

Israeli Water Diplomacy and National Security Concerns

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Discussion Paper

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Israeli Water Diplomacy and National Security Concerns

This paper reflects on the concepts of water security and water diplomacy, describes the state of water security in Israel, Jordan and the Palestinian Territories, and presents a set of recommendations to decision makers designed to advance Israeli Palestinian water security and shared national security concerns.

The paper contends that water security plays a fundamental role in ensuring the economic development and the social and political stability of a country, and therefore must be regarded as a national priority issue. Conditions of water insecurity can trigger social tensions, and even lead to uprisings, and therefore pose a threat both internally at a domestic level, and to bordering states at a regional level. The paper suggests that by advancing water diplomacy, states can enhance water security, build regional cooperation and contribute to peace and stability.

This paper provides an overview of Israeli-Jordanian and Israeli-Palestinian water relations and argues that Israeli water diplomacy with Jordan has led to successful cooperation, based on a common understanding that advancing a shared water security agenda serves each country's national interests. The paper then argues that Israeli water policies post 1967, and post Oslo Accords with the Palestinian Authority, have too often failed to consider broader national security interests. There is a growing understanding, however, that the current state of water insecurity in the Palestinian Territories and especially in Gaza, constitutes a security threat to Israel, with regard to cross-border pollution, public health and economic underdevelopment.

The paper concludes with a set of recommendations on Israeli Palestinian water diplomacy, highlighting the national security benefits to Israel and the region.

What is Water Security?

Numerous definitions of water security can be found in both policy and academic literature.¹ The concept of water security does not refer uniquely to issues of water scarcity, but embraces a wide range of issues. The UN Water program has advanced a comprehensive definition, which encompasses multiple dimensions, ranging from issues of water scarcity and climate change to good governance and trans-boundary cooperation. Accordingly, water security is defined as:

¹ David Grey and Claudia W. Sadoff. "Sink or Swim? Water security for growth and development." *Water Policy* 9, no. 6 (2007) 545, DOI: 10.2166/wp.2007.021.

The capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability.²

This definition highlights the importance of water security to achieve a greater sense of human security, since water is central in granting access to food, maintaining health and hygiene, sustaining human livelihoods and economic growth.

Water security is not solely determined by the natural availability of water resources in a given area, or, using Grey and Sadoff's terminology, by its 'hydrologic environment'.³ Social, economic and political factors also contribute to determine the state of water security through mechanisms of water governance and national decision-making. As Grey and Sadoff underline, changes in the future environment, mostly due to climate change, will also shape future trends of water availability and need to be taken in consideration when formulating adequate policies to both ensure water security and respond to potential water crises. As the *United Nations World Water Development Report* pointed out, a water crisis is 'essentially a crisis of governance and societies,' suggesting that issues of water security can be solved by enhancing national water governance mechanisms and developing means of water diplomacy.⁴

Water insecurity and national security concerns

The increased public awareness of climate change and its impact on human lives as a cross-cutting concern has triggered a global debate on water security. The rise of temperatures and reduction of rainfall, among other phenomena induced by climate change, have already exacerbated existing natural water resource problems. Concurrently, rapid population growth and changes in lifestyle, including urbanization, new dietary trends, and industrialization, have contributed to a significant increase in water demand. The combination of these factors has already put water security at risk in several regions of the planet.

With the state of global water security worsening, the debate on water intersects with issues of political stability, national security and peace. Governments, policy makers and the general public have increasingly realized that water insecurity can constitute a real threat to national security interests. In many regions, a lack of adequate clean water has already led to food shortages, outbreaks of epidemic disease, mass migration and political instability.

An increasing number of studies show that a correlation exists between climate change,

² "Water Security and the Global Water Agenda", *UN-Water Analytical Brief*, United Nations University, 2013

³ David Grey and Claudia W. Sadoff. "Sink or Swim? Water security for growth and development." *Water Policy* 9, no. 6 (2007) 545-571.

⁴ "Water for People, Water for Life: The United Nations World Water Development Report." *World Water Assessment Programme*, 2003

water insecurity and political instability.⁵ As reported by a European Union policy paper, climate change: 'is best viewed as a threat multiplier which exacerbates existing trends, tensions and instability.'⁶ The European Union paper also emphasizes that the implications are not just of a humanitarian nature, but also include 'political and security risks that directly affect European interests.'⁷ The U.S. government issued a report on global security in 2012,⁸ and in 2017 published a Global Water Strategy.⁹ The strategy assessed that 'there is a growing global water crisis that may increase disease, undermine economic growth, foster insecurity and state failure' and identifies a set of priority objectives 'to support a water secure world where people have sustainable supplies of water of sufficient quantity and quality to meet human, economic, and ecosystem needs while managing risks from floods and droughts.'¹⁰

Water insecurity in the Middle East North Africa region

An area of real concern and particular relevance is the Middle East North Africa (MENA) region, the most water scarce region in the world. The region hosts 5% of the world's population but has only less than 1% of the world's renewable water supply,¹¹ with a total water demand exceeding naturally available water supplies by almost 20%.¹² In the region, 80% of fresh water withdrawal is used for agriculture, yet the region remains reliant on food imports.¹³ In addition, the region registers high fertility rates and suffers from inefficient water usage and mismanagement, antiquated water infrastructure and networks, a lack of legal, political, and economic frameworks for the management of transboundary water resources, and pollution.

The World Bank has issued numerous reports on climate change and water security in the MENA region. The 2007 report on water scarcity recommended taking urgent measures to ameliorate the mechanisms of water governance in the region.¹⁴ Another report published

5 Peter H. Gleick, "Water and Conflict. Fresh Water Resources and International Security," *International Security*, Vol. 18 No 1, Summer 1993; Ido Bar and Gerald Stang, "Water and insecurity in the Levant," European Union Institute for Security Studies (EUISS), April 2016; P. Vitel, "Food and Water Security: Implications for Euro-Atlantic Security," *Report to the Sub-Committee on Energy and Environmental Security of the NATO Parliamentary Assembly*, November 2011; "Water governance in the OSCE area – Increasing security and stability through co-operation," *Compilation of Consolidated Summaries*, 23rd OSCE Economic and Environmental Forum, *Office of the Co-Ordinator of OSCE Economic and Environmental Activities*, 2015.

6 "Climate Change and International Security: Paper from the High Representative and the European Commission to the European Council," *European Council*, 2008.

7 Ibid.

8 Intelligence Community Assessment ICA 2012-08, 2 February 2012

9 "U.S. Government Global Water Strategy," *USAID*, 2017.

10 Ibid.

11 Osman Bak. "Lawmakers from NATO allies warn on risks from Middle East water shortages, climate change," *NATO Parliamentary Assembly*, May 2017.

12 Michelle L. Battat et al, "The Grain Chain: Food Security and Managing Wheat Imports in Arab Countries," *The World Bank*, 2012.

13 "The State of Food Insecurity in the World," *Food and Agriculture Organization of the United Nations*, 2015.

14 "Making the Most of Scarcity: Accountability for Better Water Management Results in the Middle East and North Africa," MENA Development Report, *The World Bank*, 2007.

in 2014 analyzed the connections between climate change and migration.¹⁵ Another 2016 World Bank report suggested that water scarcity, exacerbated by climate change, could cause economic losses, spur migration, and spark conflict worldwide.¹⁶ In its most recent report in August 2017, the World Bank warned that in the MENA region: 'conflict and increased water stress are revealing the vulnerabilities of existing water management systems, which once delivered services to its citizens and are now failing when they are needed the most.'¹⁷

There is increasing evidence that an important catalyst behind the social discontent that led to the uprisings known as the "Arab Spring" in Syria, Egypt and Yemen was with differing degrees related to water shortages, and the failure of governments to respond to the resulting water crises. The failure of the Syrian government to adequately respond to the prolonged drought that hit the region, as well as years of miscalculated national policies, led to a dramatic water crisis in the eastern area of Syria, with repercussions on the productivity of agricultural lands and a price increase of essential goods.¹⁸ The implications of the civil war in Syria were not confined to its national borders, but have travelled across the region and even reached the heart of Europe in the form of a massive migratory influx, the largest since WWII. Without seconding the presumption of 'water war prophecies' that are already prominent in existing literature, this report will simply acknowledge that economic, social and environmental issues contribute to both provoking and fueling conflicts.

A paper published by NATO in 2017 reiterates that competition for resources has already contributed to increasing tensions in the MENA region, and argues that a combination of war, poor governance, demographics, and climate change is exacerbating the instability of the region.¹⁹

Lack of adequate water and poor sanitation conditions have already resulted in outbreaks of cholera in Iraq and Yemen, with implications for regional stability. The cholera epidemic

15 Quentin Wodon et al, "Climate Change and Migration: Evidence from the Middle East and North Africa," *The World Bank*, 2014.

16 High and Dry: Climate Change, Water, and the Economy," *The World Bank*, 2016.

17 "Beyond Scarcity: Water Security in the Middle East and North Africa," *The Water Bank*, 2017.

