



PALESTINIAN WATER AUTHORITY



PALESTINE
The Right to Water

Shared Aquifer Basins

Legend

Shared Aquifer Basins

□ Aquifer Basin

→ Groundwater Flow

Borders

— 4th June 1967 Border Line

--- International Borders

█ Occupied Arab Territories

Sources:

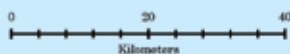
- Negotiations Support Unit
- Palestinian Water Authority



Palestinian National Authority
Ministry of Planning
Geographic Center and Technical Support

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Palestine basics

Geography

Land area of historical Palestine: 26,323 km²

Occupied Palestinian Territory: 6,020 km²

- West Bank: 5,655km²; 130 km long and 40-65 km in width.
- Gaza Strip: 365 km²; 45 km long and 5-12 km in width.

Land Boundaries:

- West Bank: Israel, Jordan.
- Gaza Strip: Israel, Egypt.

Population

- West Bank: **2.58** million (PCBS, 2011), living on 17.2% of the West Bank.
- Gaza Strip: **1.59** (PCBS, 2011)
- The number of Israeli settlers living illegally in the occupied Palestinian territory reached **518,974** in 2010, with settlements now controlling over 60% of the West Bank.

Movement Restrictions

Israelis are not subject to any movement restrictions

In contrast Palestinians:

- Face an estimated **522** checkpoints, roadblocks and barriers throughout the West Bank, including the Israel's Wall, which is more than **700 km** long. The wall was declared illegal by the International Court of Justice.
- **74%** of Palestinian routes within the West Bank are blocked through roadblocks, checkpoint and barriers.
- Require Israeli permission to travel outside of their metropolitan area, including to other parts of the West Bank and Gaza Strip.
- Are denied the ability to travel on certain roads within the West Bank, which are reserved for Israeli cars only.
- Living in Gaza, must obtain Israeli permission to leave and enter the Gaza Strip. The same is true for all imports and exports to and from Gaza, which are severely restricted by Israel. This includes the entry of urgently needed construction materials to build and repair water and sanitation infrastructure in Gaza.

Water consumption

Palestinians: **73** liters per capita per day

Israelis inside Israel: **300** liters per capita per day.

Water and Palestine

Introduction

In 1967, during the first days of the occupation, Israel seized unilateral control of all available water resources in the occupied Palestinian territory (oPt).¹ Today, Israel continues to control the oPt's natural freshwater sources, exploiting them for near exclusive Israeli use, while severely restricting the amount of water it makes available to Palestinians. This combination of control and exploitation has enabled Israel to engineer a situation of artificial water shortages across the oPt affecting only Palestinians. The impact of these water shortages on Palestinian life and the Palestinian economy has been dramatic, and is further compounded by the myriad limitations Israel imposes on the development of essential Palestinian water infrastructure combined with its deliberate destruction of existing Palestinian water infrastructure, including wells and rehabilitated water harvesting cisterns. Despite two decades of negotiations, the water crisis facing Palestinians is more acute than ever before.



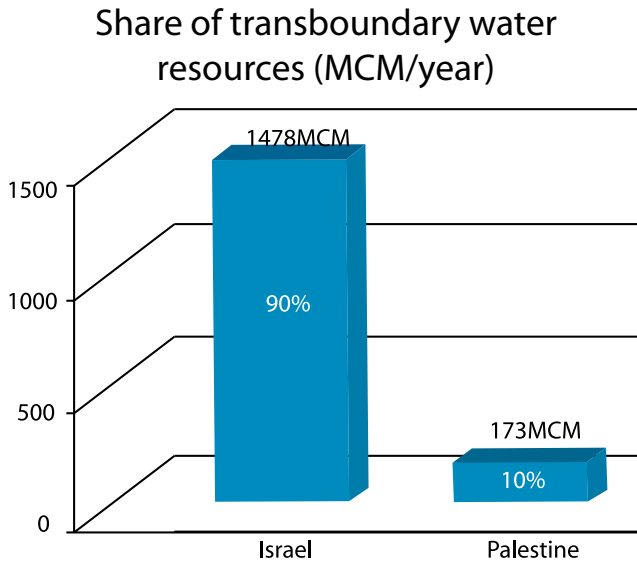
West Bank: Palestinians denied access to shared water resources

In the West Bank, the main natural water resources are the underground mountain aquifer – comprising the Eastern, North-Eastern and Western basins – and the Jordan River. Both straddle the 1967 border separating the oPt from Israel and as such, both are classified as shared or trans-boundary water resources. The same also holds for the Coastal aquifer that runs along the Mediterranean coast and under Gaza.

