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Foul Play

Neglect of wastewater treatment in the West Bank

June 2009

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Researched and written by Eyal Hareuveni

Data coordination by Suhair 'Abdi-Habiballah, Najib Abu Rokaya, Ma'ayan Geva, Ronen Shimoni

Fieldwork by 'Atef Abu a-Rub, 'Issa 'Amro, Salma a-Deb'i, Iyad Hadad, Kareem Jubran, 'Abd al-Karim Sa'di, Ra'aed Moqdi, Suha Zeid

Translated by Zvi Shulman

Edited by Michelle Bubis

Cover: Wastewater from the Ariel settlement flowing alongside the village of Brukin. Photo taken by Eyal Hareuveni, 28 May '08.

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Table of Contents

| | |
|---|----|
| Introduction | 4 |
| Chapter 1: Wastewater from settlements and from Jerusalem..... | 5 |
| A. Wastewater from settlements | 5 |
| B. Jerusalem's wastewater channeled east | 12 |
| Chapter 2: Wastewater from Palestinian communities | 17 |
| A. Delay in developing Palestinian wastewater-treatment infrastructure | 17 |
| B. Israel's exploitation of Palestinian wastewater | 23 |
| Chapter 3: Consequences of neglecting wastewater treatment in the West Bank | 25 |
| Chapter 4: Breaches of international law | 35 |
| Breach of obligations specified in international humanitarian law..... | 35 |
| Breach of the right to water and sanitation | 36 |
| Conclusion and recommendations..... | 38 |
| Glossary | 40 |

Introduction

Wastewater is a natural, daily product of human activity. Every government is obliged to treat wastewater to prevent and reduce sanitation and environmental hazards resulting from its neglect. Untreated wastewater contains viruses, bacteria, parasites, and heavy, toxic metals dangerous to the health of humans and animals. Failure to treat wastewater is liable, in the short term, to pollute water sources and farm crops and cause stench, insect and rodent nuisances. Over time, it is liable to pollute groundwater reserves, damage flora and fauna systems and reduce land fertility.

Official sources estimate the amount of wastewater flowing in the West Bank – from the settlements, from Jerusalem, and from Palestinian communities – at 91 million cubic meters [mcm] a year. They also estimate that the average daily per capita amount of wastewater produced by settlements is more than twice the amount produced by Palestinian communities.¹

Despite the dangers inherent to wastewater flowing freely, the vast majority of wastewater in the West Bank is not treated. This neglect is the subject of this report.

The first chapter discusses neglect regarding treatment of wastewater from settlements and from Jerusalem channeled east. The second chapter deals with the neglect of wastewater from Palestinian communities and delays in establishing treatment solutions. The third chapter presents three illustrations of how settlements pollute nearby Palestinian water sources and farmland. The fourth chapter details Israel's obligations under international humanitarian law and human rights law, as the occupying state, to ensure the needs of the civilian population in the occupied territory and to care for their welfare, which includes preventing the pollution of water sources.

¹ Ariel Cohen, Yuval Sever, Avi Tzipori, and Dina Fiman, *West Bank Streams Monitoring – Stream Pollution Evaluation Based on Sampling during the Year 2007* (Environmental Unit, Israel Nature and National Parks Protection Authority, August 2008), 11 (in Hebrew).

Chapter 1: Wastewater from settlements and from Jerusalem

In 2007, official Israeli sources estimated that 17.5 mcm of wastewater is annually produced by Israeli settlements in the West Bank.² Jerusalem's wastewater that is channeled east is also estimated by official Israeli sources at 17.5 mcm a year.³ This total, of 35 mcm a year, constitutes 38 percent of all wastewater flowing in the West Bank.

In this report, Jerusalem is referred to as a single urban unit, including neighborhoods in western Jerusalem, neighborhoods in eastern Jerusalem, and neighborhoods that Israel established in areas it annexed to the city in 1967. Under international humanitarian law, the status of the latter is identical to that of the settlements established by Israel in the West Bank.

A. Wastewater from settlements

In an interview with B'Tselem, the environmental-protection staff officer in the Civil Administration, Benny Elbaz, said that all settlement wastewater is treated "adequately," that the facilities in the settlements "usually work," and that raw wastewater does not flow freely. He added, however, that wastewater from outposts is not treated in any way.⁴

An August 2008 study, however, revealed a different reality. The study, jointly conducted by the Nature and Parks Authority Environment Unit, the Water and Streams Department in the Ministry of Environmental Protection and the environmental-protection staff officer in the Civil Administration, regarding the effect of wastewater treatment in the West Bank and on streams, found that in 2007, only 81 of 121 settlements in the West Bank were connected to wastewater treatment facilities. The result is that 12 mcm of wastewater from settlements is treated, while 5.5 mcm flows as raw wastewater into West Bank streams and valleys.⁵

² Ibid.

³ Regarding the calculation of Jerusalem's wastewater channeled east, see section B.

⁴ Interview with Benny Elbaz, environmental-protection staff officer in the Civil Administration, 22 June 2008. Other officials also contend that the quality of Israeli wastewater treatment in the West Bank is "adequate": letter of 11 June 2008 to B'Tselem from Second Lt. Gal Levant, public-relations officer in the Civil Administration; letter of 9 September 2008 to B'Tselem from Sarit Levy-Grosso, freedom of information official in the Ministry of Environmental Protection. A similar response was also given to the UN's environmental-protection program team, see UNEP, *Desk Study on the Environment in the Occupied Palestinian Territories* (July 2002), 56.

⁵ Cohen et al., 52-53. See footnote 1.

More than half of the treatment plants that do exist in settlements – 38 of 74 – are relatively small, compact facilities that can treat the wastewater of only a few hundred families, despite the growth in the settlement population over recent decades. These facilities also require round-the-clock maintenance and as there are relatively few residents in most settlements, the per-capita cost of maintenance that residents are supposed to bear is high.⁶ As a result, maintenance of most of the facilities is defective. They suffer frequent technical breakdowns and at times, shut down entirely.⁷ The overall outcome is that these facilities cannot treat all the wastewater that is channeled to them and from time to time, raw wastewater from settlements floods West Bank valleys.⁸

In large, well-established settlements, most of which were built in the 1970s and some in the 1980s, wastewater is not treated at all, or the treatment systems have been neglected for decades. Among these settlements are:

- Kiryat Arba: since the settlement was founded in 1972, its raw wastewater has flowed into the Hebron stream, which runs into Israel.⁹
- Ofra: wastewater from the settlement, founded in 1975, seeps into the Mountain Aquifer and pollutes the groundwater. It was not until 2008 that Israel began construction of a treatment plant for the settlement. However, the plant is being built on land registered to Palestinians and without the requisite approval from the Civil Administration.¹⁰
- Kfar Adumim: founded in 1979, this settlement has never had a wastewater treatment plant. The residents' wastewater is disposed of in cesspits.¹¹

⁶ Nurit Kliot and Sharon Hophmayer-Tokich, *Environment Pollution by Wastewater – Aspects of Environmental Justice* (National Council for Environmental Protection, 2003), 189.

⁷ Interview with Shoni Goldberger, director of Jerusalem District, Ministry of Environmental Protection, 6 October 2008; State Comptroller, *Annual Report 43* (1993), 888 (in Hebrew). See, also, Dalia Tal, "Adam: A Treatment Plant without Electricity," *Globes*, 15 May 2000 (in Hebrew).

⁸ Interview with Shoni Goldberger, *ibid.*

⁹ Cohen et al., *West Bank Streams Monitoring*, 20. See footnote 1.

¹⁰ A stop-work order was issued when the lack of required approvals came to light. Letter of 3 August 2008 from Yitzhak Me'ir, executive director of the Municipal Environmental Association of Samaria, to attorney Keren Halperin-Museri, of Adam, Teva v'Din; interview with Shoni Goldberger, see footnote 7; Tzafirir Rinat, "Treatment Plant in Ofra Built on Palestinian Land," *Ha'aretz*, 4 November 2008. Despite the stop-work order, construction continued. The Ministry of National Infrastructure informed B'Tselem that the facility "is under construction (we have no information that construction has stopped)." The facility is scheduled for completion at the end of 2009. Letter of 26 January 2009 to B'Tselem from Yasmin Siani, freedom of information official at the Ministry of National Infrastructure.

¹¹ Minutes of meeting no. 2/07 of the Environmental Protection Subcommittee of the Civil Administration's Supreme Planning Council, 2 May 2007.

- Bat Ayin: founded in 1989, the settlement has a partial wastewater-collection system, and residents dispose of their wastewater in cesspits.¹²

In other settlements, repeated breakdowns have led to shutting down of their treatment plants for long periods of time. Examples include:

- Ariel: following a decade of defective operation, the treatment plant in the settlement ceased functioning altogether in 2008. Since then, the settlement's wastewater has flowed into the Shilo stream, a major tributary of the Yarkon River.¹³ A plan to channel the wastewater to treatment inside Israel has not yet been approved.
- Elqana: the treatment plant in the settlement has stopped functioning and wastewater now flows into the Rava stream, another tributary of the Yarkon. The Ministry of National Infrastructure has allocated NIS 1.8 million to renovate the facility, which is scheduled to renew operations at the end of 2009.¹⁴
- Qedumim: the settlement's two wastewater treatment plants stopped operating in 2007 and its wastewater began flowing into the Abu Jamus stream. In March 2008, one of the plants renewed operations.¹⁵
- Beit Ariyeh: the settlement's recently-built treatment plant stopped operating in 2008 and its wastewater flowed into the Shilo stream.¹⁶ The plant was renovated at a cost of NIS 5.5 million, and recommenced operations in January 2009.¹⁷

Six other settlements – Qedar, Ma'aleh Amos, Nokdim, Otni'el, Etz Ephraim, and Enav – dispose of their wastewater in septic tanks, from which it seeps into the groundwater and pollutes it.

The wastewater of the 25 settlements in the Jordan Valley receives only preliminary treatment, in sedimentation basins and oxidation ponds, a method based on a natural process of separating pollutants from the wastewater. Treatment of this kind is considered outdated and not meet the standard required inside Israel.

¹² Minutes of meeting no. 1/07 of the Environmental Protection Subcommittee of the Civil Administration's Supreme Planning Council, 3 January 2007.

¹³ Cohen et al., *West Bank Streams Monitoring*, 19. See footnote 1.

¹⁴ Ministry of National Infrastructures press release, "Israel Treats Absolute Majority of its Wastewater," 10 November 2008; letter from Yasmin Siani, see footnote 10.

¹⁵ Cohen et al., *West Bank Streams Monitoring*, 20, see footnote 1; letter of 10 February 2009 from Captain Ariyeh Shaya, public-relations officer in the Civil Administration, to B'Tselem.

¹⁶ Cohen et al., *West Bank Streams Monitoring*, 19-20, see footnote 1.

¹⁷ Ministry of National Infrastructure press release, see footnote 14; letter from Yasmin Siani, see footnote 10.



Wastewater of the Revava settlement. Photo: Ra'aed Mokdi, 7 May '08.