18 When the drought began in 2006, many Syrian farmers turned to groundwater reserves for irrigation, finding them completely dry. As a matter of fact, starting from the late 1970s, the Syrian government adopted an intensive program of agricultural expansion (Peter Schwartzstein, "Inside the Syrian Dust Bowl," *Foreign Policy*, September 2016) which made the country significantly increase its cereal production and export to Jordan and Egypt. The program included doubling the number of groundwater wells that extracted water for irrigation. Over-extraction gradually led the water table to fall by more than 40 meters in some parts of the country. The rise of price of diesel fuel by the government in 2008 placed further strain on farm operations. By 2011 the drought had caused the displacement of 1.5 million people in Syria from rural to urban areas. Unemployment and the failure of the Syrian government to respond to widespread popular grievances, led to protests and violence erupted soon after. As several authors pointed out, "Syrian regime's failure to establish proper water governance and irrigation systems in the south of the country (...) led to unpreparedness when drought hit harder than usual. While drought led to major internal migration, the reasons were not the drought itself, but were rather 'part of a broader pattern of rural neglect'" (Anders Jägerskog and Ashok Swain, "Water, migration and how they are interlinked," 2016)

19 Osman Bak, "Food and Water Security in the Middle East and North Africa," Draft Special Report to the Science and Technology Committee of the NATO Parliamentary Assembly, March 2017.

in Iraq in September 2015 resulted in 4,945 cases confirmed across Iraq.²⁰ According to UNICEF, several cases were reported in Kuwait, Bahrain and Syria, suggesting risks of a region-wide epidemic.²¹ The cholera outbreak in Yemen, which has been devastated by a ferocious civil war since 2015, has become the largest and fastest-spreading occurrence of the disease in modern history.²² The World Health Organization has reported more than 815,000 cases and 2,156 deaths. In May 2017, between 5,000 and 6,000 new cases were detected daily. That rate has since dropped to under 4,000 a day as of October 2017.²³

It has become increasingly apparent that under such circumstances, water security can be considered as having a significant impact on broader notions of national, regional and international security concerns. Further, water security is essential for the wellbeing and internal stability of a state, and its deterioration can have repercussions not only on its internal dynamics, but also on neighboring countries, as in the case of pandemic disease, mass migration, radicalization induced by poverty and underdevelopment, and as such, can contribute to political unrest and conflicts.

The Role of Water Diplomacy

Water diplomacy is bilateral and multilateral dialogue on water issues between peoples and states, initiating processes at different political levels in order to enhance water governance and cooperation, regional integration, development, security and stability. As the consequences of water insecurity can travel across state borders in different forms, humanitarian, developmental and diplomatic responses must originate at different levels and address multiple dimensions.

Water diplomacy and the willingness to cooperate to resolve water challenges can, contrary to creating conflict, strengthen relationships and build bridges between parties. The concept of water diplomacy is based on the assumption that management problems, rather than scarcity of water, are at the core of water security.

A study from Oregon State University demonstrates that the number of international water agreements achieved in the last few decades has greatly outnumbered the amount of water-related disputes.²⁴ This data suggests that cooperation over water, achieved by the means of water diplomacy is not only possible, but in most cases is preferable.

When states recognize the fundamental role that water security plays in determining their

20 "Iraq's 2015 response to cholera outbreak minimizes future risk," *World Health Organization, Regional Office for the Eastern Mediterranean*, 2016.

21 The outbreak was caused by contamination of the Euphrates River and shallow wells with sewage water due to lack or poor sanitation infrastructures, especially in refugee camps where more than 3 million people live under conditions which are highly conducive to the spread of cholera. (Isabel Coles, "Cholera spreads from Iraq to Syria, Kuwait, Bahrain – UNICEF," *Reuters*, 2015)

22 Kate Lyons, "Yemen's cholera outbreak now the worst in history as millionth case looms," *The Guardian*, 2017.

23 Ibid.

24 Yoffe, S., Wolf, A. T. and Giordano, M. (2003), Conflict and Cooperation Over International Freshwater Resources: Indicators of Basins at Risk. *JAWRA Journal of the American Water Resources Association*, 39: 1109–1126.

own development and that of their neighbors', and that their neighbor's stability must be regarded as a national security concern, then cooperation over water becomes a priority. In short, states must realize that their own water security, as well as their neighbors', should occupy a place on the national security agenda. This is particularly true in the water insecure and conflict-prone MENA region, where most water resources are shared between two or more states.²⁵

An Analysis of Israel's Perspective on Water Diplomacy and National Security

In Israeli security discourse, the control of water resources has always been seen as part and parcel of national security. Before the establishment of the state of Israel, water scarcity was regarded as a limiting factor in the objective of state building. During the British Mandate period, limited water supplies were associated with limiting Jewish immigration to Palestine. From its earliest days, the Jewish Agency sought investments to be made in the water sector in order to argue a case in front of the British Mandate authorities that the region could sustain significant Jewish immigration. After the State of Israel was established in 1948, Israel pursued policies of state control and maximized utilization of natural water supplies to boost economic development and advance state building.

The natural water sources were considerably exploited even prior to 1948, and by 1967 near full exploitation to meet the needs of the increasing Jewish population. Amid great regional controversy, including military skirmishes between Israel and Syria, a national water carrier was built by Israel to supply water from the Jordan Basin for domestic and agricultural purposes along the coastal plain and in the Negev Desert.

Water issues have therefore always played an important role in the Israeli national security agenda. They have shaped its relations with the region, however, in two very different ways: either by increasing control of water resources, or by reinforcing ties and cooperation. Israel's water relations with the Palestinian Authority and Jordan exemplify these two different approaches. On the one hand, water has offered the opportunity to strengthen Israeli relations with Jordan based on mutual benefits and a shared understanding of the importance of water security to the stability and wellbeing of both countries from pre-state times, through periods of warfare and to present day. On the other hand, Israeli-Palestinian water and sanitation issues remain highly controversial and continue to exacerbate existing tensions Israel has tended to promote with Jordan cooperation and mutual gain, regarding Jordan as an equal independent sovereign state, while treating water relations with the Palestinians as a zero-sum game, based on competition and unilateralism. This different approach reflects the asymmetrical nature of Israeli-Palestinian relations.

A document released by the Israel Water Authority in March 2009 to guide Israeli water diplomacy efforts states: 'Israel is interested in practical, imaginative and just agreements'

25 Annika Kramer, "Regional Water Cooperation and Peacebuilding in the Middle East," *IRC*, December 2008.

and sustains that 'cooperation based on sustainable management, the application of advanced technologies for efficient water use, and the development of new water sources could help solve the problem of water shortages in the region as a whole.'²⁶ This approach to water diplomacy has led Israel in recent years to advance water cooperation with both Jordan and the Palestinian Authority via bilateral and regional initiatives. However, while the water regime established with Jordan remains solid in spite of political turbulences, progress in establishing water relations with the Palestinian Authority is still discontinuous and circumstantial.

The next paragraphs will provide a historical overview of Israeli-Jordanian and Israeli-Palestinian water relations. While taking into consideration the different contexts in which bilateral relations take place, the paper will ultimately show that Israel has developed two distinct water security approaches resulting in very different outcomes.

Israeli - Jordanian Water Relations

Early cooperation

Bilateral cooperation over water has been taking place between Israel and Jordan since the early 1920s, even before the establishment of the state of Israel. Both Israel and Jordan openly state that their cooperation in the field of water is a national security issue for both countries, with water security essential for national stability in Jordan, and Jordan's stability seen as critical for national security in Israel.²⁷

Cooperation started during the British mandate period of the 1920s. One of the first examples of such cooperation was the construction of the first hydropower station in the region, harnessing the flows of the Jordan and the Yarmouk rivers to produce electricity. The initiative was led by Pinhas Rotenberg, a Jewish industrialist, who obtained the agreement of the British High Commissioner and of the King of Trans-Jordan Abdullah I.

A shared water security agenda already emerged under the UN-led talks on the use of the disputed waters of the Jordan River Basin in the 1950s, during a period when the two countries were *de jure* in a state of war.²⁸ The 1955 Johnston Plan was a U.S. initiative for the region and involved Israel, Jordan, Syria and Lebanon. Although never formally recognized, it set the foundations for future developments in the water sector between Israel and Jordan.

Israeli-Jordanian informal and discreet coordination over water management issues was the norm between the 1950s and the 1990s. According to Jägerskog, early bilateral cooperation over water contributed to reduce tension between the two adversaries, and facilitated the development of trust and friendly relations. Water relations between Jordan and Israel were then formalized and institutionalized by the 'Treaty of Peace between the State of Israel and

26 "The Issue of Water between Israel and the Palestinians," Israel Water Authority, March 2009.