Under customary international water law, these trans-boundary water resources should be shared “equitably and reasonably” between Palestinians and Israelis. In practice, however, **Israel exploits over 90 per cent of all trans-boundary water resources for exclusive Israeli use, and allocates less than 10 per cent for Palestinian use.** Palestinians are not only denied their rightful share of water from the underground mountain aquifer, but also prevented

1. This includes **Military Order 92** (issued 15 August, 1967) granting the Israeli military complete authority over all water related issues in the oPt; **Military Order 158** (issued 19 November, 1967) barring Palestinians from constructing any new water installation without prior permission from the Israeli military; and **Military Order 291** (issued 19 December, 1967) annulling all land and water-related agreements in existence prior to 1967. For more information, see Amnesty International, *Troubled Waters – Palestinians Denied Fair Access to Water*, October 2009: <http://www.amnesty.org/en/library/asset/MDE15/027/2009/en/e9892ce4-7fba-469b-96b9-c1e1084c620c/mde150272009en.pdf>

from accessing a single drop of water from the Jordan River. Moreover, Israel sells to Palestinians part of the water supply – 56MCM in 2010 – allocated to them under the 1995 Interim Agreement.²



Current water utilization: Palestinians 173 MCM / year (not including over-pumping in Gaza); Israelis 1478 MCM / year (including 1005 MCM from endogenous resources and unconventional water developed)

The effects of Israel's discriminatory water policies and practices are clearly discernable in the enormous disparity in domestic water consumption between Palestinians and Israelis. Israeli restrictions limit domestic water consumption among Palestinians to an average of **just over 70 litres of water per capita per day**.³ This is less than the World Health Organization's recommended minimum standard of 100 litres per capita per day and far below the average of **300 litres per capita per day** that Israelis enjoy.⁴

The inequitable distribution of water means that Palestinians must ration their use of water, particularly during the summer months when most major Palestinian cities in the West Bank receive water for only a few hours a day. In contrast, Israelis, including settlers living illegally in the West Bank, face no such shortages.

2. Palestinian Water Authority, *Water Supply Report 2010-2011*, February 2012.

3. Palestinian Water Authority, *Basic Needs and Development: Ongoing and Proposed Projects by Governorates*, October 2009.

4. According to the World Bank, Israelis consume on average four times more water for domestic use than Palestinians. This increases to six times more water when new water/non-conventional water is included. See The World Bank, *Assessment of Restrictions on Palestinian Water Sector Development*, April 2009:

http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2009/06/30/000333037_20090630003234/Rendered/PDF/476570SR0P11511nsReport18Apr2009111.pdf

Just over 9000 Israeli settlers living in the Jordan Valley consume the equivalent of one-third of the entire amount of water made available to all 2.5 million Palestinians living in the West Bank.⁵

There are also problems with water quality in West Bank springs, with the main sources of pollution being: 1) untreated wastewater and industrial waste flowing directly into valleys from Israeli settlements and military outposts; 2) domestic wastewater from Palestinian communities as a result of being prevented from building their own wastewater treatment plants; and 3) the leaching of pollutants from unauthorized dumping of solid waste.

Gaza: poor water quality and deterioration of the aquifer

In Gaza, Palestinians are forced to rely on the coastal aquifer, which runs underneath the Gaza Strip and Israel and extends down into the Egyptian Sinai, as their only source of water. The estimated annual recharge of the southern section of the coastal aquifer on which Gaza relies is 55MCM, which falls far short of the basic water needs of Gaza's 1.6 million residents. Barred from accessing or utilizing any water from Wadi Gaza, and under a continuous land, air and sea blockade that prevents both access to, as well as the development of alternative water sources, Gaza's



population presently extracts **almost three times** the aquifer's sustainable annual recharge.

