup>121</sup> See: <http://www.cpt.org/cptnet/2009/10/02/south-hebron-hills-activists-successfully-accompany-water-convoy-though-south-hebr>

<sup>122</sup> [http://www.ochaopt.org/documents/ocha\\_opt\\_bethlehem\\_shrinking\\_space\\_may\\_2009\\_english.pdf](http://www.ochaopt.org/documents/ocha_opt_bethlehem_shrinking_space_may_2009_english.pdf)

Also see: [http://www.reliefweb.int/rw/RWFiles2009.nsf/FilesByRWDocUnidFilename/MVDU-7PD9CC-full\\_report.pdf/\\$File/full\\_report.pdf](http://www.reliefweb.int/rw/RWFiles2009.nsf/FilesByRWDocUnidFilename/MVDU-7PD9CC-full_report.pdf/$File/full_report.pdf)

<sup>123</sup> *Increasing Need, Decreasing Access: Tightening Control On Economic Movement*, UN OCHA, 22 January 2008 at: <http://www.ochaopt.org/documents/Commercial%20Crossings%20V5.pdf>

<sup>124</sup> When AI visited the town in April 2008, water shortage and movement restrictions were the two main concerns expressed by residents. Also see: Hydrologist Clemens Messerschmid to Haaretz, 13 March 2008, at: <http://www.haaretz.com/hasen/spages/961667.html> ("In Dahariya, for example, all the people I asked in November 2007 remembered the 16th of July as the last day when water came out of their faucets.")

<sup>125</sup> Photograph of Eli settlement's sport complex and swimming pool: <http://www.shushan.net/eliSite/>

<sup>126</sup> See:

[http://www.ochaopt.org/documents/ocha\\_opt\\_protection\\_of\\_civilians\\_weekly\\_report\\_2009\\_10\\_06\\_english.pdf](http://www.ochaopt.org/documents/ocha_opt_protection_of_civilians_weekly_report_2009_10_06_english.pdf), p.2

<sup>127</sup> Since the outbreak of the *intifada* in September 2000 some 6,000 Palestinian homes, vast areas of cultivated land hundreds of commercial properties (shops, workshops and factories) and public buildings have been destroyed by Israeli forces, and tens of thousands of other homes and properties have been damaged, many beyond repair.

<sup>128</sup> [http://www.mfa.gov.il/MFA/MFAArchive/2000\\_2009/2001/2/Joint%20Israel-Palestinian%20Call%20to%20Protect%20Water%20Sup](http://www.mfa.gov.il/MFA/MFAArchive/2000_2009/2001/2/Joint%20Israel-Palestinian%20Call%20to%20Protect%20Water%20Sup)

<sup>129</sup> The previous day, on 30 January, Israeli forces bulldozed a fruit orchard in the outskirts of Khan



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Yunis (Gaza Strip) and destroyed an agricultural reservoir, a well and a water pump. Four days later, on 4 February, Israeli forces bulldozed a large citrus orchard near Gaza city and destroyed a well, water pumps, an agricultural reservoir and an irrigation network.

<sup>130</sup> The World Bank, *Donors Support Group Report*, March-May 2002

<sup>131</sup> See the UNOSAT strike map, which illustrates damages to the Sheikh 'Ajlin sewage treatment plant area:

[http://unosat.web.cern.ch/unosat/freeproducts/Gaza/Crisis2008/UNOSAT\\_Gaza\\_Sewage\\_Plant\\_Pre\\_Post\\_Map\\_v12\\_Highres.pdf](http://unosat.web.cern.ch/unosat/freeproducts/Gaza/Crisis2008/UNOSAT_Gaza_Sewage_Plant_Pre_Post_Map_v12_Highres.pdf)

The map shows a single impact crater (occurring sometime before 10 January 2009) to the eastern section of a holding pond (70m x150m) which caused a massive outflow of sewage, moving an estimated total distance of 1.2km. The estimated area affected by the outflow is approximately 5.5 ha.