27 Bromberg, Giordano, "The concept of water security", EcoPeace Middle East, 2017

28 Jägerskog A. (2007) Why States Co-operate over Shared Water: The Water Negotiations in the Jordan River Basin. In: Shuval H., Dweik H. (eds) *Water Resources in the Middle East*. Springer, Berlin, Heidelberg

the Hashemite Kingdom of Jordan' signed in 1994. As Jägerskog outlines, the treaty 'should not be viewed as separate from the history of water cooperation and coordination.'²⁹

The Peace Treaty

The treaty contains a water-sharing provision that aims to achieve a 'comprehensive and lasting settlement of all the water problems' between the two countries through mutual recognition of their 'rightful allocations' to water from the Jordan River, the Yarmouk River and the Arava groundwater.³⁰

Reputed to be 'one of the most creative water treaties on record,' the agreement even has both countries using the Sea of Galilee as a shared water reservoir with Israel 'storing' winter water from the Yarmouk River pumped to the Sea of Galilee for later summer transfer to Jordan, with the evaporation loss incurred at Israel's expense.³¹ In total, based on the Peace Treaty, Jordan should receive 55 mcm of water from the Sea of Galilee, of which 40 mcm is supplied at the cost of 0.16 NIS.³² The water is transferred through a pipeline, which was built at Jordan's expense.

The agreement aims to achieve mutual cooperation regarding existing and additional water resources, as it states that Jordan and Israel shall cooperate to try to find an additional 50 mcm/year of potable water for Jordan, and develop a common plan to do so.³³ The agreement also established a coordinated water management body, the Joint Water Committee, responsible for implementing the water provision and resolving water-related matters that may arise subsequently.

The implementation of the treaty has generally proceeded smoothly, though from the outset some public voices, including in the Jordanian Parliament and Jordanian water experts, thought Jordan should have received a higher quantity of water from the Jordan Basin. Government to government tensions occurred in 1999, when a severe drought caused Israel to raise the possibility that it would not transfer the full requisite water allocation. Jordan in turn threatened to take 'appropriate actions' against Israel.³⁴ The episode occurred partly because the agreement did not contain provisions for extreme weather events, such as consecutive years of drought and the specific provision on the supply of a fixed quantity, independent of the actual conditions was intentionally or unintentionally in Jordan's favor. The conflict was resolved with the full supply maintained. Overall, water relations between Israel and Jordan have been regarded as robust and resilient.³⁵

29 Ibid.

30 "Article 6, - Water," Israel-Jordan Peace Treaty (1994), available at: <http://www.kinghussein.gov.jo/peacetreaty.html>

31 Arnon Medzini and Aaron T – Wold, "Towards a Middle East at Peace: Hidden Issues in Arab-Israeli Hydropolitics," *Water Resources Development*, 20, no. 2, (June 2004), 193-204

32 Water rates datasheet, Mekorot Israel National Water Co. January 2017

33 Annex II, Water Related Matters," Israel-Jordan Peace Treaty.

34 Allison Berland, "The Water Component of the Peace Process between the Israelis and the Palestinians," Master's Thesis, Fletcher School of Law and Diplomacy at Tufts University, May 2000, chapter 4,

35 Jägerskog A. (2007) Why States Co-operate over Shared Water: The Water Negotiations in the Jordan River Basin. In: Shuval H., Dweik H. (eds) *Water Resources in the Middle East*. Springer, Berlin, Heidelberg

Recent developments

Since the treaty was signed, many discussions were held between the two countries to implement the clause related to the development of additional water resources, especially in consideration of Jordan's increasing water insecurity. Jordan heavily overdraws its groundwater resources, and in recent years they have been increasingly dependent on non-renewable fossil water from the Disi Aquifer in the very south of the country, shared with Saudi Arabia.

In 2001, the two governments announced that Jordan and Israel had agreed to hold a joint set of studies on the Red Sea Dead Sea project (RSDS). After many years of delay, plans were formalized in 2013 resulting in an agreement on a pilot RSDS, or water exchange, signed in Washington, D.C. by Israel, Jordan and the Palestinian Authority. The agreement foresees the construction of a desalination facility in Aqaba, which would produce up to 80 mcm/y of desalinated Red Sea water. Thirty (30) mcm/y of the water produced would be supplied to Aqaba and 50 mcm/y would be sold to Israel for use in the Eilat and Arava areas. In exchange, Israel committed to sell 50 mcm/y of water from the Sea of Galilee to Jordan, in addition to the 55 mcm supplied as part of the Peace Treaty. The price of the water that will be sold from Jordan to Israel in the Arava will be equivalent to the cost of desalination at the Red Sea together with brine disposal at the Dead Sea. Though the marginal cost of water in Israel is desalinated water, with a range from 3.0-3.5 NIS per cubic meter, the price of the water sold to Jordan under this new water swap deal will be lower than the marginal cost of water in Israel.³⁶ According to press reports, the 50 mcm/y to be sold to Jordan in this new deal will be at the price of approximately \$0.40 per cubic meter (1.5 NIS per cubic meter).

The security rationale behind Israel's water diplomacy with Jordan

The discounted rate for the water to be sold from the Sea of Galilee to Jordan, as part of the new water exchange deal reflects an understanding in Israel that the value of water is not just the marginal cost of its production, but rather, it can be associated with a political stability dividend. While the project will grant Israel water supply to the Arava region from Jordan, the benefits for Israel will derive mostly from the reinforcement of relations with Jordan in terms of national security. Commentators have stated that Israel has a clear interest in alleviating Jordan's water crisis, prioritizing its development to keep the country with whom it shares its longest borders stable.³⁷

Moreover, Israel has reportedly increased its supply of water to Jordan for the benefit of Syrian refugees in Jordan, understanding that water supply to refugees is critical to

36 The Kinneret Drainage and Rivers Authority – Sea of Galilee Administration Options for Supply of Additional Water to the Kingdom of Jordan

37 Oded Eran, "Needed: An Israeli Strategy on Jordan", *The Jerusalem Post*, December 1st 2017.

Jordan's stability.³⁸ From conversations held with Israeli officials, Israel is concerned that poverty and underdevelopment could constitute a trigger for radical ideologies and social discontent, as has already occurred in other areas of the region. Israel regards Jordan as an important strategic ally in the region, as one of only two states in the region to have signed a peace treaty and established overt diplomatic relations with Israel, and as a buffer state against other regional threats. Jordan's internal stability is therefore seen as critical to the regional balance and Israel's national security.³⁹

Israeli-Palestinian Water Relations

Early Relations

Until 1967, under Jordanian and Egyptian rule, Palestinians accessed water from springs and local wells, and managed water distribution according to communal property regimes, based on the customs of clans, families or communities.⁴⁰ After Israel captured the West Bank and Gaza in 1967, military orders imposed meters on Palestinian wells and applied an extraction quota over irrigation wells. This capped the total quantity of

38 Ibid.

39 Ibid.

40 Almost all of the main natural water resources in Israel and the Palestinian Territories are transboundary. Two main aquifer systems that underlie the area are the Mountain and the Coastal Aquifers. In addition to several cross-border streams, the main surface water is the Jordan River. The Coastal Aquifer under the Gaza Strip is the main source of fresh water for the population of the Gaza Strip. However, given the population size, the Gazan portion of the aquifer alone cannot possibly meet all the needs of Gaza today. Mismanagement of its water resource has led to abstraction from the aquifer at over three times its recharge rate. As groundwater levels decline due to such high levels of over-abstraction, seawater from the Mediterranean and brine from deeper layers are infiltrating into the aquifer. Salinity levels have thus risen well beyond WHO guidelines for safe drinking water. This situation is compounded by contamination of the aquifer by nitrates from untreated and poorly treated sewage, and fertilizers from irrigation of farmland. Today over 97% of water from the aquifer is not safe for drinking without treatment. The Mountain Aquifer which underlies the ridge that runs from northern Israel, through the West Bank and south to Be'er Sheva, is comprised of three basins: western, northeastern and eastern. It has an average sustainable yield of 679 mcm annually. The recharge area of the Mountain Aquifer is located for its most part over the West Bank and storage areas are mostly under Israel. The most productive basin is the western basin, producing 358 mcm/y (The Israeli-Palestinian Interim Agreement on the West Bank and the Gaza Strip, 1995). The basin is shared with Israel to the west, with much of the storage areas and associated natural springs on the Israeli side of the basin. The second most productive basin is the northeastern basin producing 182 mcm annually. The most productive springs of the basin are also on the Israeli side of the border (The Israeli-Palestinian Interim Agreement on the West Bank and the Gaza Strip, 1995). The smallest basin is the eastern basin, producing 90 mcm. This is the only basin where the largest springs are located on the West Bank side of the basin with only small springs within Israel. Palestinians have very limited access to the shared Mountain Aquifer, due to restrictions imposed by Israel on water abstraction. According to Israeli data, Israel abstracted in 2014 an estimated 75% of these shared waters leaving Palestinians with approximately a 25% share (Israel Water Resource Status 2014, Israel Water Authority). Pollution mostly from Palestinian sources, constitutes an increasing concern, and in the Tulkarem and Qaliqilya areas some 40 wells are reported to have increased pollution levels either due to sewage or poor agricultural practices. With regard to surface water, the lower part of the Jordan River, although in dire condition, is the main body of surface water that flows through Israel and the West Bank, bordering with Jordan on the river's eastern side. Since 1967 however, Palestinians do not have any access to Jordan River waters, as the river valley is a militarized zone under Israeli military control. Palestinians claim their rightful share of Jordan River waters also shared with Israel, Jordan, Syria and Lebanon. In addition, there are fifteen streams that cross the Israeli/Palestinian 1967 lines: all of them originating in watersheds located in the West Bank and flowing either westwards to the Mediterranean Sea, or eastwards to the Dead Sea or the Jordan River.

water that Palestinians could withdraw, as the military orders also required a permit for the drilling of any new infrastructure. Israel did not interfere with the manner in which the local population managed the water from its springs and wells, so long as the overall extraction remained within the prescribed limits.⁴¹

Israel initially invested in water infrastructure development in the Palestinian Territories, improving water and sanitation services. However, despite the evident increase in population, the prescribed limits in water abstraction were not increased, thus leading to growing water stress.