Neglect regarding the treatment of wastewater from settlements is not new. Studies carried out by official Israeli authorities, human rights organizations and Palestinian authorities reveal grave, prolonged neglect in this area. The Ministry of Environmental Protection states that many settlements "do not have a proper solution for wastewater."¹⁸ Yael Mason, director of the ministry's Industrial Wastewater and Polluted Lands Department, stated at a hearing in the Knesset's Interior Affairs and Environmental Protection Committee that some treatment plants in the settlements "do not meet requisite standards and pollute both the Mountain Aquifer and streams."¹⁹

In 1998, the Municipal Environmental Association of Judea surveyed the treatment of wastewater in 48 settlements. The survey found that treatment plants in 24 settlements, in which more than 40,000 settlers lived, polluted the environment "to a great or moderate extent", and that only 13 settlements, in which 16,000 settlers lived, treated wastewater "to a reasonable extent." A 2002 report of the Municipal Environmental Association of Samaria

¹⁸ See "Water, Streams, and Wastewater: Wastewater treatment plants in Jerusalem District," available on the website of the Ministry for Environmental Protection at: http://www.sviva.gov.il/bin/en.jsp?enPage=BlankPage&enDisplay=view&enDispWhat=object&enDispWho=aroundYou%5E1699&enZone=waste_jer&enVersion=0&. Visited on 1 March 2009.

¹⁹ Minutes of the Committee's meeting on 21 June 2006, 13 (in Hebrew).

(which is responsible for some 100 settlements) found that 14 settlements did not treat their wastewater.²⁰ According to the report, the wastewater of 11 other settlements near the basin of the Kana stream was never treated, or was only partially treated, for 25 years, until the Kana stream conduit was completed in 2006.²¹

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.²²

In Israel, the local authorities are responsible for collection, treatment, and disposal of wastewater.²³ In the West Bank, this responsibility lies with the local and regional councils, which have, since 1981, been empowered to impose fees and levies and enact by-laws in all matters under their authority, including wastewater.²⁴ However, most settlements' regional councils have enacted the relevant by-law only in recent years, decades after most of the settlements were established.²⁵

²⁰ Nurit Kliot, *Cross-border Environmental Pollution and Cross-border Cooperation in Environmental Issues: Israel, Arab Countries, and the Palestinian Authority*, report submitted to the National Council for Environmental Protection, Committee for Regional Cooperation, rev. ed. (Department of Geography, Haifa University, January 2003), 24 (in Hebrew).

²¹ The 11 settlements are Oranit, Elqana, Alfe Menashe, Yakir, Ma'aleh Shomeron, Emmanuel, Etz Ephraim, Karne Shomeron, Raba, Nofim, and Sha'are Tikva. See the website of the Municipal Environmental Association of Samaria: http://www.enviosh.org.il/website/www_shomron/index.html. Visited on 1 March 2009.

²² 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).

²³ Local Authorities (Sewerage) Law, 1962, Chapter Three: Sewerage Levy and Sewerage Fee, sections 16-39 (in Hebrew).

²⁴ Local Councils (Judea and Samaria) Regulations, 1981, sections 76(a) and 88(a) (in Hebrew).

²⁵ Samaria Regional Council (which unites 33 settlements and outposts) enacted a by-law in 1992 (Samaria By-law (Sewerage Levy), 1992); the Jordan Valley Regional Council (21 settlements) enacted a by-law in 2000 (Arvot Hayarden Regional Council By-law (Sewerage Fee), 2000); the Mateh Binyamin Regional Council (43 settlements) enacted a by-law that took effect in 2005, following a warning by the Ministry of Environmental Protection to the head of the Council, Pinchas Wallerstein (Mateh Binyamin Regional Council By-law (Sewerage Fee), 2005); the Gush Etzion Regional Council (18 settlements) enacted a by-law in 2007 (Gush Etzion Regional Council By-law (Sewerage), 2007); the Mt. Hebron Regional Council (19 settlements and outposts) only recently began to enact a by-law (Water, Streams, and Wastewater). See "Treatment plants in Jerusalem District" at the website of the Ministry of Environmental Protection:

During more than 40 years of occupation, Israel has not built advanced regional wastewater treatment plants in the settlements to match those inside Israel. In 1983, the Israel Water Planning Company formulated a master plan for development of treatment systems for all wastewater from settlements. However, the plan, whose cost was estimated at the time at 110 million USD, was not implemented due to alleged budgetary constraints.²⁶ The Ministry of Environmental Protection informed B'Tselem that it is currently at an "advanced stage of formulating a work plan" for treating settlement wastewater, but provided no scheduled completion date.²⁷



Out-of-order wastewater treatment facility in the Meitarim industrial area. Photo: Eyal Hareuveni, 15 Sept. '08.

The only wastewater-treatment project in the settlements that Israel has completed in recent decades is the Kana stream conduit, which started operating in 2006. The pipeline, which took seven years to complete, at an investment of NIS 35 million, carries the wastewater of six settlements to the Nir Eliahu regional treatment plant inside Israel.²⁸ At a future, unknown

http://www.sviva.gov.il/bin/en.jsp?enPage=BlankPage&enDisplay=view&enDispWhat=object&enDispWho=arowndYo u%5El699&enZone=waste_jer&enVersion=0&. Visited on 1 March 2009.

²⁶ State Comptroller, *Annual Report 43* (1993), 889 (in Hebrew).

²⁷ Letter from Sarit Levy-Grosso. See footnote 5.

²⁸ The six settlements are Karne Shomeron, Emmanuel, Oranit, Sha'are Tikva, Yakir, and Nofim.

date, the conduit will carry the wastewater of four more settlements.²⁹ This conduit carries only some million cubic meters a year, less than six percent of the total wastewater produced by the settlements. Although the Civil Administration prepared connections in the conduit for collecting Palestinian wastewater, no village has yet been connected to it, due to Palestinian refusal to cooperate in projects that may legitimize settlements.³⁰

Under the Jordanian building and planning laws that are in force in the West Bank, outline plans must contain provisions for wastewater treatment in order to be approved.³¹ However, planning and building authorities in settlements and in Israeli industrial areas in the West Bank ignore the requirement, and do not ensure that wastewater treatment is arranged before they approve occupancy of buildings in settlements or operation of industrial areas. For example, approval was given for occupancy of all the southern sections of the Modi'in Illit settlement, although the result was that the raw wastewater of 17,000 persons flowed into the Modi'im stream.³² In the Meitarim industrial area, construction began on a wastewater treatment plant but was not completed. The wastewater of the two factories in the area, which includes used oils and detergents, flows directly through the facility into the nearby valley.³³

One reason for this situation is the blurred division of power between the Civil Administration and the Ministry of Environmental Protection. The Civil Administration is responsible for ensuring that building plans include solutions for wastewater treatment, but the power to enforce execution of the plans lies with the Ministry of Environmental Protection. In Israel, the responsibility lies solely with the Ministry of Environmental Protection.

²⁹ The four settlements are Ma'aleh Shomeron, Kiryat Netafim, Etz Ephraim, and Revava.

³⁰ Cohen et al., *West Bank Streams Monitoring*, 19, see footnote 1; Kliot, *Cross-border Environmental Pollution*, 25, see footnote 20; "Activity of the environmental-protection staff officer", website of the Ministry of Environmental Protection: <http://www.sviva.gov.il/bin/en.jsp?enPage=BlankPage&enDisplay=view&enDispWhat=Object&enDispWho=InterestGroups^I400&enZone=kamat>. Visited on 1 March 2009.

³¹ Jordanian Towns, Villages, and Buildings Planning Law, of 1966. See State Comptroller, *Annual Report 43* (1992), 883.

³² State Comptroller, *Annual Report 51A* (2000), 216; Meron Rappaport, "Something Stinks," *Ha'aretz*, 17 December 2006; Yael Ivri-Darel, "Piratical Connection: Modi'in Illit Wastewater Flows to Modi'in," *ynet*, 19 June 2008; Cohen et al., *West Bank Streams Monitoring*, 19, see footnote 1.

³³ Letter of 24 September 2008 from attorney Keren Halperin-Museri of Adam, Teva v'Din to Zviki Bar Hai, head of the Mt. Hebron Regional Council, Gabi Bar Zakai, chair of the Municipal Environmental Association of Judea, Tali Borstein, head of the Industry and Business Licenses Department, Ministry of Industry and Trade, and Benny Elbaz, environmental-protection staff officer in the Civil Administration.

Consequently, the ministry has taken only minimal enforcement actions against polluting settlements. From 2000 to September 2008, only 53 enforcement measures were taken against settlements for not treating their wastewater. Most were only warnings, with almost half of them directed against settlements in the Mateh Binyamin Regional Council. Only four indictments were filed in that period: against the Hevel Modi'in Regional Council, Modi'in Illit, Mevo Horon, and Givat Ze'ev.³⁴ In comparison, in 2006 alone, the ministry took 230 enforcement measures against authorities inside Israel, most of them warnings on suspected violation of the Water Law.³⁵

Ministry officials acknowledge the gravity of the problem and their inefficacy in enforcing the law against polluting settlements. The director of the ministry's Central District, Gideon Mazor, admitted the failure of the ministry and of the Supreme Planning Council in the Civil Administration to prevent construction or occupancy of buildings in settlements and industrial areas in the West Bank that do not have solutions for wastewater. He noted that, "every time, occupancy precedes sewerage. They take care of electricity and nursery schools, but they don't deal with sewerage. Inside Israel, we can stop plans. In Yehud, for example, we stopped building plans for years until they hooked up to the Dan Bloc Wastewater Treatment Plant in Rishon Letzion. Across the Green Line, we are not empowered to stop plans."³⁶

B. Jerusalem's wastewater channeled east

Some 17.5 mcm of Jerusalem's annual wastewater is channeled east, into the West Bank. Of this amount, 10.2 mcm are raw wastewater that flows into the Kidron Basin, in southeast Jerusalem,³⁷ and 7.3 mcm flow into the Og Reservoir facility north of the Dead Sea, near Nabi Musa.³⁸

³⁴ Letter from Sarit Levy-Grosso, see footnote 5.

³⁵ Enforcement Coordination Department, Ministry of Environmental Protection, *Activity Report, January-December 2006*. Further information is available on the ministry's website at http://www.sviva.gov.il/Enviroment/Static/Binaries/ModulKvatzim/p0425_1.pdf. Visited on 1 March 2009.

³⁶ Meron Rappaport, "Something Stinks."

³⁷ The figure on wastewater flowing into the Kidron stream was provided to the Wastewater Subcommittee of the Jerusalem District Planning and Building Committee. Minutes of the subcommittee meeting no. 2005002 of 18 July 2005. See, also, "Water, Streams, and Wastewater – Statistics for 2007," website of the Ministry of Environmental Protection's Website: http://www.sviva.gov.il/bin/en.jsp?enPage=BlankPage&enDisplay=view&enDispWhat=Zone&enDisp._Who=waste_jer&enZone=waste_jer. Visited on 1 March 2009.

³⁸ The calculation of the wastewater flowing to the Og basin is based on wastewater intake in the reservoir: 20,000 cm a day, 7.3 mcm a year. See "Og Reservoir" on the Hagihon website: <http://www.hagihon.co.il/biyuv.asp?cat=90&in=87>. Visited on 2 March 2009.