<sup>132</sup>

<http://unispal.un.org/unispal.nsf/db942872b9eae454852560f6005a76fb/6e287317a63ca2fa8525759100436788?OpenDocument>

<sup>133</sup> [http://postconflict.unep.ch/publications/UNEP\\_Gaza\\_EA.pdf](http://postconflict.unep.ch/publications/UNEP_Gaza_EA.pdf)

<sup>134</sup> The offensive began with an attack on the late President Yasser Arafat's headquarters in Ramallah. Israeli forces then entered Bethlehem, Tulkarem and Qalqilya, Jenin and Nablus between 1 and 4 April. They imposed strict curfews and declared the areas "closed military areas", barring access to the outside world, and cut water and electricity in most areas. See Amnesty International's report: *Shielded from scrutiny: IDF violations in Jenin and Nablus*, November 2002:

<http://www.amnesty.org/es/library/info/MDE15/143/2002>

<sup>135</sup> The Donor Support Group consists of the PA, the European Commission, the UNDP, the World Bank, the Office of the United Nations Special Coordinator (UNSCO), and the United States Agency for International Development (USAID).

<sup>136</sup> UNEP *Desk Study on the Environment in the OPT*, p. 29:

<http://postconflict.unep.ch/publications/INF-31-WebOPT.pdf>

<sup>137</sup> *Shielded from scrutiny: IDF violations in Jenin and Nablus*, November 2002:

<http://www.amnesty.org/es/library/info/MDE15/143/2002>

<sup>138</sup> Report of the WHO Special Representative and Director of Health, UNRWA, for 2002:

[http://66.102.9.104/search?q=cache:DGNdYz13PXAJ:ftp.who.int/gb/archive/pdf\\_files/WHA56/ea56id4.pdf+WHO+SPECIAL+REPRESENTATIVE+AND+DIRECTOR+OF+HEALTH,+UNRWA,+FOR+2002&hl=en&ct=clnk&cd=2&gl=uk](http://66.102.9.104/search?q=cache:DGNdYz13PXAJ:ftp.who.int/gb/archive/pdf_files/WHA56/ea56id4.pdf+WHO+SPECIAL+REPRESENTATIVE+AND+DIRECTOR+OF+HEALTH,+UNRWA,+FOR+2002&hl=en&ct=clnk&cd=2&gl=uk)

<sup>139</sup> <http://www.who.int/mediacentre/news/statements/statement04/en/index.html>

<sup>140</sup> UN OCHA *Humanitarian Update Occupied Palestinian Territories* 22 Jan - 15 Feb 2003:

<http://www.ochaopt.org/documents/ochaupdate16feb03.pdf>

<sup>141</sup> *Rafah Humanitarian Needs Assessment*, by OCHA and UNRWA, 6 June 2004:

[http://domino.un.org/UNISPAL.NSF/db942872b9eae454852560f6005a76fb/a18a8d06071986f385256ee7005dbac8/\\$FILE/UNRWA\\_OCHA\\_ReportRafahLACCO604.pdf](http://domino.un.org/UNISPAL.NSF/db942872b9eae454852560f6005a76fb/a18a8d06071986f385256ee7005dbac8/$FILE/UNRWA_OCHA_ReportRafahLACCO604.pdf)

<sup>142</sup> The incursion began on 1 November and left some 70 Palestinians dead and some 200 injured, many

of them unarmed civilians. See: <http://www.amnesty.org/en/library/info/MDE15/093/2006>

<sup>143</sup> UNDP *Emergency Rehabilitation of Damaged Municipal Infrastructure in Beit Hanoun* (CERF): <http://www.papp.undp.org/en/fsh/54323.pdf> - <http://www.undp.ps/en/fsh/pdf/54323.pdf> In 2006 the ICRC provided back-up power generators and fuel, and set up, extended or repaired water-supply systems for over 134,000 people, particularly those affected by military operations in Gaza: <http://domino.un.org/unispal.nsf/bc8b0c56b7bf621185256cbf005ac05f/86f76c96ed44431985257272006c6302!OpenDocument>

<sup>144</sup> <http://www.amnesty.org/en/library/asset/MDE15/061/2006/en/ae67edf-fa03-11dd-b1b0-c961f7df9c35/mde150612006en.pdf>