The Oslo Accords

The Declaration of Principles, also known as Oslo Accords I, was signed in Washington, D.C. in 1993, and established the Palestinian Authority (PA). The document refers only briefly to the issue of water, by mentioning the 'water rights of each party' and the 'equitable utilization of joint water resources'.⁴² During the negotiations it was agreed that there would be cooperation on water resources, including studies on the development of water infrastructures and desalination.

The Gaza and Jericho First Agreement, also known as the Cairo Agreement, was signed in 1994. According to the agreement, the water supply system in the Gaza Strip was transferred to Palestinian control, excluding the water supply for the Israeli settlements, which would later be dismantled when Israel withdrew from Gaza in 2005.

In 1995, the Israeli-Palestinian Interim Agreement on the West Bank and the Gaza Strip, also known as Oslo II, was signed. Article 40 of Annex III and the related Schedules 8–11 of the agreement contain provisions related to the allocation of water between Israel and the Palestinian Authority, with major focus on the Mountain Aquifer, the mutual obligation to treat or reuse wastewater, and the establishment of a coordinated water management body, the Joint Water Committee (JWC).

Until the signing of the Interim Agreement, Israel's water company, Mekorot, was responsible for managing Israel's water works, while the Civil Administration that Israel had established in the West Bank was in charge of managing Palestinian water infrastructure.⁴³ Following the signing of the Oslo II Agreement, the responsibility for the management of Palestinian water infrastructure and services for the Palestinian population in Areas A and B was transferred to the Palestinian Water Authority.

Oslo II was designed to be an interim arrangement, to be replaced within 5 years of signature by a comprehensive final status agreement. Despite its interim purpose, today,

41 David B. Brooks and Julie Trottier, "An Agreement to share water between Israelis and Palestinians, EcoPeace Middle East, 2012

42 Declaration of Principles (Oslo I). Annex III, paragraph 1, 1993.

43 David B. Brooks and Julie Trottier, "An Agreement to share water between Israelis and Palestinians, EcoPeace Middle East, 2012

more than two decades after the agreement was signed, water issues between Israel and the Palestinian Authority are still regulated under Article 40. Article 40 established the Joint Water Committee (JWC), which was vested with jurisdiction regarding the allocation of water between Israel and the Palestinian Authority, concerning all water and sanitation projects in the West Bank. The operations of the JWC and the requirement of a second layer of permission from the Israeli Civil Administration for Palestinian projects in Area C have hindered progress for large scale Palestinian water infrastructure. For over seven years, the JWC had not officially met due to the Palestinian Authority's refusal to approve Israeli water projects for settlements. This impasse left a backlog of reportedly one hundred projects awaiting approval. In January 2017, Israeli and Palestinian officials announced the revival of the JWC on a different basis. Under the new arrangement the allocation of shared natural water remains unchanged and Israeli Civil Administration approval is still needed for Palestinian projects in Area C, which covers 60 percent of the West Bank. Nevertheless, this new arrangement reflects some loosening of Israeli control, allowing Palestinian infrastructure projects in Area A and B to advance without seeking approval from the JWC.

Article 40 states that 'Israel recognizes the Palestinian water rights in the West Bank' and states that these rights would 'be negotiated in the permanent status negotiations and settled in the Permanent Status Agreement relating to the various water resources.' The article also states that, 'both sides recognize the necessity to develop additional water for various uses.'⁴⁴ The interim agreement refers to the Palestinian direct withdrawal from the Mountain Aquifer of 118 mcm/y at the time of the signing of Oslo. It also refers to an additional water supply of 28.6 mcm to be transferred to the Palestinian Authority from Israel during the interim period, of which 23.6 mcm/y would go to the West Bank and an additional 5 mcm/y to Gaza. Due to various economic and political differences, the additional water to Gaza was not supplied until 2015. Additionally, the agreement stated an estimated future need in the West Bank of 70 to 80 mcm/y of water.

The interim agreement does not define Palestinian water rights and does not deal with all shared ground and surface waters. It mentions only the shared waters of the West Bank side of the Mountain Aquifer. This allows Israel to effectively control the extraction rates and access to water, according to Israeli data, abstracting some 75% of the aquifer's annual water supply. With regards to access to the Jordan River, Israel retains full control of the West Bank stretch of the river in the form of a closed military zone, denying Palestinian farmers access to its waters.

Moreover, the agreement is ambiguous with regards to the provision of additional water as per the 'future needs' acknowledged in the accord. According to Israel's interpretation of the provision, the water to be supplied during the interim period referred to the 28.6 mcm/y to be provided to West Bank and Gaza, while the amount of 70-80 mcm/y should be interpreted as referring to final status needs. Palestinians however interpret the future

44 The Israeli-Palestinian Interim Agreement on the West Bank and the Gaza Strip, 1995

needs of 70-80 mcm as future needs within the interim period from the Mountain Aquifer only, and refer to the final agreement on water rights to be reached from all shared water sources including the Jordan River.

Since 1967 and despite the Oslo Accords and the creation of the Joint Water Committee, Israel's diplomacy or lack of diplomacy via the Palestinian Authority has been marked by seeking to preserve the status quo. Israel's goal has been to maximize control of all Palestinian water activities concerning the Mountain Aquifer, so that it can safeguard historically high levels of abstraction from the western and northeastern basins of the aquifer for continued predominantly Israeli use. With Israel being downstream along the aquifer, Israel saw its springs, wells and abstraction rates from Israel proper as vulnerable to any additional increases in Palestinian water abstraction from the West Bank side of these two basins. In the eastern basin, Israel believed that additional untapped water resources were available. Any increase in Palestinian water abstraction in the eastern basin could not impact existing Israeli abstraction in the western and northeastern basin. Therefore, Israeli water diplomacy backed by military power, enforced a policy that the eastern basin be the only means for Palestinians to satisfy their additional fresh water needs.

By the mid-1990s rising public concern in Israel as to the state of the environment led also to rising Israeli public concern as to pollution crossing from streams from the West Bank into Israel. A 2004 report of EcoPeace Middle East estimated that Palestinian urban and rural areas were releasing into the environment 46 mcm/y of untreated sewage either percolating through cesspits into shared ground water or flowing into streams.⁴⁵ Of concern to the Israeli public were the streams flowing west into Israel carrying sewage to all major population centers in Israel from Haifa in the north, Tel Aviv in the center and Be'er Sheva in the south.

By mid-2000 Israel initiated a policy response that tried to direct sewage crossing the 'Green Line' into existing Israeli sewage treatment plants, followed by a policy to build sewage plants directly over the 'Green Line' for the specific purpose of treating the sewage and preventing the cross-border pollution. Israel unilaterally deducted the cost of treating Palestinian sewage crossing the Green Line from taxes Israel collects on behalf of the Palestinian Authority. Israeli water policies here were predominantly reactive and not proactive out of concern for the Mountain Aquifer as a water resource. Israeli policies responded to legal action taken against the Israeli Government and Water Authority by citizen's groups and Israeli municipalities who saw the cross-border sewage flow as an environmental and health hazard to their communities.

Until recently Israeli water policy towards the Palestinian Authority was therefore predominantly marked by a lack of diplomacy and a preference for control and enforcement through the use of the military.

45 Zecharya Tagar Tamar Keinan Gidon Bromberg, "A Seeping Time Bomb: Pollution of the Mountain Aquifer by Sewage" EcoPeace Middle East Investigative Report Series on Water Issues No. 1

Recent Developments and changes in Israel's water diplomacy towards the Palestinians:

The humanitarian crisis in Gaza led to a 2012 UN report that concluded that Gaza will be an unlivable place for its well over 2 million residents by 2020.⁴⁶ The report, media attention and civil society action, led to changes in Israeli attitudes towards their own government's policies. The UN report specifically identified water, sanitation and lack of electricity as causes of concern and this led to the far greater direct involvement of Israel's Coordinator of Government Activities in the Territories (COGAT) in support of increasing Israeli water sales to Gaza and later on Israel's overall water diplomacy towards the Palestinian Authority.⁴⁷

Israel's military head of COGAT became the main advocate for increased water sales largely due to the national security concern that the overall Gaza crises would further empower radicalization in Gaza. In March 2015, following negotiation with the Palestinian Water Authority, Israel reversed a decade long water policy of not increasing water sales to Gaza. Following the Gaza takeover by Hamas and rockets launched against Israel, Israel's policy was to not implement the relevant Oslo Accords agreement of increasing water sale from 5 to 10 mcm/y.