Wastewater flow into the Kidron stream

Raw wastewater from Jerusalem has been channeled to the Kidron Basin since the 1940s.³⁹ The wastewater now comes from neighborhoods in West Jerusalem, from East Talpiot and from Palestinian neighborhoods in East Jerusalem.⁴⁰ It flows in an open duct along the Kidron stream, at the outskirts of Jabel al-Mukabber, adjacent to the Separation Barrier and near the village of a-Sheikh Sa'ed. The Palestinian communities Beit Sahur, Abu Dis, 'Eizariya, and the neighborhoods of eastern Bethlehem also dispose of their raw wastewater into the Kidron stream, comprising 10 percent of the wastewater flowing into it. From the open duct, the wastewater is channeled along more than thirty kilometers towards the Dead Sea, where it flows over the cliffs into the Dead Sea itself.



Wastewater flowing from Jerusalem into the Kidron Basin. Photo: Eyal Hareuveni, 2 July '08.

³⁹ Almog Ram, *Geographical and Environmental Characteristics of the Kidron/Nar Basin*, background report for the German-Israeli-Palestinian research project "From conflict to collective action: Institutional change and management options to govern trans-boundary watercourses" (Geography Department, The Hebrew University of Jerusalem, March 2007).

⁴⁰ See footnote 37. The neighborhoods in West Jerusalem are Mamilla, Har Zion, Talbieh, Kiryat Shmuel (south of Gaza Street), Emek Refaim, Yemin Moshe, and Abu-Tor. The East Jerusalem neighborhoods are the Old City, Silwan, 'Arab a-Sawahrah, and Ras al-'Amud.

A diversion facility in Horqaniya Valley, which operates without Ministry of Health approval, dams some of this wastewater. After preliminary treatment in sedimentation pools at the facility, the treated water is used for irrigation of date trees in settlements in the Jordan Valley, while the raw wastewater continues to flow freely, seeping into the Mountain Aquifer in an area sensitive to pollution.⁴¹ The raw wastewater creates a horrible stench and serious sanitation and environmental hazards, including pollution of groundwater and of the Dead Sea. Also, some of it serves as drinking water for sheep and goats and is used for irrigation of Palestinian farmland, despite the health risk.⁴² For these reasons, the Ministry of Environmental Protection has defined this wastewater flow as “the greatest wastewater nuisance in Israel.”⁴³

Over the years, the Jerusalem Municipality has proposed several solutions for treating this wastewater. In the 1970s, it allocated a 24-dunam plot [24,000 square meters] for building a wastewater treatment plant at the Kidron wastewater point of exit, on the outskirts of Jabel al-Mukabber and near a-Sheikh Sa'ed.⁴⁴ The plan was not realized and since then, Israel has built a section of the Separation Barrier on some of the allocated land. Since the 1980s, the municipality has proposed other plans, including a plan to transfer the wastewater to a treatment plant that was to be built in the Mishor Adumim industrial area, a plan to pipe the wastewater along the route of the Kidron stream, and a plan to build treatment facilities along the Kidron. None of them were realized.

Following establishment of the Palestinian Authority, these plans necessitated cooperation on its part, as they entailed building infrastructure or treatment facilities in areas under its control. Over the years, the municipality has argued that these plans cannot be realized due to lack of cooperation by the PA, which contends that cooperation would legitimate Israel's annexation of East Jerusalem.⁴⁵

In the past two years, the director of the Jerusalem District in the Ministry of Environmental Protection has warned Jerusalem's mayor and heads of the municipal water company, Hagihon - Jerusalem Water and Wastewater Works Ltd., and its subsidiary, the Jerusalem

⁴¹ Almog Ram, *Geographical and Environmental Characteristics*. See footnote 39.

⁴² Minutes of District Planning and Building Committee meeting no. 2007010 of 31 July 2007, regarding an update on the treatment of wastewater from Jerusalem; minutes of the Professional Sewerage Subcommittee's meeting no. 2005002 of 18 July 2005; Almog Ram, *Geographical and Environmental Characteristics*, see footnote 39.

⁴³ Website of the Ministry of Environmental Protection at http://www.sviva.gov.il/bin/en.jsp?enPage=BlankPage&enDisplay=view&enDispWhat=Zone&enDisp_Who=waste_jer&enZone=waste_jer. Visited on 1 March 2009.

⁴⁴ Minutes of Professional Sewerage Subcommittee meeting no. 2006001 of 6 December 2006.

⁴⁵ Minutes of Professional Sewerage Subcommittee meeting no. 2005002 of 18 July 2005.

Company for Sewage and Treatment Plants (MAVTI), that they may personally be held criminally responsible for the ongoing nuisance.⁴⁶ Only then did Hagihon and MAVTI begin to promote several options for treating the wastewater flowing into the Kidron Basin. The first option, preferred by the municipality and the Ministry of Environmental Protection, was to pipe the wastewater from its place of origin, on the outskirts of Jabel al-Mukabber, through a 2.5 kilometer-long tunnel under Abu Dis and 'Eizariya, which are in Area B, whose civil affairs are under PA control. From there, it would continue to the Og Reservoir facility, which would be expanded to enable absorption of this wastewater. The plan was suspended following the PA's opposition and due to the "geopolitical situation."⁴⁷ In reaction, Hagihon refused to approve laying a wastewater pipeline between Beit Jala and Soreq, Jerusalem's western wastewater treatment facility.⁴⁸

Two other alternatives, which do not require PA cooperation, are considered more complicated to implement. One is to build a treatment plant within the Jerusalem Municipality's borders, at the site allocated for this purpose in the 1970s. This possibility is deemed very complicated because of its proximity to houses in Jabel al-Mukabber and a-Sheikh Sa'ed, the danger of creating additional environmental nuisances, and the limited amount of land available at the site for building the facility. MAVTI estimates that it would take three years to build the facility.⁴⁹

The second alternative is to pump the wastewater at a number of delivery stations into a pipe that would run under Mt. Scopus and from there to Og Reservoir. This option is liable to cause sanitation nuisances near residential areas, as delivery stations are considered prone to technical failure. In addition, it is liable to harm the historic landscape around the Old City.⁵⁰ The Jerusalem District Planning and Building Committee was scheduled to discuss these two options before the end of 2008 but to date, no discussion has taken place.

Og Reservoir

For two decades, the settlements Neve Ya'akov and Pisgat Ze'ev and the Palestinian neighborhoods on the northeastern slope of Jerusalem have channeled their wastewater to

⁴⁶ Letter of 25 July 2006 from Shoni Goldberger to Jerusalem mayor Uri Lupolianski, Hagihon board of directors chairman Moshe Klachin, and Hagihon CEO David Kochmeister; interview with Shoni Goldberger, see footnote 7. See, also, "Water, Streams, and Wastewater – Statistics for 2007", footnote 37.

⁴⁷ Minutes of Professional Sewerage Subcommittee meeting no. 200502 of 18 July 2005.

⁴⁸ Letter of 14 Jan. 2009 from eng. Nina Loevsky of the Flowing Infrastructures Division in the Civil Administration's Environmental-Protection Staff Officer Unit to Second Lt. Gal Levant, Civil Administration public-relations officer.

⁴⁹ Minutes of Professional Sewerage Subcommittee meeting no. 2006001 of 6 December 2006.

⁵⁰ Interview with Goldberger, see footnote 7.

an adjustment facility near Hizma, where it undergoes preliminary treatment and filtering. It is then piped to Og Reservoir, which also receives wastewater from the settlements of Ma'aleh Adumim, Adam, Anatot, and Mitzpe Yeriho and the Mishor Adumim industrial area.

Og Reservoir was meant to be a temporary facility, and was built to treat one-third of the amount of wastewater it currently receives.⁵¹ As a result, the wastewater is only partially treated.⁵² Some 80 percent of the treated wastewater produced at the site is used for irrigating date trees and crops in settlements in the northern Dead Sea and in the Jordan valley, with approval of the Ministry of Health.⁵³

In 2008, the Jerusalem District Planning and Building Committee approved a plan to build an improved facility near the existing Og Reservoir. The facility is based on a modular plan, so that in the future, it will also take in wastewater from the Kidron Basin. MAVTI chose the Minrav and Mekorot Initiatives to carry out the project, but disputes between the companies and the Ministry of Environmental Protection have delayed the start of construction.⁵⁴

The lack of proper solutions for treating the part of Jerusalem's wastewater that flows east has not prevented occupancy of new neighborhoods, whose residents add to the amount of untreated wastewater in the area. Residents moved into sections of the Pisgat Ze'ev settlement before a system for treating their wastewater was completed, even though the by-laws prohibit occupancy prior to completion and operation of a "comprehensive wastewater system, including treatment facilities."⁵⁵ It was not until 2007 that the Jerusalem District Planning and Building Committee conditioned the issuance of building permits in a new section of the Neve Ya'akov settlement on operation of the improved wastewater treatment facility at Og Reservoir. However, regarding settlements whose wastewater flows to the Kidron stream, the Committee refused to place a similar condition on issuance of building permits, saying only that it "would find it harder" to grant building permits for them.⁵⁶

⁵¹ Ministry of Health (Public Health Services, Environmental Health Department), *Annual Sewerage Report for 2006*.

⁵² Ibid. See, also Hagihon's website, <http://www.hagihon.co.il/biyuv.asp?cat=90&in=87>. Visited on 1 March 2009.

⁵³ Interview with Goldberger, see footnote 7; *Annual Sewerage Report for 2006*, see footnote 51; website of the Ministry of Environmental Protection: <http://www.sviva.gov.il/bin/en.jsp?enPage=BlankPage&enDisplay=view&enDispWhat=Zone&enDisp.%20Who=wasteJer&enZone=wasteJer>. Visited on 1 March 2009.

⁵⁴ Conversation on 20 May 2009 with Shoni Goldberger, director of Jerusalem District, Ministry of Environmental Protection.

⁵⁵ State Comptroller, *Annual Report 42* (1991), 857.

⁵⁶ Minutes of District Planning and Building Committee meeting no. 2008003 of 4 March 2008.

Chapter 2: Wastewater from Palestinian communities

According to Israeli sources, Palestinian communities produce 56 mcm of wastewater a year, representing 62 percent of all wastewater in the West Bank. Of this amount, 32.3 mcm are produced in villages and 23.8 mcm in towns and cities.⁵⁷

Only 20 percent of Palestinian homes, primarily in towns and cities, are connected to sewerage systems.⁵⁸ These are outdated, often leak, and are incapable of handling the current amount of wastewater that they receive. Lacking wastewater facilities, the remaining 80 percent of Palestinians deposit their wastewater in cesspits, from where it seeps into the groundwater. Palestinians personally pay to empty the cesspits, and due to the poor state of the economy, many families do not have the financial resources to bear the expense. Also, Israeli restrictions on Palestinian movement in the West Bank make it difficult for tankers to reach distant communities to pump out the wastewater, and raise the prices they charge.