<sup>145</sup> <http://www.irinnews.org/report.aspx?ReportId=80087> , <http://uk.youtube.com/watch?v=YDXqwwJE63I>

<sup>146</sup> [http://www.shovrimshtika.org/testimonies\\_e.asp?cat=15](http://www.shovrimshtika.org/testimonies_e.asp?cat=15)

<sup>147</sup> [http://www.shovrimshtika.org/testimonies\\_e.asp?cat=22](http://www.shovrimshtika.org/testimonies_e.asp?cat=22)

<sup>148</sup> See: [http://www.yesh-din.org/site/images/Yesh%20Din%20activity%20report%20\\_Sept%2006-Sept%2007\\_%20\\_5\\_.pdf](http://www.yesh-din.org/site/images/Yesh%20Din%20activity%20report%20_Sept%2006-Sept%2007_%20_5_.pdf) and <http://www.yesh-din.org/report/ASemblanceofLaw-Eng.pdf>

<sup>149</sup> See: <http://www.amnesty.org/en/library/asset/MDE15/092/2006/en/ed934f85-d3d2-11dd-8743-d305bea2b2c7/mde150922006en.html> and <http://www.amnesty.org/en/library/asset/MDE15/099/2004/en/c551ba4b-d56a-11dd-bb24-1fb85fe8fa05/mde150992004en.html>

<sup>150</sup> Testimony of Joel Gullede, member of the Christian PeaceMakers Team, 12 September 2006: <http://vcnv.org/a-week-in-at-tuwani-south-hebron-hills>

<sup>151</sup> Amnesty International delegates collected samples and delivered them to the Israeli Nature Protection Authority, which confirmed the type of chemicals.

<sup>152</sup> <http://www.ynetnews.com/articles/0,7340,L-3439192,00.html> , [http://www.kibush.co.il/show\\_file.asp?num=22357](http://www.kibush.co.il/show_file.asp?num=22357) ,

photographs at: <http://www.dailykos.com/story/2007/9/14/21279/4193>

<sup>153</sup> Committee on Economic, Social and Cultural Rights, General Comment No. 15, para 44 (b),

<sup>154</sup> *An Audit of the Operations and Projects in the Water Sector in Palestine: The Strategic Refocusing of Water Sector Infrastructure in Palestine; funded by the Norwegian Representative Office in Palestine*, 18 November 2008

<sup>155</sup> The dire state of the Palestinian water sector which Israel handed over to the PWA was recognized by the international donor community, which pledged large amounts of aid to upgrade and develop it.

<sup>156</sup> Such practices violate the Palestinian Water Law (Law 2/2002), notably Article 3.1 (All water resources available in Palestine are considered public property); Article 4 ()

<sup>157</sup> [http://apps.who.int/gb/ebwha/pdf\\_files/A62/A62\\_ID2-en.pdf](http://apps.who.int/gb/ebwha/pdf_files/A62/A62_ID2-en.pdf) , [http://pdf.usaid.gov/pdf\\_docs/PNACT359.pdf](http://pdf.usaid.gov/pdf_docs/PNACT359.pdf),

<sup>158</sup> *West Bank streams Monitoring, Stream pollution evaluation Based on sampling during the year 2007*: [http://147.237.72.136/west\\_bank\\_rivers\\_monitoring.pdf](http://147.237.72.136/west_bank_rivers_monitoring.pdf)

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<sup>159</sup> *Foul Play*: [http://www.btselem.org/Download/200906\\_Foul\\_Play\\_eng.pdf](http://www.btselem.org/Download/200906_Foul_Play_eng.pdf)

<sup>160</sup> State Comptroller, Annual Report 40 (1989), 866, Annual Report 45 (1994), 807, Annual Report 46 (1995), 530-531, Annual Report 50A (1999), 167-168 (all in Hebrew): "Potential Pollution of Groundwater in Western Samaria", *The Biosphere – Monthly Journal of the Ministry of Environmental Protection* (1994) - [http://www.btselem.org/Download/200906\\_Foul\\_Play\\_eng.pdf](http://www.btselem.org/Download/200906_Foul_Play_eng.pdf)