Critical to the change in Israeli government policy has been a growing understanding of the impact of water insecurity in Gaza contributing to the overall demise of the humanitarian situation and a cause for greater radicalization of the population. Broader public support for changes in Israeli water related policies however only took place when the crises in Gaza led to direct threats posed on water security and public health in Israel. Critical information was released by civil society, revealing that for several days in 2016, sewage flows out of Gaza were responsible for closure of the Ashkelon desalination plant in Israel, which supplies 15% of Israel's domestic drinking water.⁴⁸ In a Knesset hearing on the Gaza water and sanitation crises it was further revealed that sewage from Gaza was responsible for closing Zikim Beach in Israel north of Gaza, for several days in the summer 2017, and that the flow of untreated sewage from Gaza into Israel through Wadi Hanun led to the closure of water wells on the Israeli side.⁴⁹

The water and sanitation crises of Gaza has impacted Israel's understanding of broader water security issues and directly led to changes in policy. Israeli Prime Minister Benjamin Netanyahu echoed this in a June 2016 press statement:

When there is not enough water in Gaza, and Gaza is in the process of gradually

46 United Nations Country Team in the occupied Palestinian territory, Gaza in 2020 (August 2012)

47 Dove Lieber, "Gaza faces takeover by youth more extreme than Hamas: Israeli defense official", The Times of Israel, November 7, 2017

48 Fares Akram and Daniella Cheslow, "Gaza sewage poisoning Strip's residents, threatening Israel", The Times of Israel, May, 3 2016

49 Sharon Udasin and Tohav Lazaroff, "Gaza sewage forces shutdown of Israeli beach", The Jerusalem Post, July 6, 2017

drying up, the aquifers become polluted and when the aquifers become polluted, this is not limited to the Gaza side of the aquifer. Therefore, it is in Israel's clear interest to deal with the water problem in the Gaza Strip. When there is not enough electricity, various problems arise, including those having to do with sanitation, and when there are outbreaks [of pandemic disease], the outbreaks do not stop at the fences. This is both a humanitarian interest and an outstanding Israeli interest.⁵⁰

Progress in water diplomacy has also been registered with regard to the West Bank. When Jordanian, Israeli and Palestinian leaders negotiated the terms of the RSDS project in 2013, they included reference of an additional sale of water to the Palestinian Authority to alleviate the Palestinian water scarcity. In July 2017, under the auspices of U.S. Special Representative Jason Greenblatt, Israel and the Palestinian Authority finally agreed on the sale of 33 mcm/y of water, of which 23 mcm would be delivered to the West Bank at a price of 3.55 NIS per cubic meter and 10 mcm/y to Gaza at a price of 3 NIS per cubic meter.

The doubling of water sold to Gaza, the renewal of the Joint Water Committee, and then the 33 mcm/y water sale, are testament to an incipient understanding in Israel that advancing Palestinian water security is in Israel's self-interest. Israeli Water Minister Steinitz declared that Israel would advance a water master plan to provide the same amount of municipal water for Israelis and Palestinians. Major General Yoav (Poli) Mordecai, the head of COGAT, declared in 2016 and then repeatedly in 2017 that the water and sanitation crisis in Gaza was a humanitarian crisis of national security concern to Israel and the region.⁵¹

The rationale behind Israeli-Palestinians water relations

There are two main counterforces driving Israeli-Palestinian water relations, which can be described as positive push factors and negative pull factors. The push factors relate to technological advances in the water sector, and the negative pull factors relate to mistrust between the parties. This mistrust is aggravated by poor water management, caused by both the endurance of the conflict and lack of efficient water governance mechanisms in place on the Palestinian side. To further complicate this, climate change is reducing the availability of water in the region.

On the positive side, technological advancement in the manufacturing of nonconventional water sources, both in the treatment and reuse of wastewater and in the development of seawater desalination, has groundbreaking implications. The production of new water means that advancing Israeli-Palestinian water diplomacy is not a zero-sum game anymore. During the negotiations of the Oslo Accords, water was labeled a final status issue to be renegotiated as part of a broader political agreement. The reallocation of natural water from Israeli use to Palestinian use would have resulted in a net loss of water available for Israeli consumption, leading to a reduction in water supply for Israeli agriculture. With the rapid development in manufactured water, and in particular desalination of seawater at

50 Israel Ministry of Foreign Affairs, PM Netanyahu's statement at his press conference in Rome (June 2016).

51 Toi Staff, "Israel warns of snowballing humanitarian crisis in Gaza", *The Times of Israel*, April 9, 2017

reasonable costs, the overall water pie has dramatically increased. Unlike in 1995 when the Oslo Accords were being negotiated, reaching an Israeli-Palestinian agreement on water issues today no longer creates winners and losers, with the opportunity to replace natural water being reallocated from Israel to the Palestinian Authority with desalinated seawater, at reasonable cost to Israel.

On the negative side, the construction of Israeli settlements in both the West Bank and Gaza further aggravated the distance between the two parties, by highlighting to the Palestinians the inequality in the distribution of water. While settlements are provided with constant supply, neighboring Palestinian communities only have intermittent provision of water. The Palestinian narrative coined the expression 'Israeli water theft' while Israelis accused the Palestinians of leading a 'sewage intifada,' failing to treat their urban sewage so that it flows across the 'Green Line' into Israel. Poor water relations saw the total collapse of water diplomacy in 2010, with a freeze of the Israeli Palestinian Joint Water Committee.

Israeli unilateral actions of treating Palestinian sewage in Israel have not prevented the pollution of surface and ground water in Israel and are subject to growing Israeli public dissatisfaction with Israeli municipal and national government performance. A 2017 report on transboundary water issues by the Israel State Comptroller's Office concluded that per the West Bank and Gaza, relevant Israeli government authorities failed to develop any clear vision, and as the report indicates, failed to strategically assess Israel's own interests, let alone take leadership on the issue of transboundary water pollution and the role it can play in advancing national security interests.

Also on the negative side, climate change has contributed to the decline in the output of Palestinian fresh water springs and Palestinian Water Authority well production in the West Bank. In addition, forecasts indicate a further 30% reduction by 2070 in ground and surface water availability. This data has led to a growing understanding on the Palestinian side that in order to ensure water security, the attainment of the rightful share of natural water will not be sufficient. New water sources will be needed, and cooperation with Israel, to either purchase additional water or manufacture new water, will be in any event necessary.⁵²

Public dissatisfaction with water service provision in the West Bank and Gaza has increasingly been directed towards the Palestinian governing authority, be it in Gaza with Hamas or the West Bank with the Palestinian Authority.⁵³ This is reflected in the declining willingness of Palestinians to pay for water services.⁵⁴ In the case of Gaza, the water, sanitation and energy crises were central to the reconciliation deal between the Palestinian Authority and Hamas as an example of Hamas' failure to provide needed essential services to the population.⁵⁵

52 "Water Situation Alarming in Gaza", The World Bank, November 2016

53 "The Performance of Palestinian Local Governments", The World Bank, June 2017

54 Ibid.

55 Jack Khoury, "Thousands Protest Electricity Cuts in Gaza Strip, Clash With Hamas Forces", Haaretz, January 12, 2017

Lessons Learnt and Overarching Recommendations

To build on the pull and push factors and the recent advances witnessed in water diplomacy, it is in Israel's national security interest to strengthen Palestinian water security as a strategic objective. Despite the significant political and power relationship differences at play, Israel can also look to its water diplomacy experience with Jordan in order to better advance Israeli Palestinian water diplomacy.

It is not surprising that Israeli-Palestinian water relations have been fraught with difficulty, mutual grievances and animosity. When compared to Israeli-Jordanian water relations, several differences emerge immediately.

From a mere geographical point of view, Jordan and Israel share fewer common water resources than Israelis and Palestinians and do not have conflict with regard to upstream abstraction, with Jordan utilizing much of the Yarmouk waters and Israel the Sea of Galilee. Conversely, Israel and the Palestinians share three main water bodies, Mountain and Coastal Aquifers and the Jordan River, with any recognition of Palestinian water rights to the Jordan River having additional border implications as well. In addition, in the case of the Mountain Aquifer, both Israelis and Palestinians are directly dependent on the shared resource and both are impacted by the consumption and the pollution of the other.

The political bilateral contexts are also clearly different. Jordan is a sovereign state, with full control over its natural resources, and they have signed a permanent peace agreement with Israel that clearly defines Jordanian and Israeli water rights. On the other hand, Israeli-Palestinian water issues are still regulated under an interim agreement and the definition of Palestinian water rights is still to be agreed under a future final status agreement. The persistence of full military control over Area C of the West Bank together with the continued expansion of Israeli settlements constitutes another important setback.

The rhetoric of blame, which has for too long characterized the Israeli-Palestinian water discourse on both sides, and the failure to see rising Palestinian water insecurity as a national security concern for both sides, have failed to establish an efficient water regime that would benefit both parties. Water issues are left intertwined with overall issues of land rights, sovereignty and borders, rather than looking for creative solutions to advance water security, despite the difficulties posed by the other final status issues not being resolved. On the other hand, in the Israeli-Jordanian context, water issues were always seen as national security issues, and this has allowed water cooperation to successfully endure a fluctuating political relationship and episodes of diplomatic and political impasse, pre and post peace treaty.