Massive over-pumping has led to a significant drop in the aquifer's water levels, which in turn has led to increased saline intrusion as seawater from the Mediterranean enters and contaminates the aquifer. In the absence of adequate sewerage treatment facilities, the infiltration of raw sewage from sewage collection ponds on the surface is further adding to the aquifer's rapid deterioration, endangering the health and welfare of Gaza's 1.6 million residents.



At its present rate of deterioration, **the southern end of the coastal aquifer is expected to collapse by 2020.**

5. B'Tselem, *Dispossession and Exploitation: Israel's Policy in the Jordan Valley and Northern Dead Sea*, May 2011:

http://www.btselem.org/sites/default/files/201105_dispossession_and_exploitation_eng.pdf

6. United Nations Environment Programme (UNEP), *Environmental Assessment of the Gaza Strip following the escalation of hostilities in December 2008 – January 2009*, September 2009:

http://www.unep.org/PDF/dmb/UNEP_Gaza_EA.pdf

"The state of the environment in Gaza 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."

United Nations Environment Programme (UNEP)⁶

Poor water quality due to the aquifer's rapid deterioration means that **less than 10 per cent** of all available water in Gaza meets internationally recognized drinking water standards.⁷ Approximately 95 per cent of Gaza's wells are contaminated with unacceptably high levels of nitrate (NO₃) or chlorine (Cl), posing significant health risks, especially for infants. Waterborne diseases resulting from trace contaminants in the water are on the rise, including acute diarrhoea, parasite infections, liver and kidney diseases, and methemoglobinemia ('blue baby syndrome').

Using water as a weapon: targeting Palestinian water infrastructure

In addition to manufacturing water shortages in the oPt, which greatly limits opportunities for Palestinian growth and prosperity, **Israel uses water as a weapon to forcibly displace some of the most vulnerable Palestinian communities in the oPt.** This includes preventing such communities from harvesting rainwater or accessing freshwater resources on which they have traditionally relied to meet their domestic and agricultural needs. In particular, Israel continues to escalate its policy of **demolishing essential Palestinian water infrastructure**, including wells, rainwater harvesting cisterns, and farming irrigation systems.



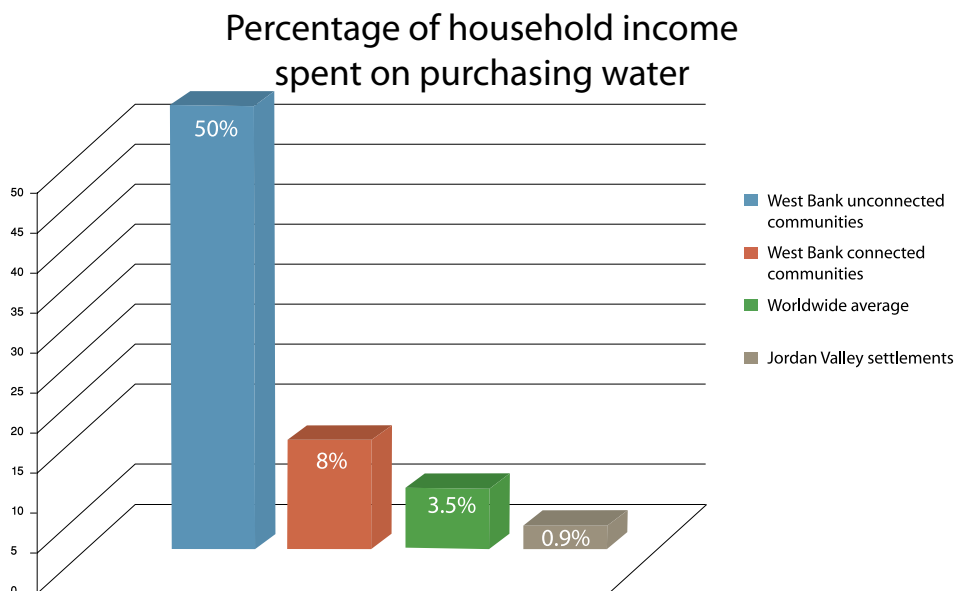
Palestinian communities that are not connected to any water network are particularly vulnerable, and more often than not the target of demolitions carried out by the Israeli military. The destruction of their traditional water resources makes these communities reliant on expensive tankered water, whose prohibitive costs indirectly forces them to leave their land.