<sup>161</sup> [http://www.btselem.org/Download/200906\\_Foul\\_Play\\_eng.pdf](http://www.btselem.org/Download/200906_Foul_Play_eng.pdf)

<sup>162</sup> *Assessment of Restrictions on Palestinian Water Sector Development*:  
<http://siteresources.worldbank.org/INTWESTBANKGAZA/Resources/WaterRestrictionsReport18Apr2009.pdf>

<sup>163</sup> See for example: *Israel's dumping ground*, by Amira Hass, Haaretz, 29 November 2009:  
<http://www.haaretz.com/hasen/spages/929673.html>

<sup>164</sup> [http://www.sviva.gov.il/Enviroment/bin/en.jsp?enPage=e\\_BlankPage&enDisplay=view&enDispWhat=Zone&enDispWho=Wastewater\\_Treatment&enZone=Wastewater\\_Treatment](http://www.sviva.gov.il/Enviroment/bin/en.jsp?enPage=e_BlankPage&enDisplay=view&enDispWhat=Zone&enDispWho=Wastewater_Treatment&enZone=Wastewater_Treatment)

<sup>165</sup> [http://www.sviva.gov.il/bin/en.jsp?enPage=e\\_BlankPage&enDisplay=view&enDispWhat=Object&enDispWho=Articals^I5360&enZone=Wastewater\\_Treatment](http://www.sviva.gov.il/bin/en.jsp?enPage=e_BlankPage&enDisplay=view&enDispWhat=Object&enDispWho=Articals^I5360&enZone=Wastewater_Treatment)

<sup>166</sup> According to the Israeli Environmental Protection Ministry in 2005 Some 37 per cent of the wastewater (167 MCM) in Israel was either untreated or r inadequately treated:

[http://www.sviva.gov.il/bin/en.jsp?enPage=e\\_BlankPage&enDisplay=view&enDispWhat=Zone&enDispWho=Wastewater\\_Treatment&enZone=Wastewater\\_sub&](http://www.sviva.gov.il/bin/en.jsp?enPage=e_BlankPage&enDisplay=view&enDispWhat=Zone&enDispWho=Wastewater_Treatment&enZone=Wastewater_sub&)

<sup>167</sup> See p. 85 at: [http://www.btselem.org/Download/200906\\_Foul\\_Play\\_eng.pdf](http://www.btselem.org/Download/200906_Foul_Play_eng.pdf)

<sup>168</sup> See for example: *The Economic Effects of Restricted Access to Land in the West Bank*, The World Bank, September 2008 (notably paras 37 and 38):  
<http://siteresources.worldbank.org/INTWESTBANKGAZA/Resources/EconomicEffectsofRestrictedAccessToLandintheWestBankOct.20.08.pdf>

and: <http://www.publications.parliament.uk/pa/cm200304/cmselect/cmintdev/230/230we34.htm>

and: <http://www.ipcri.org/watconf/papers/geoff.pdf>

<sup>169</sup> *An Audit of the Operations and Projects in the Water Sector in Palestine; The Strategic Refocusing of Water Sector Infrastructure in Palestine*; funded by the Norwegian Representative Office in Palestine, 18 November 2008

<sup>170</sup>

<http://unispal.un.org/unispal.nsf/bb6fe1e72803131885256c380071d04c/c8216cc87ec70ae88525745f00455489?OpenDocument>

<sup>171</sup> Operation "Cast Lead", from 27 December 2008 to 18 January 2009

<sup>172</sup> Israel's refusal to recognize the applicability of international human rights law to the OPT only concerns the Palestinian population of the OPT, as it has never contended that these treaties do not apply to the Israeli settlers who live in the OPT.

<sup>173</sup> Concluding Observations of the Committee on Economic, Social and Cultural Rights, UN. Doc. E/C.12/II/Add.90, paras. 15 and 31. Advisory Opinion on the International Court of Justice on *Legal*

*Consequences of the Construction of a Wall in the Occupied Palestinian Territory*, available at [www.icj-cij.org](http://www.icj-cij.org), para 112.

<sup>174</sup> UN Committee on Economic, Social and Cultural Rights, General Comment No. 15: The Right to Water, UN Doc. E/C.12/2002/11, 20 January 2003, para 3.