90-95 percent of Palestinian wastewater is not treated at all, and only one Palestinian wastewater treatment plant is currently functioning.⁵⁹ Due to the lack of treatment plants, even when residents empty the cesspits, the wastewater ends up in valleys, sewers, irrigation channels or refuse dumps.⁶⁰

A. Delay in developing Palestinian wastewater-treatment infrastructure

Israel's neglect is a major reason for the lack of wastewater treatment facilities in the West Bank. In the early 1970s, Israel built four wastewater treatment facilities in the West Bank – in Jenin, Tulkarm, Hebron, and Ramallah. Over the years, their effectiveness has been deemed minimal to poor. Three of them no longer function, and wastewater arriving at them is channeled, without treatment, to streams that flow towards Israel – the Kishon stream, the Hebron stream and the Shechem stream, which flows to an Israeli emergency reservoir at Yad Hana.

⁵⁷ Cohen et al., *West Bank Streams Monitoring*, 12. See footnote 1

⁵⁸ Applied Research Institute Jerusalem (ARIJ), *Status of the Environment in the Occupied Palestinian Territory* (August 2007), 118; UNEP, *Desk Study on the Environment in the Occupied Palestinian Territories* (July 2002), 52; Cohen et al., *West Bank Streams Monitoring*, 14, see footnote 1.

⁵⁹ Cohen et al., *West Bank Streams Monitoring*, 11, 14. See footnote 1.

⁶⁰ UNEP, *Desk Study*; Cohen et al., *West Bank Streams Monitoring*, 12; Water, Sanitation and Hygiene Monitoring Program, *Water for Life – The Dilemma of Development under Occupation: The Obstacles of Achieving the Millennium Development Goals and Water Rights in the Occupied Palestinian Territory*, (2006), 33.

The only facility still functioning, in Ramallah, is relatively small, and though renovated in 2003, its capabilities are poor. It does not have the capacity to handle the city's wastewater, and industrial plants in the area do not properly treat wastewater before it flows to the facility, which hampers its operation. Consequently, wastewater is barely treated and then flows into the Soreq stream.⁶¹

Over the years, Israel did not allocate funds to improve the facilities, to build infrastructure for transporting and treating the wastewater, or to build additional treatment facilities in the West Bank. In 1993, the State Comptroller warned that many plans that had been drawn up since the early 1970s for the treatment of wastewater from Palestinian cities were not implemented due to lack of funding, though the authorities knew that the flow of wastewater endangered water sources and crops.⁶² The investment needed to build treatment facilities for Palestinian communities in the West Bank is currently estimated at 1.2-1.8 billion dollars.⁶³

The Israeli-Palestinian Interim Agreement on the West Bank and the Gaza Strip, signed in 1995, transferred to the Palestinian Authority responsibility for treatment of the wastewater of Palestinian communities. The article of the agreement dealing with water and wastewater stipulates that the sides will cooperate on this matter, including "in the promotion and development of other agreed water-related and wastewater-related joint projects, in existing or future multi-lateral forums." Each side also promised to take "all necessary measures" to prevent pollution or contamination of the water sources, "including those caused by the other side."⁶⁴

Pursuant to this article, an Israeli-Palestinian committee was established. The Joint Water Committee's (JWC) responsibilities include approval of new water and wastewater projects throughout the West Bank. The JWC continued operating during all the years of the second intifada and continues to meet. The sides are equally represented on the JWC, and all its decisions must be unanimous. Since no mechanism has been developed to resolve disputes, Israel is able to approve or reject every request relating to water and wastewater that is submitted by Palestinian members of the committee.⁶⁵

⁶¹ Cohen et al., *West Bank Streams Monitoring*, 17, see footnote 1; UNEP, *Desk Study*, 45, see footnote 58.

⁶² State Comptroller, *Annual Report 43* (1993), 887.

⁶³ Klot, *Cross-border Environmental Pollution*, 53, see footnote 20.

⁶⁴ Annex III: Protocol Concerning Civil Affairs, Appendix 1: Article 40 (Water and Wastewater), sections 20(d) and 23.

⁶⁵ For an extensive discussion on this subject, see B'Tselem, *Thirsty for a Solution: The Water Shortage in the Occupied Territories and its Solution in the Final Status Agreement* (July 2000), 52; Zecharya Tagar, *Water, Power, Institutions and Costs: Cooperation and Lack Thereof in Protecting Shared Israeli-Palestinian Water Resources*, thesis

The Palestinian Authority acknowledges the urgent need to treat wastewater in the West Bank. Toward this end, between 1996 and 2002, it raised donations amounting to 230-260 million dollars, most of them from the German development bank KfW and from the United States Agency for International Development (USAID).⁶⁶ The funds were to be used to build 15 wastewater treatment plants in Palestinian towns and industrial areas in the West Bank.⁶⁷

However, since 1996, when the Palestinian Water Authority was established and the JWC was formed, only one wastewater treatment plant has been built. Built in 1998 with funding from KfW, its construction was possible because al-Birah, where it is located, is in Area B, which is under Palestinian civilian control.⁶⁸ Israel was interested in having the facility built after it succeeded in forcing the al-Birah Municipality to connect the nearby Psagot settlement to the facility.⁶⁹ Although its wastewater is treated in the facility, the settlement refuses pay for the treatment. Preliminary approval was given for construction of three more plants, two of them in 2008.

For a combination of reasons, described below, new wastewater treatment facilities have not been built in the West Bank.

Delay in approval of plans

Obtaining approval to build a wastewater treatment facility is a complicated and prolonged process, due to the environmental ramifications of such a project. The process is even more complex and exhausting when it involves a Palestinian facility in the West Bank, where Israel's approval is needed.

submitted to the Department of International Relations and the Department of Geography, The Hebrew University of Jerusalem (July 2007), 67 (in Hebrew).

⁶⁶ Zecharya Tagar, Tamar Keinan, and Gidon Bromberg, *A Seeping Time Bomb: Pollution of the Mountain Aquifer by Sewage* (January 2004); Itay Fischhendler, "The Politics of Unilateral Environmentalism: Wastewater Treatment along the Israeli-Palestinian Border," paper given to a seminar at the School of International Affairs and Public Policy, Columbia University, New York, 11 September 2007.

⁶⁷ The plants were to be built in Halhul, Jifna/al-Jalazun/Bir Zeit, a-Ram, 'Eizariya/Abu Dis, Ramallah/Bitunya, Salfit, West Nablus, Hebron, Jenin Industrial Area, Jenin, regional Tulkarm, Tulkarm, a-Zubeidat, al-'Arrub. "Palestinian Wastewater Project Submitted to the Joint Water Committee," 29 July 2003; interview with Ahmad Hindi, director of the Finance and Administration Division, Palestinian Water Authority, and Na'im al-Mani, PA projects director, 25 May 2008.

⁶⁸ UNEP, *Desk Study*, 54, see footnote 58; Tagar et al., *Water, Power, Institutions and Costs*, 38-39, 45, see footnote 66.

⁶⁹ Cohen et al., *West Bank Streams Monitoring*, 11, see footnote 1.

First, a plan is filed with the JWC, which must approve, in principle, the location of the facility and the proposed method of wastewater treatment. If the facility is located in Area C, where Israel is responsible for civil affairs, Civil Administration approval is also required for the plan.

This additional stage of Civil Administration approval applies in most cases, as wastewater-treatment facilities require large swaths of land that are far from residential areas and can enable future expansion of the facilities. Areas A and B, in which the PA is responsible for civil affairs, contain for the most part Palestinian cities and towns, and most of the land in these areas is built-up.⁷⁰ Area C comprises 60 percent of the West Bank and contains the largest land reserves for development there. Given the need to locate suitable land for these relatively large facilities, to negotiate its purchase if it is privately owned, and to obtain Israel's consent to its location, rejection of a proposed site by the Civil Administration causes years of delay, since new plans have to be submitted both to the JWC and the Civil Administration for approval.⁷¹

Although Civil Administration officials are members of the JWC, there is no coordination between the two bodies, and understandings reached by the JWC are often breached by the Civil Administration. The lack of coordination causes lengthy, unreasonable delay, sometimes for more than a decade, in approval of plans to build Palestinian wastewater treatment facilities, and increases distrust between Israel and the Palestinian Authority. The Palestinian Water Authority claims that Israel is currently delaying 140 water and wastewater infrastructure projects.⁷² The Civil Administration, on the other hand, contends that it "gives great importance to establishment of these facilities, and all the relevant bodies are instructed to deal vigorously and attentively with every request to build Palestinian wastewater treatment plants."⁷³

Examples of prolonged delay in approval follow.

- In Tulkarm, a plan to build a plant was submitted to the JWC in 1996. It was not until 2006, after a year of negotiations over the plant's location alone, that the JWC

⁷⁰ Interview with 'Adel Yassin, director of information in the Palestinian Water Authority, 7 August 2008. In Israel, wastewater treatment facilities must be at least 500 meters from residential areas. See Tzafrir Rinat, "Bad Smell Coming from the Treatment Plants," *Ha'aretz*, 29 December 2005.

⁷¹ Tagar et al., *Water, Power, Institutions and Costs*, 38, see footnote 66; interviews with Ahmad Hindi, Na'im al-Mani and 'Adel Yassin, see footnotes 68 and 71. The Palestinian Authority is not empowered to expropriate land for public purposes, and Israel controls state lands in the West Bank.

⁷² Letter of 14 August 2008 to B'Tselem from Dr. Shaddad 'Attili, head of the Palestinian Water Authority.

⁷³ Letter from Captain Ariyeh Shaya, see footnote 15.

reached a memorandum of understanding regarding location in Area C.⁷⁴ However, when the plan was presented to the Civil Administration in December 2008, the head of the International Organizations Desk recommended that “establishment of the facility in Area A be examined, and that care be taken that it does not extend into Area C.”⁷⁵ The plan will not be realized if the site agreed on by the JWC is rejected, given that the Tulkarm Municipality does not have available land on which to build such a facility.

- A plan to build a facility for West Nablus was submitted to the JWC in August 1997. The Civil Administration demanded a change in location twice, and it was not until May 2008 that permits for its construction were issued.⁷⁶ Construction has not yet begun. A plan to build a similar facility in East Nablus was cancelled due to delay in obtaining approval.⁷⁷
- After a plan to build a facility in West Ramallah, submitted to the JWC in July 1999, was approved, the Civil Administration demanded a change in location, on grounds that it was located along the planned route of the Separation Barrier. In September 2008, the head of the Civil Administration approved construction of the plant but required the Palestinians to connect the Beit Horon settlement to it.⁷⁸ The plan for the facility has not yet been submitted to the Civil Administration for approval.

Israel’s attempt to force the PA to treat wastewater from settlements

From 1996 to 1999, Israel conditioned construction of Palestinian treatment plants on connection of settlements to the proposed facility. For example, Israel tried to force the Palestinians to connect the Kochav Ya’ir settlement to the al-Birah plant and demanded that settlements be connected to facilities planned for West Nablus, Salfit, and the Hebron area.⁷⁹ The Palestinian Authority, which views consent as granting legitimacy to the settlements,

⁷⁴ E-mail of 14 August 2008 to B’Tselem from Michael Talhami, of TOKTEN (Transfer of Knowledge Through Expatriate Nationals), an advisor to the Palestinian Water Authority; interviews with engineer Rafiq Hamad, head of the Water Department in the Tulkarm Municipality, 8 February 2009 and 2 March 2009.