A Palestinian family spends on average **8 per cent** of its monthly expenditure on purchasing water, as compared to the worldwide average of **3.5 per cent**. This figure jumps as high as **50 per cent** for those Palestinian families forced to rely on tankered water. In stark contrast, Israeli settlers living illegally in the Jordan Valley pay on average just **0.9 per cent** of their monthly expenditure on wa-

7. The World Bank, *Assessment of Restrictions on Palestinian Water Sector Development*, April 2009.

ter, while they are allocated **18 times more water** than the per capita amount allocated to Palestinians.⁸



Source: B'Tselem

In 2011 alone, Israel demolished **46 Palestinian rainwater harvesting systems**, some dating as far back as Roman times.⁹ This includes the demolition of 20 Palestinian cisterns by Israel between January and July 2011, resulting in the displacement of 127 Palestinians, including 104 children.¹⁰ A further **25 Palestinian wells** were demolished in 2011, which were primarily used for agricultural and residential use.

In total, 622 Palestinian structures were destroyed by Israel in 2011, including over 200 homes. 1,094 Palestinians were displaced as a direct result of these demolitions, including children.¹¹

8. B'Tselem, *Dispossession and Exploitation: Israel's Policy in the Jordan Valley and Northern Dead Sea*, May 2011.

9. UN-OCHA, *The Monthly Humanitarian Monitor*, December 2011: http://www.ochaopt.org/documents/ocha_opt_the_humanitarian_monitor_2012_01_19_english.pdf

10. Diakonia, *Israel's Administrative Destruction of Cisterns in Area C of the West Bank*, September 2011: http://www.diakonia.se/documents/public/IHL/IHLanalysis/Diakonia_Cisterns_Legal_Brief_28092011_LOW.pdf

11. UN-OCHA, *Demolitions and Forced Displacement in the Occupied West Bank*, January 2012: http://www.ochaopt.org/documents/ocha_opt_demolitions_factSheet_january_2012_english.pdf

The Palestinian Water Authority and the Joint Water Committee

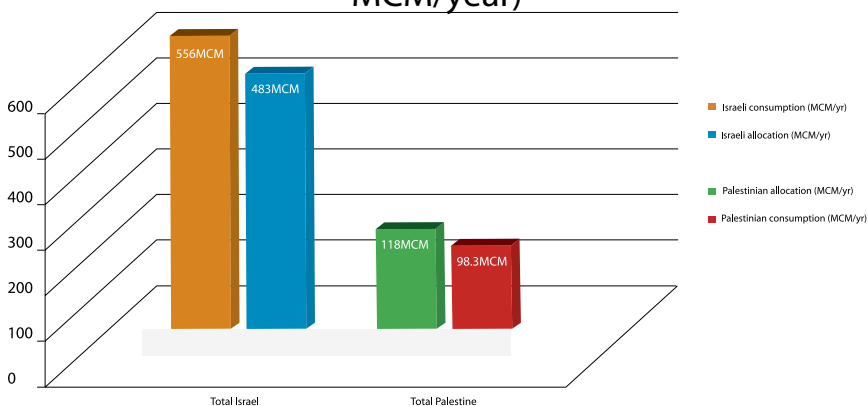
The Palestinian Water Authority (PWA) was established under the 1995 Interim Agreement (Oslo II) to develop the Palestinian water sector. This included taking over responsibility for the service delivery of an agreed quota of water allocated to Palestinians under the 1995 agreement. Originally intended to be applicable for a period of no more than 5 years, this quota is still used by Israel as a ceiling to determine the amount of water it allocates to Palestinians, some 17 years after it was originally negotiated, and despite the Palestinian population in the oPt having doubled.