<sup>175</sup> Article 24 of the Convention on the Rights of the Child requires state parties: “*To combat disease and malnutrition, including within the framework of primary health care, through, inter alia, the application of readily available technology and through the provision of adequate nutritious foods and clean drinking-water*”. Article 14 of the Convention on the Elimination of All Forms of Discrimination Against Women requires States parties to ensure to women the right to “*enjoy adequate living conditions, particularly in relation to [...] water supply*”.

<sup>176</sup> Committee on Economic, Social and Cultural Rights, General Comment No. 15, para 3. The Committee has also stated that “*the right should also be seen in conjunction with other rights enshrined in the International Bill of Human Rights, foremost amongst them the right to life and human dignity*”.

<sup>177</sup> *Ibid.*, para 2.

<sup>178</sup> *Ibid.*, para 12.

<sup>179</sup> The minimum amount recommended by the World Health Organization (WHO) is 100-150 litres of water per capita per day to cover domestic and public service needs. The WHO has published guidelines for drinking-water quality (*Guidelines for drinking-water quality*, 2000:

[http://www.who.int/water\\_sanitation\\_health/dwq/gdwq3rev/en/index.html](http://www.who.int/water_sanitation_health/dwq/gdwq3rev/en/index.html)) and an assessment of access to water based on the distance between dwellings and sources of water (A distance of more than one km is considered as no access: [http://www.unhcr.ch/html/menu2/6/who\\_ohchr.pdf](http://www.unhcr.ch/html/menu2/6/who_ohchr.pdf)).

<sup>180</sup> Committee on Economic, Social and Cultural Rights, General Comment No. 15, para 21.

<sup>181</sup> Committee on Economic, Social and Cultural Rights, General Comment No. 15, para 21.

<sup>182</sup> *Ibid.*

<sup>183</sup> *Ibid.*, para 56.

<sup>184</sup> *Ibid.*, para 23.

<sup>185</sup> *Ibid.*

<sup>186</sup> *Ibid.*, para 25.

<sup>187</sup> *Ibid.*, para 37.

<sup>188</sup> Committee on Economic, Social and Cultural Rights, Concluding Observations, Israel, 5-23 May 2003 (E/C.12/1/Add.90), paras 25 and 41:

[http://www.unhcr.ch/tbs/doc.nsf/\(Symbol\)/E.C.12.1.Add.90.En?Opendocument](http://www.unhcr.ch/tbs/doc.nsf/(Symbol)/E.C.12.1.Add.90.En?Opendocument)

<sup>189</sup> *Ibid.*, para 6.

<sup>190</sup> *Ibid.*, para 7, General Comment No. 12: The Right to Adequate Food, (1999), paras. 12 and 13

<sup>191</sup> General Comment No. 14, para

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<sup>192</sup> Committee on Economic, Social and Cultural Rights, General Comment No. 12 (E/C.12/1999/5).

<sup>193</sup> Article 8(2)(b)(viii) of the Rome Statute

<sup>194</sup> Israel has not ratified API. But Article 54 reflects customary law. See ICRC, *Customary International Humanitarian Law*, Vol. I: rules; Rule 54

<sup>195</sup> Israel has argued that this Convention only applies to the sovereign territory of a High Contracting Party, and as Jordan and Egypt never had legal sovereignty over the West Bank and Gaza Strip, these areas could not be considered as occupied territories under international law.

[http://www.israelemb.org/public\\_affairs/FAQ/currentFAQ.html#8](http://www.israelemb.org/public_affairs/FAQ/currentFAQ.html#8)

<sup>196</sup> Declaration of the Conference of High Contracting Parties to the Fourth Geneva Convention, Geneva 5 December 2001, para 3.

<sup>197</sup> See, for example, UN Security Council Resolution 465 (1980) of 1 March 1980; UN Security Council Resolution 681 (1990) of 20 December 1990; UN Security Council Resolution 799 (1992) of 18 December 1992.

<sup>198</sup> Land and water were among the key issues which were left for the final status negotiations, which have not yet begun.