⁷⁵ Letter from engineer Nina Loevsky, see footnote 48.

⁷⁶ Tagar et al., *Water, Power, Institutions and Costs*, 45, see footnote 66; interview with ‘Adel Yassin, see footnote 71.

⁷⁷ Zach Tagar, Tamar Keinan, Violet Qumeish, *Pollution of the Mountain Aquifer by Sewage: Finding Solutions* (Friends of the Earth Middle East, July 2005); interview with ‘Adel Yassin, see footnote 71.

⁷⁸ Letter from engineer Nina Loevsky, see footnote 48.

⁷⁹ Tagar et al., *Water, Power, Institutions and Costs*, 39, 45, see footnote 66; conversation with Iman Jarrar, an engineer in the Palestinian Water Authority, 3 November 2008.

rejected these demands. In 1999, with a change in Israel's government, Israel ceased insisting that settlements be linked to Palestinian plants.⁸⁰

This policy was implemented at a time when the Palestinian Authority, together with the donor countries, had gathered substantial resources to build wastewater treatment facilities. Israel's position greatly delayed the approval of the plans to build these facilities.⁸¹

Israel recently reverted to its linkage policy, when, as noted above, it conditioned approval of the proposed Ramallah plant on connecting the Beit Horon settlement to it.⁸²

Dispute over wastewater-treatment standards

In 2002, during JWC discussions on the proposed plant for the Hebron area, Israel compelled the Palestinians to meet advanced wastewater-treatment standards, which require tertiary treatment of the treated wastewater in all the planned Palestinian facilities. This level of treatment enables use of wastewater for irrigation of all types of crops and for urban and industrial purposes. The standards recommended by the World Health Organization require a secondary treatment process and were adopted by the Palestinian Authority.⁸³

The tertiary treatment standards are not yet in effect in wastewater treatment plants in Israel, or in existing plants in the settlements. The government of Israel did not adopt these standards until 2005, and they will be implemented gradually, until 2015, in all existing wastewater treatment plants in Israel.⁸⁴

The WHO estimates that switching from secondary to tertiary treatment increases the cost by 66 to 100 percent per cubic meter.⁸⁵ Therefore, applying the advanced standards will substantially raise the cost of building the Palestinian facilities, as well as the future cost of their operation and maintenance.

⁸⁰ Tagar et al., *Water, Power, Institutions and Costs*, 73, see footnote 66.

⁸¹ Tagar et al., *Seeping Time Bomb*, see footnote 67.

⁸² See footnote 79.

⁸³ The standards Israel sought to force on the Palestinians are the Inbar Commission's 10/10 standards, rather than the 20/30 standards, in which the wastewater does not contain more than 10 milligrams per liter of biological oxygen consumption, and 10 milligrams per liter of floating solids. Fischhendler, *The Politics of Unilateral Environmentalism*, 41, see footnote 67; Tagar et al., see footnote 66.

⁸⁴ Israeli Cabinet decision 3589, upgrading wastewater to irrigation quality without restrictions and for discharge into streams, 5 May 2005. This decision adopts the Inbar Commission's standards.

⁸⁵ S. S. a-Salem and H. Abouzaid, "Wastewater reuse for agriculture: regional health perspective," *Eastern Mediterranean Health Journal*, vol. 12, nos. 3 & 4 (May-July 2006). Secondary treatment per cubic meter is estimated at \$0.16 to \$0.60, while tertiary treatment is estimated at \$0.32 to \$1.00. The Palestinian Authority adopted the WHO standards in 2003 (PS 742/2003).

Dependence on donor countries and cutback in their commitment to Palestinian projects

Since the outbreak of the second intifada in September 2000, Israel has placed severe restrictions on Palestinian movement in the West Bank. As a result, donor countries have had difficulty implementing wastewater projects that they committed to fund. The restrictions raised project costs by 25 to 35 percent and led these countries to reconsider their commitments.⁸⁶ USAID was responsible for wastewater treatment projects in the southern West Bank, including the facility that was to be built in the Hebron area. At first, USAID decided to continue to advance these projects, but after Palestinians attacked one of its convoys in the Gaza Strip in October 2003, it decided to freeze the projects. In 2004, the agency allocated funds primarily for humanitarian projects, which did not include wastewater treatment, and after Hamas won the elections in January 2006, it decided to freeze funding for wastewater-treatment projects.⁸⁷

The German development bank KfW, which was responsible for projects in the northern West Bank, at first reduced its activity in especially dangerous areas, such as Nablus, and sought to advance the smaller projects, such as in Tulkarm and Salfit. After Israel delayed progress on these projects too, the bank informed the Palestinian Water Authority that its commitment extended only to the projects planned in West Nablus, Ramallah, and Jenin.⁸⁸

B. Israel's exploitation of Palestinian wastewater

Current Israeli policy exploits the fact that Palestinian wastewater is not treated inside the West Bank and flows into Israel. Israel treats some of this wastewater in facilities inside its sovereign area and uses it for agricultural irrigation and to rehabilitate streams, yet deducts the cost of building these facilities and of the treatment from tax monies owing to the Palestinian Authority.

Several facilities inside Israel treat Palestinian wastewater. One is the emergency reservoir next to Kibbutz Yad Hana, which has treated wastewater from Nablus and Tulkarm since 1996, some of which has been used to rehabilitate the Alexander stream. Another is the Nir Eliahu facility, which has treated wastewater from Qalqiliya, Habla, and 'Azzun since 1999. The wastewater from this facility is used to irrigate citrus groves of the Sharon area and to

⁸⁶ Tagar et al., *Water, Power, Institutions and Costs*, 69-70, see footnote 66; Tagar et al., *Seeping Time Bomb*, see footnote 67.

⁸⁷ Interview with 'Adel Yassin, see footnote 71; Tagar et al., *Water, Power, Institutions and Costs*, 44, 75, 92, see footnote 66.

⁸⁸ Interview with 'Adel Yassin, see footnote 71.

rehabilitate the Yarkon.⁸⁹ Soreq, Jerusalem's western wastewater treatment facility, treats wastewater from West Bethlehem and some of Beit Jala's wastewater. From there, the water flows into the Soreq stream and is used for agricultural irrigation in the area of Kibbutz Tzora.⁹⁰

According to Israeli sources, some 5.9 mcm of wastewater from Palestinian towns and villages are treated in these three facilities every year.⁹¹ Additional Palestinian wastewater is treated in the facility at Shoqet junction, which began operating at the end of 2008. This plant was built following a petition to the High Court of Justice by Meitar Council regarding the pollution of the Hebron stream by wastewater from Hebron and the Kiryat Arba settlement, which lie 40 kilometers away.⁹² According to estimates, some 5.7 mcm of wastewater flow into the Hebron stream yearly, some of them toxic industrial wastewater. After the High Court ordered the state to take appropriate measures to eliminate the nuisance, the government decided to build a wastewater treatment plant near the Green Line. The facility will also treat wastewater of Israeli communities in the area – Meitar, Carmit, Laqiya, and Hora. Although the cost of building the facility is about 30 million shekels, the Ministry of National Infrastructure informed B'Tselem that Israel charged the Palestinian Authority 40.666 million shekels, "as the share of the PA is expected to be higher due to the supply and organic load coming from their communities."⁹³ The letter does not state the sum that communities inside Israel will have to pay.

These solutions are problematic: they delay implementation of a proper solution for treating Palestinian wastewater and ignore the flow of Palestinian wastewater in the valleys of the West Bank and seepage of pollutants into the Mountain Aquifer, as the wastewater makes its way to the facilities in Israel.

⁸⁹ Ministry of Environmental Protection, Water and Streams Department, "Stream Pollutant Loads – Comparison between 1994 and 2000" (August 2001).

⁹⁰ Regarding the Soreq facility, see Hagihon's website, at <http://www.hagihon.co.il/biyuv.asp?cat=88&in=87>. Visited on 2 March 2009.

⁹¹ Cohen et al., *West Bank Streams Monitoring*, 11, see footnote 1; Ministry of Health, "Central District – Wastewater-treatment Systems" (undated).

⁹² HCJ 3511/02, *The Forum for Co-existence in the Negev v. Ministry of Infrastructures* (not reported).

⁹³ Ministry of National Infrastructures press release, 10 November 2008; letter from Yasmin Siani, see footnote 10.

Chapter 3: Consequences of neglecting wastewater treatment in the West Bank

Since settlers in the West Bank use Israel's water-supply system, neglect of wastewater treatment in the area has almost no effect on them. Palestinians, however, and especially residents of small towns and villages, rely on water from natural springs, from shallow drillings of the Mountain Aquifer, from stream flow, and from rainfall reservoirs.⁹⁴ Pollution of these sources aggravates the chronic drinking-water shortage in Palestinian communities in the West Bank. Also, use of raw wastewater for agriculture contaminates crops, harming a major sector of the Palestinian economy. In the long run, the flow of raw wastewater will also diminish land fertility and land reserves.⁹⁵



Wastewater of Ariel and Salfit flowing within the village of Brukin. Photo: Eyal Hareuveni, 28 May '08.

To date, no comprehensive epidemiological research has studied the effects of the free-flowing raw wastewater on West Bank water sources. However, the UN Environmental Program report of 2002 presented Palestinian surveys and studies conducted over the past

⁹⁴ Tagar et al, *Water, Power, Institutions and Costs*, see footnote 66; UNEP, *Desk Study*, see footnote 58.

⁹⁵ The World Bank, *Palestinian Economic Prospects: Aid, Access and Reform, Economic Monitoring Report to the Ad Hoc Liaison Committee*, (22 September 2008), 51; UNEP, *Desk Study*, p. 53, see footnote 58.

decade showing that wastewater has polluted water sources used by Palestinians in the West Bank. A 1998 study by Al-Quds University of the Jordan Valley, Nablus, Jenin, and Tulkarm found that one-third of the samples had a higher level of nitrates than recommended by the WHO.⁹⁶ A study conducted by Bethlehem University in 1999 found that more than 99 percent of 400 samples of spring water contained high concentrations of coliform bacteria, requiring the water to be treated before use. The study concluded that the pollution resulted from the springs' proximity to wastewater flow.

A study by the Palestinian Ministry of Health, conducted in 2001, found that, in 2,721 samples from wells and water tanks, 22 percent had bacterial readings exceeding WHO drinking-water standards. This study also found a connection between frequent outbreaks of intestinal diseases in the West Bank and severe pollution of water sources in the area.⁹⁷

Since most settlements are located on ridges and hilltops, their untreated wastewater flows to nearby Palestinian communities, which are generally located further down the slope. A Palestinian study conducted in the mid-1990s found that crops and water sources of 70 Palestinian villages near settlements had been contaminated.⁹⁸ An investigation by the State Comptroller in 1991 found that wastewater from six settlements endangered the quality of nearby water drillings, and that the raw wastewater of five other settlements flowed onto cultivated Palestinian land, damaging crops. The names of the settlements were not given.⁹⁹

The damage caused by wastewater from settlements is also documented in testimonies given to B'Tselem over the past two years. The three following cases, which involve settlements with wastewater-treatment facilities, illustrate the harm to water sources and to Palestinian crops, as well as the failure to enforce the law against polluting settlements.