Mountain Aquifer Basin Allocations	Palestinian Use	Israeli Use
Western	22 MCM (6%)	340 MCM (94%)
Northeastern	42 MCM (29%)	103 MCM (71%)
Eastern	54 MCM (57%)	40 MCM (43%)
TOTAL	118 MCM (20%)	483 MCM (80%)

1995 Interim Agreement Water Allocations for the Mountain Aquifer

The table above shows the amount of water from the shared mountain aquifer allocated for Palestinian and Israeli use under the 1995 Interim Agreement. Palestinians currently extract less water than the amount allocated to them under the 1995 agreement primarily because of the difficulties they face in obtaining permits from Israel to construct new wells and rehabilitate old wells. In contrast, Israel abstracts much more than the share of water allocated to it under the 1995 agreement.¹²

1995 Interim Agreement Allocations vs. actual water extractions of the shared mountain aquifer basin (Total in MCM/year)



Sources - PWA figures for Palestinian consumption from 2010; 12 year Average for Israeli consumption: Israel Hydrological Service (1996-2008)

12. The World Bank, *Assessment of Restrictions on Palestinian Water Sector Development*, April 2009.

The 1995 Interim Agreement also resulted in the establishment of the Joint Water Committee (JWC). The JWC was intended to have jurisdiction over the development of all water and wastewater related infrastructure in the West Bank, and to enable Palestinians and Israelis to jointly manage the oPt's shared water resources. In reality, however, **Israel has used the JWC to veto PWA efforts to develop Palestine's water and wastewater sector and service delivery capacity** to keep up with the needs of its growing population.



Not only do a majority of PWA projects require permits from the JWC – and thus Israeli approval – before they can proceed, but Israel also conditions the implementation of any Palestinian project in area C, comprising 60 per cent of the West Bank, on its receiving an additional permit from the Israeli military civil administration, even if this project has already received

JWC approval. Israel has not hesitated to use the power of veto granted to it in the JWC, nor its powers in area C, to indefinitely delay approval or permits for many PWA submitted projects.

At present, **over 111 Palestinian proposed projects** remain pending in the JWC awaiting Israeli approval, or are waiting to receive a permit from the Israeli military. All the while, Israel has unilaterally continued to create facts on the ground in the occupied Palestinian territory in violation of international law, including implementing a number of water and wastewater projects servicing illegal Israeli settlements in the oPt.

Also constructed in violation of international law is Israel's Wall, which cuts through vast swaths of the West Bank, de facto annexing approximately 9 per cent of the land. The Wall both solidifies Israel's control over the most productive zones of the western aquifer, and prevents Palestinian access to valuable agricultural land and groundwater wells. More importantly, it has drastically reduced the potential for future development of the western aquifer. In 2004, the International Court of Justice (ICJ) ruled Israel's Wall to be illegal under international law, and called for its removal. In this and other matters, the international community has failed to ensure Israel's compliance with international law.



In summary, the 1995 Interim Agreement did not fundamentally challenge or change the dynamic of forced dependence and control that has long characterized Palestinian-Israeli relations regarding water. Israel has continued to retain full control over the majority of freshwater resources in the oPt, and to use that control to severely limit the amount of water it makes available to Palestinians. Indeed, **Palestinians have access to less freshwater per capita today than they did prior to signing the 1995 Interim Agreement**, with current water availability at 98MCM as compared to 118MCM prior to signing the 1995 agreement. This extends to the JWC, which has done little to address or overturn the vast inequalities in water allocation and access that exist between Palestinians and Israelis. Instead, it has dressed up domination as cooperation.



It is not enough to make Israel's system of discriminatory water policies and practices slightly less discriminatory. Rather, **it is the system itself that needs to be replaced with a new framework that begins by defining a fair and equitable water allocation and management system**, then charting a course for the parties to achieve that goal within a reasonable timeframe.