<sup>199</sup> [http://news.bbc.co.uk/1/hi/world/middle\\_east/1110568.stm](http://news.bbc.co.uk/1/hi/world/middle_east/1110568.stm)

<sup>200</sup> CESCR, E/C.12/1/Add.27, para. 8.

<sup>201</sup> Committee on Economic, Social and Cultural Rights, Concluding Observations, Israel, 5-23 May 2003 (E/C.12/1/Add.90), paras 15 and 31:

[http://www.unhcr.ch/tbs/doc.nsf/\(Symbol\)/E.C.12.1.Add.90.En?Opendocument](http://www.unhcr.ch/tbs/doc.nsf/(Symbol)/E.C.12.1.Add.90.En?Opendocument)

<sup>202</sup> *Ibid*, para 31

<sup>203</sup> E/C.12/1/Add.69, para. 12.

<sup>204</sup> World Bank Technical Paper No. 415: [http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2000/02/24/000094946\\_99030406411154/Rendered/PDF/multi\\_page.pdf](http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2000/02/24/000094946_99030406411154/Rendered/PDF/multi_page.pdf)

<sup>205</sup> Adopted by the UN General Assembly on 21 May 1997, G.A. Res.. 51/229 (A/51/49), at:

[http://untreaty.un.org/ilc/texts/instruments/english/conventions/8\\_3\\_1997.pdf](http://untreaty.un.org/ilc/texts/instruments/english/conventions/8_3_1997.pdf)

<sup>206</sup> Articles 5 and 6.

<sup>207</sup> Article 7.

<sup>208</sup> Article 8.

<sup>209</sup> Article 21.

<sup>210</sup> Article 10.

<sup>211</sup> The UN International Law Commission (UNILC) began working on the development of this Convention in 1970 and it submitted its final draft to the UN General Assembly in 1994. It took a further three years for the UN General Assembly to finalize the text of the Convention.

<sup>212</sup> Article 2(a).

<sup>213</sup> UNILC Resolution on Confined Transboundary Groundwater, 1994.

<sup>214</sup> See: Stephen McCaffrey, *The Law of International Watercourses: Non-navigational Uses*, Oxford University Press 2001.

<sup>215</sup> Case concerning the Gabčíkovo-Nagymaros Project (Hungary-Slovakia), para 78, 25 September 1997: <http://www.icj-cij.org/docket/files/92/7375.pdf>

<sup>216</sup> “Unrelated” groundwater includes aquifers whose water has no hydrological relation to surface watercourses (such as rivers or lakes). In other words the water in “unrelated” aquifers such as the Mountain Aquifer derives directly from rain or melting snow; and they do not transfer water to surface watercourses.

<sup>217</sup> For details of the ILC’s activities on this issue see: [http://untreaty.un.org/ilc/guide/8\\_5.htm](http://untreaty.un.org/ilc/guide/8_5.htm)

<sup>218</sup> [http://untreaty.un.org/ilc/texts/instruments/english/draft%20articles/8\\_5\\_2008.pdf](http://untreaty.un.org/ilc/texts/instruments/english/draft%20articles/8_5_2008.pdf) In August 2008 the UNILC also adopted the commentaries to the draft articles.

<sup>219</sup> UN General Assembly Resolution 63/124 of 11 December 2008: <http://daccessdds.un.org/doc/UNDOC/GEN/N08/478/23/PDF/N0847823.pdf?OpenElement>

<sup>220</sup> Article 5, 2. The weight to be given to each factor is to be determined by its importance with regard to a specific transboundary aquifer or aquifer system in comparison with that of other relevant factors. In determining what is equitable and reasonable utilization, all relevant factors are to be considered together and a conclusion reached on the basis of all the factors. However, in weighing different kinds of utilization of a transboundary aquifer or aquifer system, special regard shall be given to vital human needs.

<sup>221</sup> Committee on Economic, Social and Cultural Rights, General Comment No. 15, para 21.

<sup>222</sup> Committee on Economic, Social and Cultural Rights, General Comment No. 15, para 21.

<sup>223</sup> Committee on Economic, Social and Cultural Rights, General Comment No. 15, para 42.



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