'Azmut, Deir al-Hatab, and the Elon Moreh settlement

Three years ago, the Elon Moreh wastewater treatment plant broke down, and wastewater from the settlement and from the industrial area within it began to flow toward the nearby Palestinian villages of 'Azmut and Deir al-Hatab. The wastewater furrowed a channel along which it flowed to the olive orchards of 'Azmut and continued along an open trench in the center of the village, a few meters from homes and alongside the school. Elon Moreh produces very toxic industrial wastewater from leather- and meat-processing plants, with an

⁹⁶ UNEP, *Desk Study*, 35, see footnote 58.

⁹⁷ *Ibid.*, 34-35, 38.

⁹⁸ Rashed a-Sa'ed, *Implications of the Israeli Occupation on the Palestinian Wastewater Management with Special Emphasis on Wastewater-related Compensation, Final Report* (Palestinian Water Authority, 31 March 2003), 18.

⁹⁹ State Comptroller, *Annual Report 43* (1993), 888.

extremely high level of acidity that is liable to cause burns upon contact. Laboratory analysis of this wastewater indicated a grave sanitation risk to humans and animals inherent in pollution of the villages' springs and the groundwater of the Mountain Aquifer, contamination that was liable to "cause loss of life" and an "environmental and health disaster."¹⁰⁰

The flow of the settlement's wastewater destroyed crops and desiccated olive trees, some of them very old, at a distance of up to 30 meters from the sides of its channel. The farmers of 'Azmut could not sell their crops as they were contaminated.¹⁰¹ In addition, the wastewater created a severe mosquito problem and a powerful stench that caused allergies, dizziness, and headaches among many residents of the village, particularly children.

Nihadeh Sawalha, who lives in 'Azmut, described the harm to the villagers:

Our life has become terrible. We're bothered day and night. The odor is horrible. We can't open the windows because of the smell and the mosquitoes. It's worse in the summer, when it gets hot. We've tried everything but we haven't been able to get rid of the mosquitoes. My small children cry at night from the mosquito bites and wake up with their faces all red and stains on their bodies. I feel as if we're living in a swamp. We can't even eat our food. Our relatives don't like to visit us, and they ask us to visit them. I am embarrassed when somebody visits me.¹⁰²

¹⁰⁰ Engineer Arnon Goren, "Wastewater of the Elon Moreh Settlement – Professional Opinion," 30 March 2008.

¹⁰¹ Testimony of Bilal 'Alawneh, given to Salma a-Deb'i on 15 May 2008.

¹⁰² The testimony was given to Salma a-Deb'i on 8 May 2008.



Wastewater from the Elon Moreh settlement, seen on the left, flows onto the lands of 'Azmut. Photo: Eyal Hareuveni, 21 July '08.

The settlement's wastewater reached Deir al-Hatab, where it destroyed crops, particularly olive trees. Bahajat 'Odeh, a resident of the village, told B'Tselem:

My family has a 25-dunam plot of land, which we inherited from my grandfather. It once had about 300 olive trees. My grandfather planted them 40 or more years ago. Most of them dried out because of the wastewater, and their yield dropped sharply. Of all the trees that my grandfather planted, only 80 remain. In the olive-picking season in the early 1990s, we produced about 50 tins of oil, each containing 17-18 liters of oil. Now, we produce almost nothing. In 2007, we collected only 500 kilograms of olives. We took them to the olive press and got terrible oil, with a horrible taste. We cooked it and made soap out of it because it wasn't fit to eat.¹⁰³

The authorities that were supposed to supervise operation of the treatment plant in Elon Moreh – the settlement itself, the Civil Administration, and the Ministry of Environmental Protection, among others – did not deal with the wastewater flowing into the Palestinian village,s or with the resultant sanitation and environmental nuisance, for at least three years.

In May 2008, B'Tselem and Adam, Teva v'Din wrote to the Civil Administration, demanding that it stop the flow of untreated wastewater from the settlement. Only then did the

¹⁰³ The testimony was given to Salma a-Deb'i on 14 May 2008.

Municipal Environmental Association of Samaria retain a contractor to upgrade and operate the facility.¹⁰⁴ In late October 2008, the Association informed Adam, Teva v'Din that the facility had been upgraded and was in operation.¹⁰⁵ The head of the 'Azmut Local Council confirmed to B'Tselem that the stench from the wastewater has diminished.

Salfit and the Ariel settlement

Ariel is one of the largest and oldest settlements in the West Bank. Yigal Rosenthal, CEO of Ariel Water, the water and wastewater corporation of the Ariel Municipality, informed B'Tselem that the municipality's wastewater treatment plant "treats all of the town's wastewater (100 percent)."¹⁰⁶

His statement contradicts years of documentation in which numerous persons and entities warned of the facility's defective performance. In 1995, the Municipal Environmental Association of Samaria warned that the facility was not providing "the necessary quality" of treatment for the settlement's wastewater, and, in 2002, stated that the quality of treatment in the facility was "not satisfactory." In 1999, the State Comptroller found that the facility's many breakdowns polluted the Shilo stream with sludge, and that raw wastewater was not receiving any treatment at all.¹⁰⁷ In 2006, the Ministry of Health warned that the facility was not functioning.¹⁰⁸ In 2008, the environmental-protection officer in the Civil Administration informed B'Tselem that the "facility can't handle the load."¹⁰⁹

The facility stopped functioning in 2008. Since then, the settlement's raw wastewater has flowed into the Shilo stream, a tributary of the Yarkon.¹¹⁰ The wastewater flows southwest, towards the town of Salfit, and from there west to the villages of Brukin and Kafr a-Dik.

¹⁰⁴ Letter of 15 May 2008 from attorney Nirit Lotan of Adam, Teva v'Din, to Benny Elbaz, environmental-protection staff officer in the Civil Administration, Gershon Mesika, head of the regional council, and Yitzhak Me'ir, director of the Judea and Samaria Environmental Unit; letter of 24 June 2008 from Captain David Shores, advice officer in the Lands Division in the Civil Administration, to attorney Lotan; letter of 24 August 2008 from Major 'Assem Hamed, head of the Lands Division in the office of the legal advisor in the Civil Administration, to attorney Keren Halperin-Museri of Adam, Teva v'Din.

¹⁰⁵ Letter of 22 October 2008 from Yitzhak Me'ir, director of the Judea and Samaria Environmental Unit, to Gidon Mazar, head of the Central District in the Ministry of Environmental Protection.

¹⁰⁶ Letter of 28 May 2008 to B'Tselem from Yigal Rosenthal, CEO of Ariel Water, the water and wastewater corporation of the Ariel Municipality.

¹⁰⁷ State Comptroller, *Annual Report 50A*, 1999, 167-168; Kliot, *Cross-border Environmental Pollution*, 24, see footnote 20.

¹⁰⁸ Ministry of Health, *Annual Sewerage Report for 2006*, see footnote 51.

¹⁰⁹ Interview with Benny Elbaz, see footnote 4.

¹¹⁰ Cohen et al., *West Bank Streams Monitoring*, 20, see footnote 1.

The channel along which the wastewater flows is only 15 meters from Salfit area's central water-pumping station, adjacent to al-Matwi spring, north of the town. On rainy days in 2006 and 2007, the wastewater flow flooded the pumping station, forcing it to be closed for cleaning.¹¹¹ Following the flooding, the Salfit Local Council built four-meter-high walls along the wastewater-flow channel to protect the pumping station.

Dr. Bassam Madi, a member of Salfit Local Council and the town's physician, told B'Tselem that the town chlorinates the station's water regularly, yet from time to time, mostly in the summer, infectious diseases break out. He attributes these diseases to the polluted water.¹¹² He added that the Ariel Municipality does not inform the Salfit Council of wastewater overflows from the settlement's treatment plant heading in the direction of Salfit.¹¹³

Ariel's wastewater has already damaged seasonal crops and livestock that used to live in the area around al-Matawi Spring, where Salfit's residents also used to hike before it became polluted. The prolonged pollution has also brought about the extinction of the deer, rabbits, and foxes once common in the area and now, boars are the only animals found there. The natural vegetation, such as hyssop, has also disappeared.¹¹⁴

The damage resulting from the wastewater from Ariel and Salfit is apparent from the testimony of Fatmeh Kadurah, a resident of Brukin:

Our suffering from the wastewater that comes from Ariel and Salfit through the Brukin stream began in 1999. Since then, we have suffered very much from the pollutants and stench coming from the wastewater. We can't sleep because there are so many mosquitoes and rodents. Nobody eats the produce we grow, especially the vegetables, because my family and neighbors are afraid that the juice in the vegetables is contaminated by the wastewater.¹¹⁵

In the past, the government of Israel and the Ariel Municipality claimed they were not building a new wastewater treatment plant as they preferred to build a plant jointly with Salfit. A joint project was supposed to reduce the operation and maintenance expenses since

¹¹¹ Conversation with Dr. Bassam Madi on 28 May 2008; Water, Sanitation and Hygiene Monitoring Program, *Water for Life*, 35, see footnote 62.

¹¹² Ibid. Also, a conversation held on 3 August 2008. Similar information was provided in a testimony given by Ashraf Zahad, director of Salfit Council's Health and Environmental Protection Department, to Iyad Hadad of B'Tselem on 3 July 2006.

¹¹³ E-mail message from Dr. Madi to B'Tselem on 11 June 2008.

¹¹⁴ Testimony of Samir al-Masri, director of the Engineering Department of Salfit Council, given to Iyad Hadad on 3 July 2006.

¹¹⁵ Testimony given to Ra'aed Moqdi on 1 August 2008.

the wastewater from the two communities flow to the same tributaries of the Yarkon.¹¹⁶ However, the Palestinian Authority rejected this proposal, as it has every other solution entailing cooperation with settlements. The German development bank KfW, which undertook to fund a wastewater treatment plant for Salfit, refused to fund the treatment of Ariel's wastewater.¹¹⁷

Another excuse that the municipality used to justify not building a new facility was lack of government funding.¹¹⁸ According to Friends of the Earth Middle East, the Ariel Municipality demanded a government grant to cover one-quarter of the cost to build the plant, a percentage higher than that given to local authorities inside Israel.¹¹⁹ According to a report of the Wastewater Infrastructure Development Administration in the Ministry of National Infrastructure, financing problems were the reason for non-implementation of a local solution for treating the wastewater of Ariel and surrounding communities.¹²⁰

The Ministry of Environmental Protection took no enforcement measures against Ariel Municipality until 2004, when it sent a warning to Ariel's mayor, Ron Nachman, alleging pollution of the Shilo stream and offenses under the Water Law.¹²¹ The enforcement measures were frozen when the state agreed that the Wastewater Infrastructure Development Administration would build a collection pipeline for movement of Ariel's wastewater along Route 5 (the Trans-Samaria Highway) to the Dan Bloc Wastewater Treatment Plant, in Israel.¹²² The CEO of the Ariel water corporation informed B'Tselem that he estimated the pipeline would be completed by 2011, though no agreement has yet been

¹¹⁶ Kliot, *Cross-border Environmental Pollution*, 30 ; State Comptroller, *Annual Report 50A* (1999).