Another factor to take into consideration is the self-perception regarding water scarcity. Jordan, which has always considered itself as a water scarce nation, has regarded cooperation on water issues with Israel as a matter of national security, and therefore a matter necessary to deal with, despite political disagreements on other issues. Palestinians on the other hand tend to blame their water insecurity uniquely on the Israeli occupation and argue that if they were in full control of their natural resources they would have relatively plentiful water. Only recently, the water and sanitation crisis in Gaza, and the drying up of

Palestinian wells in the West Bank, recognized also due to the impact of climate change, seem to have changed the mindset and raised the question of producing additional water in order to ensure water security. Increasingly the Palestinian public and the donor community are outspoken about shortcomings in Palestinian water management and call overtly to advance cooperation on water with Israel as a Palestinian water security and national security issue.

From Israel's perspective, Israel considered any advance or concession on water with the Palestinians as a zero-sum game, with less water available to Israel as a result. In addition, lack of trust in their counterparts has for many years led to punitive and deterrent policies. Though the Peace Treaty with Jordan also led to water concessions, Israel regards such concessions as necessary to maintain friendly relations with Jordan, which has shown good will towards Israel in the past. In short, Israeli-Jordanian relations are based on mutual trust. However, such a relationship of trust has been built during the years, and early cooperation on water had played a major role in creating confidence, mutual understanding and interdependence.

While acknowledging the situational differences between Jordan and the Palestinian Authority with Israel, it becomes apparent that several lessons can be drawn by the Israeli-Jordanian water experience that could be applied in Israeli-Palestinian water diplomacy.

First, it must be recognized that cooperation on water can lead to mutual trust and confidence and can pave the way for expanding such cooperation in other areas. In the same way that water diplomacy between Israel and Jordan set the foundation for further development, water diplomacy could create the opportunity for Israelis and Palestinians to trust each other again. As Jordan has regarded water cooperation with Israel as an essential priority, so should the Palestinian Authority, while recognizing that the benefits of such cooperation would primarily serve Palestinian interests, in terms of greater water security, economic and social development and political stability. Water insecurity has already severely impacted Palestinian economic development, limiting agricultural and industrial activities, and causing growing unemployment rates, especially among youth. Such circumstances favor radicalization and extremism that threatens the viability of the Palestinian Authority itself.

Finally, the Israeli Government should realize the highly strategic value of water cooperation with the Palestinian Authority, as they have done with regards to Jordan. Palestinian water security serves Israel's interests, in terms of better environmental quality and national water security, a more stable and prosperous neighbor, and improved bilateral relations.

A key recommendation of the May 2017 Israel State Comptroller report on transboundary pollution was to establish an inter-ministerial body with all relevant Israeli government ministries in order to develop a comprehensive action plan to reduce cross-border

pollution.⁵⁶ The mandate of the inter-ministerial body, yet to be established, could be expanded to address not only pollution prevention, but also the broader theme of water security.

The following section will articulate a set of detailed recommendations to Israeli policy makers, and where relevant compare Israeli Palestinian water diplomacy with that of Israel and Jordan. The section contains a list of existing Israeli policies of concern, and recommendations for proactive measures that could strengthen water security.

1) Reevaluate the effectiveness of Israeli unilateral deductions from Palestinian tax revenue for the cost of Palestinian sewage treatment in Israel.

Under the 1995 Oslo Accords, the Israeli and Palestinian sides are required to treat their sewage and prevent cross-border pollution by sewage.⁵⁷ A 2004 report prepared by EcoPeace Middle East on pollution of the Mountain Aquifer by Palestinian and Israeli sources concluded that both sides shared responsibility for the failure to treat cross-border sewage.⁵⁸ A 2009 report of the World Bank similarly apportioned blame on both sides for cross-border pollution by sewage. Many of the recommendations of the Israel Comptroller's office report of 2017 on cross-border pollution repeat the same concerns identified by the earlier reports of EcoPeace and the World Bank.⁵⁹

What started off as perhaps a one-off measure to treat cross-border sewage became the common response to deal with the issue. According to Palestinian data, every year since 2000, Israel unilaterally has deducted directly from the taxes it collects on behalf of the Palestinian Authority, the cost it incurs for the treatment of Palestinian sewage that crosses the 'Green Line' and which is treated in sewage treatment plants in Israel. The deductions can contain the costs of capital investments made, including the capital costs of building treatment plants specifically built to treat Palestinian sewage once it has crossed the 'Green Line.' Sewage treatment plants have been built by Israel in this manner on the Hebron, Nablus and Kishon streams. What started in the year 2000 as a deduction of just over 2.5 million NIS started to jump in 2004 to over 28 million NIS, and in 2015 to over 82.5 million NIS. From 2002 to 2015, according to a 2016 report of the Palestinian Water Sector Regulatory Council, Israel deducted a total of 487,208,955 NIS and if correct, by the end of 2017, must have deducted over half a billion NIS.⁶⁰

This punitive action has proven to not only be ineffective in preventing cross-border

56 "Israel State Comptroller Report on Water Pollution between the State of Israel and Judea, Samaria and the Gaza Strip" (Unofficial translation of the original Hebrew text by EcoPeace Middle East) Judge Yossef Haim Shapira, May 2017

57 The Israeli-Palestinian Interim Agreement on the West Bank and the Gaza Strip, 1995

58 Zecharya Tagar Tamar Keinan Gidon Bromberg, "A Seeping Time Bomb: Pollution of the Mountain Aquifer by Sewage" EcoPeace Middle East Investigative Report Series on Water Issues No. 1

59 "West Bank and Gaza Assessment of Restrictions on Palestinian Water Sector Development", The World Bank, April 2009

60 Water Sector Regulatory Council, 2000-2016

pollution from the West Bank, which has only been increasing in quantity, but it has unintentionally created a disincentive for Palestinian municipalities to invest in treating Palestinian sewage in the first place.⁶¹ The Palestinian Treasury has no effective means to recoup the deduction from the polluting Palestinian municipalities. Palestinian municipalities are therefore under no pressure to treat their wastewater and allow the Palestinian national economy to pay the price.

The Israeli tax deduction also discourages the donor community from investing in the Palestinian wastewater sector. Donor states are unwilling to make what their taxpayers might see as poor investments that can lead to double payments, where the sewage, if treated on the Palestinian side, will likely be again treated and charged for on the Israeli side.⁶²

From an Israeli national security perspective, the lost Palestinian Authority revenue weakens the Palestinian Authority in general, as well as the Palestinian Water Authority's ability from being effective in the sanitation sector. Failing to stop the pollution of the Mountain Aquifer from taking place directly threatens Israeli water security as it threatens the long-term viability of the Mountain Aquifer as a source of healthy water for Israel. Israel abstracts 75% of Mountain Aquifer ground water. In the case of the western basin of the Mountain Aquifer where most of the Palestinian population is located and most Palestinian sewage produced, Israel abstracts 88% of the water. While the failure of treating Palestinian sewage is the failure of the Palestinian Authority, an Israeli policy of tax deduction that unintentionally weakens the Palestinian Water Authority and the Palestinian Authority in general has become part of the problem.

By comparison, a similar requirement exists in the Israel Jordan Peace Treaty that each side prevents cross-border pollution by sewage.⁶³ There is no equivalent action taken by Israel vis-a-vis Jordan even though the sewage of over 500,000 Jordanians living in the Jordan Valley is for the most part untreated and finds its way into and polluting the Jordan River, shared with Israel and the West Bank. On the contrary, following several years of significant public attention as to the dire state of the Jordan River lead by civil society organizations, direct government of Israel and government of Jordan cooperation was launched, including master plans and public conferences held, with both governments jointly seeking to help Jordan raise donor and other funds needed to remove sewage from the Jordan River.⁶⁴ With much of that border area on the Jordanian side being poverty

61 A freedom of information request to obtain Israeli data on deductions has been submitted by EcoPeace

62 This is the present case for Nablus, where a German government funded modern sewage treatment plant treats the sewage of its western suburbs, and releases the treated sewage down the Zomer stream where it mixes with untreated sewage south of Nablus and is then treated a second time in an Israeli built emergency sewage treatment plant in Emek Hefer. The Emek Hefer plant was built and operated with Palestinian Authority taxes deducted by Israel. Double investment has not saved the Alexander River in Israel, that the Zomer stream flows into, with the Emek Hefer plant not being able to treat industrial pollutants nor cope with the growing quantity of sewage flow, leaving the Alexander River, Israeli beaches, and shared ground water polluted. Zafir Rinat, "Israeli Beach Closed Due to Pollution From West Bank Olive Oil Production", Haaretz, October 31, 2016

63 Treaty of Peace between the State of Israel and the Hashemite Kingdom of Jordan, 1994

64 Rehabilitation of Southern Jordan River Conference to Take Place, Israel Ministry of Environment, October 2014

stricken, advancing cooperation with Jordan to clean up the River Jordan is promoted by Israel's Ministry of Regional Cooperation as a means to promote economic development, stability and national security along Israel's longest border.