The Positive-Sum Outcome: A Solution for All

Palestinians have offered a proposal that does just that. We call it the 'Positive-Sum Outcome' (PSO).

The PSO is based on the application of international law. It protects the basic water rights of all, and ensures that everyone has access to adequate levels of water.

In its bilateral form, the PSO involves the following stages:

- a) Palestinians and Israelis agree on the equitable and reasonable re-allocation of trans-boundary or shared freshwater resources in accordance with international law. This entails removing the inequalities of current water allocations, and allowing Palestinians to access their rightful share of water.
- b) A transition period is agreed during which the re-allocation of water is gradually implemented over time. This gives Israel time to complete existing plans to increase its desalination capacity and to introduce greater

efficiencies in water use, while Palestinians are given time to expand their water infrastructure to cope with increased volumes of water. Both parties receive greater volumes of fresh water over time.

- c) On the basis of this agreement, new arrangements for the coordinated management of shared water resources are introduced to better protect these resources, creating a more stable environment for future cooperation in the production of new water.

Implementation of the PSO will end the water conflict between Palestinians and Israelis. Palestinians will finally have access to their rightful share of the trans-boundary water resources for residential, industrial and agricultural



use, without which, **no viable Palestinian state is possible**. Israel will also maintain its present level of water supply.

The PSO also has the potential to serve as a model for broader regional cooperation between the five riparians of the Jordan River Basin, namely Palestine, Israel, Lebanon, Syria and Jordan.

Adherence to customary international law offers the only just, fair and sustainable solution for the water conflict between Palestinians and Israelis, and the only long-term basis for genuine bilateral and multilateral cooperation over water in the future.

Reforming the Palestinian Water Authority (PWA)

In spite of Israel's occupation, the PWA is moving forward with a series of bold reforms intended to develop and strengthen Palestine's water and wastewater sector as part of the Palestinian National Authority's (PNA) state-building agenda. The main objective of these reforms include:

Institutional development: establishing strong, sustainable and accountable institutions that operate within a clear legal framework, and whose roles and responsibilities are clearly defined.

Infrastructure development: developing sound and effective water supply and sanitation strategies – including policies, investment programs, project designs, and improvements in the implementation of projects – in an effort to substantially accelerate infrastructure development.



Service provision: accelerating equitable access to quality water and sanitation services to Palestinians, while providing improved efficiency and cost-recovery of effectively regulated water operators.

Water resources management: building the institutional knowledge, policies, and monitoring and enforcement capacities, required to achieve a more sustainable water resources management strategy.

Managing demand: improving water demand management awareness in line with the development of water conservation policies.



Aimed at building institutional capacity, fostering transparency, and establishing a sound regulatory framework as well as strong management practices, these reforms respond to existing challenges facing the PWA and Palestine's water sector in general, particularly at the level of governance and service management. They include an overdependence on international aid, conflicting mandates and overlapping areas of responsibility among national institutions, and weaknesses in the Palestinian water law.

The reform of the Palestinian water sector will occur in two phases, starting with the current transitional period of three years whose aim is to streamline and simplify the institutional arrangements of the Palestinian water sector. The second phase will consist of the implementation of the reforms as described above.

Helping to implement these ambitious reforms is a technical planning and advisory programme charged with providing a set of clear reform-oriented policies, including long and short term strategies, master plans and investment plans, as well as providing support to the PWA during the interim period.

By themselves, these water sector reforms cannot bring about an end to Israel's occupation, nor end the routine violation of Palestinian water rights. They help to improve Palestine's water woes, however, and in this way build hope, and they highlight just how serious Palestinians are about building a viable and sovereign Palestinian state, of which water is an essential component.



Correcting 5 myths about water

In attempting to defend itself against mounting international criticism of its unjust water policies and practices in the oPt, Israel often repeats the same misleading and false claims. These claims are addressed below.