¹¹⁷ Interview with Ahmad Hindi and Na'im al-Mani, see footnote 68.

¹¹⁸ David Hacohen, "Warning to Ariel's Mayor because of Environmental Pollution," *ynet*, 4 May 2004.

¹¹⁹ Zach Tagar, Tamar Keinan, and Violet Qumeish, *Pollution of the Mountain Aquifer by Wastewater: Finding Solutions* (Friends of the Earth Middle East, July 2005), 4.

¹²⁰ Wastewater Infrastructure Development Administration in the Ministry of National Infrastructure, *2006 Operations Report*, 11. The local solution is defined as an "end solution." The report is available on the ministry's website at http://www.mni.gov.il/NR/rdonlyres/EA182424-1F0E-4360-9187-E07638CEFB43/0/biuv_2006.doc. Visited on 1 March 2009.

¹²¹ Hacohen, see footnote 119.

¹²² Ariel Cohen and Avi Tzipori (eds.), *Monitoring of Judea and Samaria Streams: Assessment based on Sample Findings in 2006* (Nature and Parks Authority Environment Unit, Civil Administration Environmental-Protection Staff Officer Unit, and Ministry of Environmental Protection, June 2007), 19; letter from Levy-Grosso to B'Tselem, see footnote 5.

reached on who would finance its construction, currently estimated at 70 million shekels. The pipeline's planner contended that the venture "would take years," in the event of approval.¹²³

The cost of building the pipeline is much greater than the cost of constructing a new plant on the settlement's land. By way of comparison, it cost only 30 million shekels to build the treatment plant in Shoqet, a facility that treats a much larger amount of wastewater than is produced by Ariel.

At the same time, Israel is delaying the building of a wastewater treatment plant in Salfit. The German development bank KfW allocated 13 million dollars for the project, and the JWC approved it in 1996.¹²⁴ After work began on laying the collection lines leading to the plant, located in Area C, the Civil Administration ordered the work stopped, claiming that the site was too close to an area on which a neighborhood in the Ariel settlement was planned.¹²⁵ As a result of the work stoppage, Israel paid compensation of one million NIS to KfW.¹²⁶

The next site chosen by the Salfit Council was on flat land in Wadi al-Matwi, near Salfit's jurisdictional area, but also in Area C. In early 2008, the Civil Administration informed the Salfit Council that it had rejected its request to build the facility on the proposed site, but suggested another site, one that would require Salfit to lay collection and sewer lines several times longer, which would increase the facility's operational costs beyond the council's financial capability.¹²⁷ The Civil Administration informed B'Tselem that it does not object to the facility being built in Area B.¹²⁸ Lacking an agreed-upon site, KfW informed the Palestinian Water Authority that it was suspending its support for the project.¹²⁹

Wadi Fukin and the Betar Illit settlement

The Betar Illit settlement is located southeast of the village of Wadi Fukin. The village is known for the quality of its agricultural produce and has nine natural springs, to which an

¹²³ Letter from Yigal Rosenthal, see footnote 108; minutes of meeting of the Environmental Protection Subcommittee of the Civil Administration's Supreme Planning Council, 14 November 2007.

¹²⁴ E-mail message from Michael Talhami, see footnote 75; letter from engineer Nina Loevsky, see footnote 48.

¹²⁵ Tagar et al., *Seeping Time Bomb*, see footnote 67; letter from Captain Ariyeh Shaya, see footnote 15. Israel now claims that the work stopped due to the intifada, see letter from the Coordinator of Government Operations in the Territories, Maj. Gen. Yosef Mishlav, sent in April 2008 to Quartet emissary Tony Blair.

¹²⁶ Letter of 19 December 2004 from Dr. Yosef Dreizin and Eng. Fadel Kawash, chairmen of the JWC, to the head of the development corporation KfW, Angelika Pradel.

¹²⁷ Conversation with Dr. Bassem Madi, see footnote 111.

¹²⁸ Letter from Captain Ariyeh Shaya, see footnote 15.

¹²⁹ Interview with 'Adel Yassin, see footnote 71.

ancient irrigation and collection system is connected, enabling fruit and vegetables to be grown organically.

On the southwest slope of the settlement, some 20 meters above the fields of Wadi Fukin, the Housing Ministry built a facility that pumps the raw wastewater of the settlement's western sections and directs it to the Soreq wastewater treatment facility. The delivery facility cannot handle the amount of wastewater it receives, and consequently breaks down often. Most of the breakdowns occur on weekends on Jewish holidays, when there is increased flow of wastewater from the settlement, and maintenance personnel are off duty. The settlement is planning to connect 2,000 additional apartments to the delivery facility, which will increase the danger of wastewater overflow.¹³⁰

Whenever there is a breakdown, untreated wastewater from the settlement flows onto the agricultural fields of Wadi Fukin. In 2006-2007, the settlement's delivery facility broke down 25 times and, as a result, huge quantities of wastewater flooded about 100 dunams of fields.¹³¹ In 2008, wastewater continued to flow onto the fields of Wad Fukin, once for three days in a row. In early October 2008, the wastewater overflowed onto the fields for four days in a row, apparently due to a break in the wastewater pipelines inside the settlement and not at the delivery facility. The wastewater flowed onto fields close to the village's center, reaching its school and causing a severe stench.¹³²

The residents of Wadi Fukin dispose of their wastewater in cesspits. As a result of seepage, the wastewater is liable to pollute the springs and groundwater.¹³³ A study by Bethlehem University that tested samples from the nine springs found that all contained concentrations of coliform bacteria and high levels of nitrates and concluded that the springs' water was not suitable for use unless it was treated, but did not determine the source of the pollution.¹³⁴ Still, while Palestinian wastewater seeps slowly and gradually into the groundwater, the

¹³⁰ Letter of 3 June 2008 from Eli Doron, director of section (peace talks) and the Supervision and Enforcement Unit in the Water and Wastewater Administration in the West Bank, to Baruch Nagar, head of the Water and Wastewater Administration.

¹³¹ "Land, water, and wastewater problems in Wadi Fukin," summary of a meeting on 28 January 2008 between Muhammad Bashar Manasrah, mukhtar of the village, and representatives of Friends of the Earth and of Yesh Din; testimony of Ghaleb Mfareh, head of Wadi Fukin Village Council, given to Suha Zeid on 4 August 2008.

¹³² Letter of 27 March 2008 from attorney Manal Hazan, of St. Ives Society – the Catholic Human Rights and Legal Aid Center, to Yossi Cohen, CEO of Betar Illit Development Company, and a conversation B'Tselem held with attorney Hazan on 30 October 2008. A video clip of the wastewater flow is available at http://www.wadifugeenfriends.com/index.php?p=1_6_Wastewater. Visited on 3 March 2009.

¹³³ Water, Sanitation and Hygiene Monitoring Program, *Water for Life*, 33, see footnote 62.

¹³⁴ Letter of 12 June 2007 from the director of Bethlehem University's Water and Soil Environment Research Unit to Arnon Goren.

wastewater from Betar Illit flows in enormous quantities directly into the fields and springs, causing an immediate effect.

For the past three years, the repeated breakdowns in the delivery facility were reported repeatedly to the relevant Israel authorities – the Betar Illit Municipality, the Ministry of Environmental Protection, the Ministry of Construction and Housing, the Civil Administration, the Water Authority, Mekorot [the Israel water company], and the Judea Municipal Environmental Association.¹³⁵ Despite this, the settlement refuses to accept responsibility for the nuisance. “There has not been any flow of wastewater from the town of Betar Illit’s wastewater reservoirs onto the farmland of Wadi Fukin,” wrote an attorney representing the settlement.¹³⁶

It was not until mid-2008 that Betar Illit hired two employees who would remain at the delivery facility on weekends and holidays to prevent overflow of wastewater from the facility. In June 2008, the West Bank Water and Wastewater Administration suggested that the Civil Administration initiate a meeting with the village committee and present the settlement’s proposal to build a collection line from the delivery facility to move the wastewater from the facility to a wastewater reservoir that will be built at the edge of the agricultural fields of Wadi Fukin.¹³⁷ However, this solution depends on the village’s willingness to cooperate with the settlement, which conflicts with the position of the Palestinian Authority.

¹³⁵ Letter of 13 February 2008 from Ehud Uziel, Tzur Hadassah field coordinator of the Water and Good Neighbors project of the Friends of the Earth Middle East, to Yossi Cohen, CEO of the Betar Illit Economic Development Company; Kathleen and Bill Christison, “Wastewater Outflows: Polluting Palestine: The Settlements and Their Wastewater” (Friends of Wadi Fuqeen Website, 25 September 2005), available at http://www.wadifuqeenfriends.com/index.php?p=1_6_Wastewater (visited on 1 March 2009); testimony of Ghaleb Mfareh, see footnote 132.

¹³⁶ Letter of 30 March 2008 from attorney Yizhar Dgani, of the office of David Rotem and Associates, to attorney Manal Hazan, of St. Ives Society.

¹³⁷ Letter from Eli Doron to Baruch Nagar, see footnote 131.

Chapter 4: Breaches of international law

Neglect in treating wastewater in the West Bank infringes the rights of Palestinians to water and sanitation and their right to gain a livelihood from their agricultural crops.

Breach of obligations specified in international humanitarian law

Article 56 of the Fourth Geneva Convention imposes on the occupying state the duty of “ensuring and maintaining, with the cooperation of national and local authorities... public health and hygiene in the occupied territory.” This article imposes on the occupying state primary responsibility for ensuring public health and hygiene in order to prevent the spread of disease and epidemics.¹³⁸

The obligation to protect water sources is also derived from the occupying state's duty to ensure “public order and safety.”¹³⁹ This duty includes not only the negative obligation to refrain from harming the local population, for example, by damaging water sources and their supply, but also the positive obligation to take suitable means to protect the population from dangers to which it is exposed.¹⁴⁰

The High Court of Justice interpreted this duty to include “taking all means necessary to ensure growth, change, and development,” and requiring “essential investments and carrying out long-term plans for the benefit of the local population,” even if they result in changes “that might remain after the military government ends.”¹⁴¹ In a later judgment, the court held that this duty “applies to the varied living requirements of the inhabitants, including medical needs, sanitation... and other needs that people require in modern society.”¹⁴²

¹³⁸ Jean S. Pictet (ed.), *Commentary on the Fourth Geneva Convention Relative to the Protection of Civilian Persons in Time of War* (International Committee of the Red Cross, Geneva, 1958), 313-314.

¹³⁹ Article 43 of the Regulations Attached to the Hague Convention Respecting the Laws and Customs of War on Land of 1907.

¹⁴⁰ See HCJ 4764/04, *Physicians for Human Rights et al. v. Commander of IDF Forces in Gaza*, Judgment, 30 May 2004, par. 15; Orna Ben-Naftaly and Yuval Shany, *International Law between War and Peace* (Ramot Publishing Co.-Tel Aviv University, 2006), 179.

¹⁴¹ HCJ 393/82, *Jamiyyat Iskan al-Mu'aliman al-Mahddudat al-Mas'uliyah v. Commander of IDF Forces in Judea and Samaria*, Judgment, 28 December 1983, pars. 17-36.