2) Need to incentivize Palestinian accountability for pollution prevention.

Given the failure of punitive action to prevent the pollution of the Mountain Aquifer, a more effective measure that would strongly incentivize Palestinian accountability for pollution would be to increase Palestinian water abstraction. This would be from the western basin of the Mountain Aquifer in particular. From the perspective of Israeli water security, the Palestinian transboundary sewage flows that are of greatest concern to Israel are from Palestinian communities whose sewage flows west to the Mediterranean. From the western basin of the Mountain Aquifer, Israel in 2014 for example abstracted 297 mcm (88%), allowing the PWA to abstract only 39mcm (12%).⁶⁵

Allowing greater Palestinian access to water abstraction from the western basin would create an incentive at the Palestinian municipal level to treat sewage. Their own residents would directly bare the cost of failing to do so, as the pollution would pose a greater threat to Palestinian drinking water. The ability of the Palestinian Authority to extract more water from the western basin would likewise empower the moral authority of the Palestinian Authority, as polluting municipalities would be labeled as unpatriotic. While at the moment Palestinian municipalities above the western basin of the Mountain Aquifer currently receive some of their water from that very same basin, the low percentage of 12% in comparison to Israel's 88%, has created a sense of exploitation. The Palestinian public sees this as an unfair over-utilization by Israel.

The Oslo Accords emphasized that additional water abstraction for the Palestinian Authority should preferably come from the eastern basin of the Mountain Aquifer. For the last 23 years Israel has strictly enforced a policy of no additional abstraction from the western and northeastern basins, refusing almost all Palestinian Water Authority requests in those basins and permitting new water wells in the eastern basin. The Palestinian Water Authority, with the assistance of USAID and U.S. contractors, did not find significant additional water in the eastern basin. Additionally, these waters, if found, are likely to be more expensive, requiring deeper drilling and longer conveyance to Palestinian population centers, than those from the western basin, where most of the Palestinian population resides.

The Israeli side objects to increased Palestinian water abstraction from the western basin of the Mountain Aquifer, as it would require a parallel decrease in abstraction by Israel. The objection is understandable from a narrow water security perspective, because the western basin is presently fully utilized. Increased Palestinian abstraction would reduce the amount of natural water available to Israel from this basin and require more expensive desalinated water to be produced by Israel to meet Israel's needs. From a broader water security perspective however, if the very viability of the western basin is threatened as a

⁶⁵ Israel Water Resource Status 2014, Israel Water Authority

source of drinking water due to pollution from sewage, mostly from Palestinian sources, Israel could risk losing its full share (88% in 2014) of the western basin water that it currently enjoys. If a larger Palestinian share of western basin water indeed empowers both the Palestinian Authority and Palestinian Water Authority and helps create the incentive for Palestinian municipalities to treat their own sewage, then the long-term water security of the Aquifer is better protected for both Israelis and Palestinians. The western basin water would also be far cheaper to the Palestinian economy than abstracting from deep wells in the eastern basin. This is due to both the western basin being in closer proximity to the large Palestinian population centers, and easier access to more shallow waters of the western basin. Cheaper and more plentiful Palestinian water strengthens the Palestinian economy, and therefore strengthens the Palestinian Authority with national security benefits for both Israelis and Palestinians.

If we look to Israeli water diplomacy with Jordan, we indeed see the adoption of broader long-term water and national security considerations. Israel reduced its pumping from the Sea of Galilee for their own needs to allow for not only the required Peace Treaty quantities to be delivered to Jordan, but for the additional quantity of 50 mcm annually that will need to be supplied to Jordan under the 2013 Red-Dead Agreement. More expensive Israeli desalination on the Mediterranean has replaced the reduced Israeli pumping from the Sea of Galilee. Israel has reduced pumping from the National Water Carrier from a historical high of 450mcm/y, to a mere 25 mcm in 2016, mostly due to consecutive years of drought, but also in consideration of supplying water from the Sea of Galilee committed to Jordan.⁶⁶

Israel's water diplomacy with Jordan also highlights a policy of transferring water at the most viable location and lowest cost to Jordan possible. As part of the Peace Treaty water transfer for example, Jordan pays only 0.16 NIS for every 40 mcm/y for water that flows directly out of the southern tip of the Sea of Galilee and into a pipeline and the Jordanian water carrier, the King Abdullah Canal, the easiest access point for Jordan. In relation to Jordan, Israeli water diplomacy reflects an understanding that affordable water for Jordan is critical to Jordan's water security, and that Jordan's water security is critical to both Jordan and Israel's national security.

3) Significantly increase Palestinian domestic water supply to better equate with Israeli domestic water supply.

Israeli Water and Energy Minister Steinitz declared in 2016 that Israelis and Palestinians should have access to the same amount of domestic water.⁶⁷ In November 2016 at an international conference organized by EcoPeace Middle East, he recognized that the water shortages faced by Palestinians do not serve Israeli interests and stated: 'We have to supply the same amount of water per capita for Palestinians and Israelis. Water is water, regardless of the political situation [...] Regardless of the political situation we have to

66 Zafrit Rinat, Israel Mulls Reversing Water Flow Into Shrinking Sea of Galilee, Haaretz, November 30, 2016

67 Avi Bar-Levi, "Israeli Plan Proposes Supplying Palestinians Less Water Than Allocated to Settlers", Haaretz, November 14 2016

resolve the water problem and we have to prepare already today to supply enough water to everybody.⁶⁸

This bold objective could be significantly advanced in one of two ways. Either the Palestinians purchase additional desalinated water from Israel or natural shared water allocations are increased in favor of the Palestinians. If the Palestinian Authority could access greater water quantities from the western basin of the Mountain Aquifer, the stated objective of Minister Steinitz would then also align with the abovementioned pollution prevention objectives. Palestinian water abstraction levels could be increased by an estimated 100 mcm/y within the framework of the Oslo II Agreement, in a manner that concretely advances the implementation of the agreement and helps resolve water problems as stated by Minister Steinitz. The redistribution of natural waters would therefore go a long way towards advancing water security needs for Palestinians, and therefore national security interests of Israel.

Oslo II recognizes Palestinian abstraction at 118 mcm/y with an additional immediate need of 23.6 mcm/y granted to the West Bank, and the additional future needs for the West Bank estimated at 70-80 mcm/y. There is political debate as to whether total Palestinian abstraction from the Mountain Aquifer of between 211.6-221.6 mcm/y of water annually would be final water rights, as contended by the Israeli side, or constitute interim water rights from the Mountain Aquifer as contended by the Palestinian side. Despite this, allowing Palestinian abstraction from the Mountain Aquifer of between 211.6-221.6 mcm/y of water annually should not be in dispute.

According to Israeli Water Authority figures for 2014, Palestinians abstracted 39 mcm from the Mountain Aquifer's western basin, 45.5 mcm from the northeastern basin and 39 mcm from the eastern basin. From a total abstraction for that year of 513.1 mcm, Israel drew 389.6 mcm (75%) with the total Palestinian abstraction at 123.5 mcm (25%).⁶⁹ With actual abstraction in 2014 at 123.5 mcm and interim/future needs at 211.6 to 221.6 mcm/y, an increase in Palestinian abstraction ranges from 88.10 mcm/y to 98.10 mcm/y, hence the approximate 100 mcm/y of additional water that Palestinians should be able to directly abstract as stated above.⁷⁰

An increase in Palestinian water withdrawal from wells in the western basin of the Mountain Aquifer would most likely be the most affordable option of water provision for them. If all the water is increased from the western basin, then the Palestinian share would rise from the present 39 mcm/y to proposed 139 mcm/y. Israeli water withdrawals would have to therefore decrease from 297 mcm/y to 197 mcm/y. Given total abstraction from the western basin of 336 mcm/y Israeli utilization would still be the majority at 59%, but the Palestinian stake and interest would rise from 12% today to a proposed 41%.

68 November, 22nd 2016, Crowne Plaza – Dead Sea, Jordan. EcoPeace Middle East Annual Conference Water Security and Sustainable Development for our Common Future[“]

69 Israel Water Resource Status 2014, Israel Water Authority

70 Palestinian sources record even less PWA abstraction and higher ratios in favor of Israel.

Discussions between the parties are needed to identify the appropriate ways to implement an increase circa 100 mcm of Mountain Aquifer water abstraction annually for the direct benefit of the Palestinian side, understanding the national security benefits to the Israeli side of incentivized pollution prevention, and affordable water strengthening the Palestinian economy and, therefore, stability interests of Israel.

The Israeli Water Authority contends that Israel is already meeting its full commitments for West Bank water supply under the Oslo Accords by Israel selling water to the Palestinian Water Authority.⁷¹ In addition to the Palestinian abstraction of 123.5 mcm, according to the most recent IWA data, Israel sold to the Palestinian Authority 68.2 mcm of water in 2016 for use in the West Bank. According to Mekorot data, Israel sells more than half of the water supplied, 43.05 mcm/y, at the price of 2.86 NIS and another significant amount, 18.11 mcm/y, at 3.61 NIS.