1. *Aren't Palestinian water shortages a result of environmental factors like drought?*

No. Regardless of how much rain falls annually, access to fresh water for Palestinians is capped by Israel. Rather than environmental factors, Palestinian water shortages are a direct result of the discriminatory water policies and practices Israel imposes in the occupied Palestinian territory (oPt). By preventing Palestinians from accessing their rightful share of freshwater in the oPt, Israel continues to engineer a situation of artificial water shortages across the oPt which affect only Palestinians. In violation of international water law, Israel exploits over 90 per cent of the shared freshwater resources for exclusive Israeli use, including for use in illegal Israeli settlements, and allocates less than 10 per cent for Palestinian use.

2. *Don't differences in water consumption levels between Palestinians and Israelis reflect their different lifestyles?*

No. The enormous disparity in water consumption between Palestinians and Israelis reflects the vast inequalities that separate them in terms of access to water. Indeed, the vast majority of Palestinians are forced to severely ration their water usage as a result of rolling water shortages, especially during the summer months. Israelis consume much more water than Palestinians (four times more for domestic use alone) because they have access to much more water. Some of the greatest discrepancies can be found in the Jordan Valley, where the amount of water allocated to Israeli settlers living in illegal settlements is almost 18 times more than the per capita amount accessible to Palestinians.

3. *Aren't Palestinian water shortages largely a result of inefficient water use and ailing water infrastructure like leaking water pipes?*

No. To blame Palestinian water shortages primarily on inefficient water use or leaking water pipes is to ignore the root cause of the water crisis facing Palestinians, namely the vast inequalities in water allocation and access Israel imposes in the oPt. Palestinian water shortages are an outcome of Israeli policies that deny Palestinians their basic water rights guaranteed under international law. As such, neither technical, nor environmental nor managerial solutions can serve as a substitute for a genuine political solution that restores to Palestinians their basic water rights.

As a matter of policy, the PWA believes strongly in water conservation and sustainable management, as well as efficiency in service delivery. Towards this

end, it should be noted that the majority of water loss due to leakage occurs in area C of the West Bank, which continues to remain under full Israeli control, and which the Palestinian Authority cannot access due to Israeli restrictions.

4. *Doesn't Israel provide more water to Palestinians than it originally committed to do under the 1995 Interim Agreement?*

No. Palestinians are actually forced to buy large quantities of water from Israel – 56MCM in 2010 – primarily because of the difficulties they face in receiving JWC permits in order to drill new wells or rehabilitate existing wells needed to utilize the quota agreed in the 1995 Interim Agreement. Even with these additional water purchases, the net quantity of water available to Palestinians falls short of the quota allocated to them under the 1995 Interim Agreement, with current water availability at 98MCM as compared to 118MCM allocated to Palestinians under the agreement.

5. *Don't Palestinians violate the 1995 Interim Agreement by drilling "unauthorized" wells and refusing to build wastewater treatment plants?*

No. Palestinians continue to comply with their commitments under the 1995 Interim Agreement. What Israel labels as "unauthorized" wells are in fact shallow wells located in the Northeastern Basin that tap the shallow aquifers rather than the Mountain Aquifer basin, and thus do not fall under the 1995 agreement.

Palestinians simply do not have enough wells to meet their basic water needs. Currently, the amount of water Palestinians extract from the Northeastern aquifer is 29 MCM/year, which falls far short of the 42 MCM/year allocated to them under the 1995 agreement. Permits to drill new deep wells in the West Bank remain pending in the JWC awaiting Israel's approval, with some applications submitted by the PWA as far back as 1999.

Israel also refuses to allow for the rehabilitation of existing Palestinian licensed wells, regularly issuing stop work or demolition orders despite the fact that the rehabilitation of licensed wells does not need JWC approval as long as Palestinian extraction rates remain within the quotas established under the 1995 Interim Agreement.

A similar picture emerges regarding wastewater and sanitation. Of the 30 wastewater treatment plant (WWTP) projects submitted by the PWA for JWC approval since 1995, only 4 have been approved. In Gaza, the wastewater sector has all but been destroyed as a result of Israeli restrictions on the entry of construction materials into Gaza, as well as Israel's deliberate targeting of water and wastewater infrastructure during Operation Cast Lead (December 2008 - January 2009).



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