¹⁴² HCJ 10356/02, *Yoav Hass et al. v. Commander of IDF Forces in the West Bank*, Judgment, 4 March 2004, par. 14.

Breach of the right to water and sanitation

The right to water and sanitation is derived from the right of every person to an “adequate standard of living” and to “the highest attainable standard of physical and mental health,” as defined in the International Covenant on Economic, Social and Cultural Rights.¹⁴³

The Committee on Economic, Social and Cultural Rights (CESCR), established pursuant to the Covenant, held that the right to water includes the right to clean drinking-water. The committee defined for the first time the right to water as an individual, independent, and separate right, given it is a prerequisite to life and health.¹⁴⁴ State parties to the Covenant must respect this right in every area under its control and refrain from actions that interfere, directly or indirectly, with realization of this right.¹⁴⁵ Article 11 of the Covenant enumerates the components of the right to an adequate standard of living, among them the right to housing. CESCR held that, “All beneficiaries of the right to adequate housing should have sustainable access to... safe drinking water... sanitation and washing facilities....”¹⁴⁶

This right is explicitly recognized in the Convention on the Elimination of All Forms of Discrimination against Women, of 1981, which requires access to water and acknowledges that the right “to enjoy adequate living conditions” includes the right to sanitation.¹⁴⁷ The Convention on the Rights of the Child, of 1989, requires state parties “to combat disease and malnutrition... through, inter alia... the provision of ... clean drinking-water, taking into consideration the dangers and risks of environmental pollution,” and ensure information and education on “environmental sanitation.”¹⁴⁸

In 2006, the UN Sub-Commission on the Promotion and Protection of Human Rights adopted the recommendations of CESCR on realization of the right to safe drinking water and sanitation. These recommendations require states to realize the right to drinking water and consider the right to sanitation an essential part of the right to water, and require state parties to prevent pollution of water sources. The recommendations provide that all persons

¹⁴³ International Covenant on Economic, Social and Cultural Rights, of 1966, articles 11(A) and 12(A). Israel ratified the covenant in 1966. For the full text of the Covenant, see:

http://www.btselem.org/Hebrew/International_Law/Covenant_on_Economical_social_and_cultural_rights.asp

¹⁴⁴ CESCR, *General Comment No. 15 (2002): The Right to Water (articles 1 and 12 of the International Covenant on Economic, Social and Cultural Rights)*, E/C. 12/2002/11, 20 January 2003.

¹⁴⁵ *Ibid.*, section 31.

¹⁴⁶ CESCR, General Comment 4 (1991), par. 8(b).

¹⁴⁷ Article 14(h). Israel ratified the convention in 1981.

¹⁴⁸ Articles 24(2)(c) and (e). Israel ratified the convention in August 2001.

have the “right to access to adequate and safe sanitation that protects public health and the environment.”¹⁴⁹

A series of decisions made by international committees and bodies, some of which are not binding, expanded the definition of “adequate standard of living” to include the right to water and the right to sanitation. Principle No. 2 of the Program of Action adopted by the UN Conference on Population and Development, held in Cairo in 1994, and Principle No. 11 of the Second UN Conference on Habitats (Habitat II), held in Istanbul in 1966, recognized that “adequate standard of living” includes the right to water and the right to sanitation. The International Children’s Emergency Fund (UNICEF) held that access to sanitation is a “basic human right” that ensures health and human dignity.¹⁵⁰

In addition, the United Nations Millennium Declaration, of 2000, adopted by the UN General Assembly, set a goal of halving, by 2015, the proportion of people who do not have sustainable accessibility to safe drinking water and sanitation.¹⁵¹ The Johannesburg Declaration on Sustainable Development, of 2002, expanded this goal to include clean water in general and sanitation.¹⁵² A 2008 resolution of the UN Human Rights Council includes a declaration on the commitment to access to sanitation.¹⁵³ The UN General Assembly passed a resolution in 2006 declaring 2008 the International Year of Sanitation to raise awareness and achieve the goals of the Millennium Declaration and the Johannesburg Declaration relating to promoting access to safe drinking water and sanitation.¹⁵⁴

¹⁴⁹ UN Sub-Commission on the Promotion and Protection of Human Rights, Resolution 2006/10, *Promotion of the realization of the right to drinking water and sanitation*, A/HRC/Sub.1/58/L11, of 24 August 2006, adopting the Draft Guidelines for the realization of the right to drinking water and sanitation, section 1.2.

¹⁵⁰ UNICEF, *Sanitation for all: Promoting dignity and human rights* (2000).

¹⁵¹ The declaration is available at <http://www.un.org/millennium/declaration/ares552e.htm>.

¹⁵² Section 18 of the declaration, which is available at <http://www.un-documents.net/jburgdec.htm>.

¹⁵³ Human Rights Council, *Promotion and Protection of all Human Rights, Civil, Political, Economic, Social and Cultural Rights including the Right to Development*, A/HRC/7/L.16, 20 March 2008.

¹⁵⁴ General Assembly Resolution 61/192, 20 December 2006.

Conclusion and recommendations

Some 2.8 million persons live in the West Bank and Jerusalem, which cover the principle recharge areas of the Mountain Aquifer. The wastewater of two million of them is not treated. Neglect of wastewater treatment in the West Bank primarily harms the Palestinians' limited stock of water, pollutes the water sources Palestinians use for agriculture, and diminishes their land reserves. Also, this longstanding neglect has gradually polluted the Mountain Aquifer, the most important water source shared by Israelis and Palestinians.¹⁵⁵

Israelis, Palestinians, and international entities agree that the damage resulting from this neglect is worrisome. Studies conducted by the Nature and Parks Authority warn that, "sooner or later, critical damage will be caused to Israeli and Palestinian water sources." The Palestinian Applied Research Institute Jerusalem has stated that the neglect constitutes "a grave environmental threat," and a delegation of the UN Environmental Program declared that "urgent action" was necessary to address the neglect.¹⁵⁶

Israel's responsibility for dealing with this problem derives from its obligations, as the occupying state, under international humanitarian law and human rights law, and from the large amount of untreated Israeli wastewater from settlements and Jerusalem flowing into streams and valleys in the West Bank. Israel is also responsible for the problem because it allocated only minimal resources to treat Palestinian wastewater during 28 years of occupation, until the establishment of the Palestinian Authority in the mid-1990s.

In addition, the asymmetrical relationship between Israel and the Palestinian Authority regarding water and wastewater leaves Israel with the power to approve, delay, or reject Palestinian wastewater-treatment projects. Israel has not only failed to support Palestinian attempts to advance solutions for wastewater treatment, it has delayed them. Israel has not approved Palestinian requests to build wastewater treatment facilities, has attempted to compel the Palestinians to accept solutions that conform to its interests, or has exploited the Palestinians' inability to promote wastewater-treatment solutions on their own to use Palestinian wastewater for agriculture rehabilitation of streams inside Israel. This approach has already caused prolonged delay in implementing planned Palestinian projects and as a result, donor countries have withdrawn their support for some of the planned projects.

Indeed, Israel has transferred to the Palestinian Authority the powers for wastewater treatment in areas of the West Bank in which the PA is responsible for civil affairs (Areas A and B). However, the agreement entered into by the sides limits the PA's means to build

¹⁵⁵ Cohen et al., *West Bank Streams Monitoring*, 7, see footnote 1.

¹⁵⁶ *Ibid.*, 6; ARIJ, *Status of the Environment*, 118; UNEP, *Desk Study*, 44, see footnote 58.

complex and expensive infrastructure on its own. In addition, the Palestinians reject outright joint solutions for wastewater treatment that involve settlements, even if they are feasible and would reduce the quantity of untreated wastewater in the West Bank, out of fear that their consent would be construed as legitimization of the settlements. The Palestinian Authority is prepared to take part in joint wastewater-treatment solutions only if they are constructed inside Israel.

The conflicting positions make it difficult to delineate, and delay development of, an effective and sustainable policy for all wastewater in the West Bank. Inside Israel, there is a policy based on inter-regional treatment, in a geographically contiguous area, which operates pursuant to statute and uniform standards. Large regional facilities – such as the Dan Bloc Wastewater Treatment Plant or the Soreq plant in West Jerusalem – treat the wastewater of a great number of communities.

A similar policy is not possible in the West Bank. Its division into Areas A, B, and C creates a mosaic of territorial patches and islands that thwarts any possibility of building large regional facilities. As this report has shown, there is very little cooperation between settlements and Palestinian communities in wastewater-treatment matters. This situation is liable to result in proposed solutions, whether Israeli or Palestinian, that are less efficient and more expensive.

Establishment of the settlements and their continuing existence breach international humanitarian law.¹⁵⁷ In addition, the existence of settlements throughout the West Bank brings with it infringement of numerous human rights of Palestinians, among them the right to equality, the right of property, the right to freedom of movement, and the right to an adequate standard of living. This report reveals an additional layer of infringement of Palestinian human rights resulting from the settlements, as documented in previous B'Tselem reports. Given these circumstances, B'Tselem demands that Israel evacuate all the settlements and return the settlers to Israeli sovereign territory.

However, in light of the severity of the pollution, and taking into account both its immediate effects on water sources serving Palestinians and its long-term implications for shared Palestinian-Israeli water sources, so long as settlements remain, all their wastewater must be treated in accordance with treatment standards applying inside Israel, and the law must be enforced against polluting settlements. Also, the government of Israel and the Palestinian Authority must act jointly to immediately advance planned Palestinian wastewater-treatment projects. These projects should be executed even if they involve treatment of both Palestinian and settlement wastewater, with the understanding that these projects will ultimately serve Palestinians, if the settlements are evacuated.

¹⁵⁷ On this issue, see B'Tselem, *Land Grab*, 37-41.

Glossary

Cesspit A pit cut into the ground used for wastewater disposal. Wastewater seeps freely from these pits into the ground, polluting the land and damaging the groundwater.

Chlorination A water-disinfectant process, in which chlorine compounds that destroy microorganisms are added.

Dan Bloc Wastewater Treatment Plant The largest wastewater treatment facility in Israel, located in western Rishon Letzion

Delivery Pumping by means of pressure.

Nitrates Oxidized nitrate compounds, which indicate organic pollution in water. A high nitrate concentration in drinking water is harmful to health, especially for pregnant women and infants, and in extreme cases may cause suffocation.

Septic tank A cesspit which, after it is cut into the ground, is filled with stones, which are intended to stop the solid particles. As a result, the putrefied material collects and only the liquids seep into the soil and groundwater. Septic tanks partially reduce the pollution.

Sedimentation basins and oxidation pools A basic wastewater-treatment process, in which the wastewater remains in pools to allow, with the aid of the sun, oxidation and sedimentation of pollutants.

Sedimentation pool A facility for basic wastewater treatment, in which the solid particles in the wastewater sink.

Sludge Solid organic matter created in the wastewater-treatment process.

Wastewater Liquid waste products of household, urban, agricultural, or industrial activity that contain pollutants.

Wastewater treatment facility A facility into which wastewater flows via a sewer system, where it is cleansed of pollutant components, and the treated water is then used for agriculture and rehabilitation of streams.