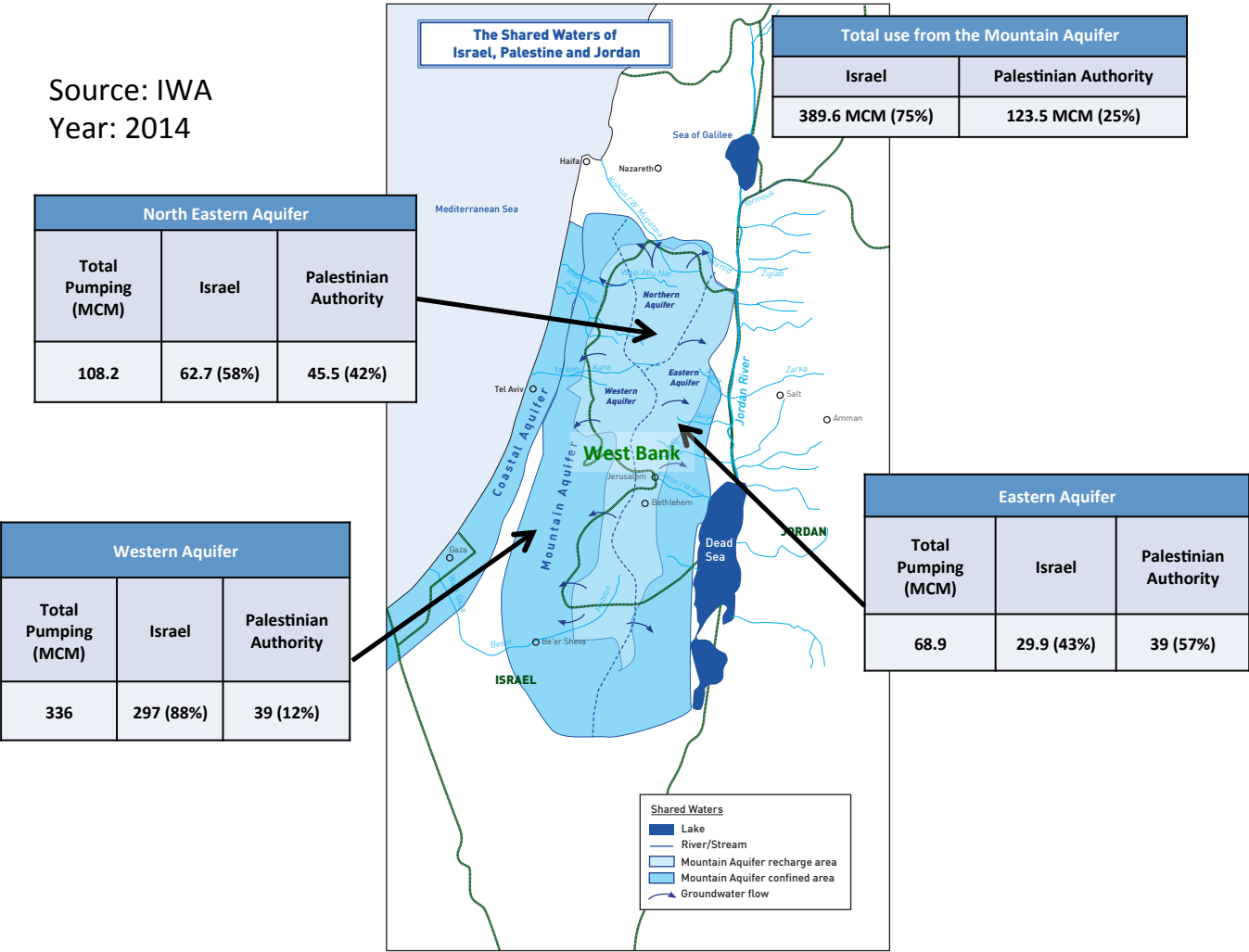


Figure 1: Israel and the PA’s use of Mountain Aquifer’s water. Source IWA

71 The Issue of Water between Israel and the Palestinians,” Israel Water Authority, March 2009

Rather than debate whether an additional water sale fulfills the terms of the Oslo Agreement, from a broader water security perspective, for Israel, the sale of additional water fails to advance the incentive for the Palestinians to treat their sewage as it fails to advance a sense of Palestinian pride in obtaining a fair portion of shared waters, and the water prices that Israel has charged fail to strengthen the Palestinian economy as they reflect full cost recovery and refer to the marginal cost of water being the average cost of desalinated water in Israel.

By comparison in the case of Jordan, Israel fulfills its Peace Treaty water commitments at the minimal cost of 0.16 NIS cents for the first 40 mcm/y, irrespective of the marginal cost of water in Israel.

The different approach in water diplomacy being applied is further evident in the 2013 Water Swap or Red-Dead Agreement, where Israel agreed to sell 50 mcm of water to Jordan at the discounted price of 1.5 NIS/cubic meter and yet, as part of the same arrangement, sell to the Palestinian Authority 33 mcm at the cost of 3-3.5 NIS/cubic meter. There are notable differences in the water quality provided, with the Sea of Galilee water sold to Jordan requiring some minimal filtration and treatment, while water sold to the Palestinian Authority is post-treatment. There are also differences in delivery costs, with delivery to Jordan being mostly gravitational while Palestinian delivery requires greater pumping and therefore yields higher electricity costs, depending on location. Nevertheless, more than double the cost of water per cubic meter sold to Palestinians than to Jordanians reflects that Israeli negotiators had been instructed by the Government of Israel to consider the national security interests at stake in the supply of additional water to Jordan, while perhaps not recognizing the same water and national security benefits to Israel for the increased water supply for the Palestinians.

4) Broaden Security Considerations Beyond the Military & Tactical Considerations.

In the case of both Gaza and the West Bank, narrow military, punitive and final status territorial considerations are given too often sole consideration by Israeli policy makers without sufficiently considering their implications on broader water security and national security concerns.

In the case of Gaza as discussed above, only after Gaza sewage was publicly acknowledged by Israel as threatening the operations of the Ashkelon desalination plant and, therefore, Israel's water security, did Israel agree to provide additional electricity needed to operate the new World Bank sewage treatment in north Gaza (NGEST). The legitimate Israeli security concern to not allow the entry into Gaza of materials termed as 'dual use,' being materials that could be of used by Hamas for military purposes, impeded the completion of the NGEST plant not by a matter of months but reportedly by a matter of years.

USAID contractors report an extremely long delay in getting materials into Gaza needed to build reservoirs that are designed to store water purchased from Israel for Gaza, in order to improve water quality and avoid the outbreak of disease amongst the Gaza population.

A letter in 2017 sent to the Israeli Prime Minister by all the Israeli mayors around the Gaza Strip best speaks to the unintended consequences of the narrow application of security concerns. The mayors' state that in addition to being in the frontline of Hamas' rockets and tunnels, they do not want their residents to have to deal with pandemic diseases crossing from Gaza should the water and sanitation crises in Gaza continue.

In the West Bank donor states express frustration with the Israeli Civil Administration restrictions related to all water and sanitation infrastructure in area C. The several years delay in connecting the new model Palestinian city of Rewabi with water is a clear example of narrow considerations impeding the broader considerations of supporting a more prosperous Palestinian middle class and a stable Palestinian economy. In this case the Israeli Prime Minister himself had to intervene to get the water to flow into the new Palestinian city.⁷² The Israel Comptroller report details many examples of narrow security concerns ignoring broader national security concerns concluding that Israel has failed to even develop a strategy on the prevention of cross-border sewage.

5) Move towards a new Israeli / Palestinian agreement on water.

Moving beyond the interim Oslo Accords to a new water agreement would better serve the security needs of all. Both sides should consider moving forward on a final water agreement, prior to other final status issues. Given technological advances in the manufacture of new water, water issues are no longer a zero-sum game as they were in 1995.

This requires a break in the negotiations mantra maintained until now by the Government of Israel, the Palestinian Authority and most in the international community that an agreement to all of the conflict's core issues must be reached simultaneously in order to achieve a final status peace agreement. As described in earlier publications of the same authors, much due to this mindset, the ability to significantly advance Israeli-Palestinian water issues is being held hostage by the failure to agree on the other core issues.

Concluding Thoughts:

Despite some progress achieved in 2017, including a new water sale deal and the renewal of the JWC, Palestinians and Israelis have failed so far to develop a common strategy to advance water security in a mutually beneficial manner. Israelis and Palestinians largely fail to understand that the growing state of Palestinian water insecurity threatens both peoples national security.

There are important lessons that can be drawn from the Israel-Jordan water relationship, which if applied to Israeli-Palestinian water diplomacy, will lead to important advances. The five recommendations listed above are a first attempt to evaluate the opportunities.

⁷² Anne-Marie O'Connor and William Booth, "Israel to let water flow to West Bank development at center of political feud", The Washington Post, February 27, 2015

An important change in both the Israeli and the Palestinian mindset is required. Both must stop the blame game. Palestinians must also acknowledge their own shortcomings in water management and engage in much needed reforms, with priority for pricing of water, investment in reducing water loss and wastewater reuse for agriculture. While the advance of Israeli-Palestinian water diplomacy will not alone produce peace, it will help build trust and confidence between the two parties, and between Israel and the region.

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