

Hydropolitics in the Middle East

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Water scarcity in the Middle East poses a formidable challenge, with far-reaching implications for the region's ecological balance, socio-economic stability, and security. This policy paper examines Israel's water policy through an analysis of four case studies, beginning with the Madrid Conference of 1991, and followed by an evaluation of Israel's bilateral relations with Palestine, Jordan, and Turkey. Three key geopolitical objectives are identified for Israel: securing domestic water resources, fostering Israel's integration in the region, and promoting long term regional resilience. Hydropolitics emerges as a pragmatic approach to address the complex interplay of interests and grievances surrounding water management in the Middle East, and offers opportunities for dialogue, trust-building, and sustainable resource management. Drawing on historical lessons of hydropolitical initiatives in the region and considering the unique socio-political Middle Eastern landscape, this paper proposes new insights to advance Israel's objectives and enhance regional stability.

A. Introduction

In the arid lands of the Middle East, water scarcity stands out as a critical challenge, transcending geographical boundaries and geopolitical dynamics. The impacts of the climate crisis are already evident today, with 12 of the world's 17 most water-stressed countries located in the Middle East and North Africa.¹ The Middle East stands at a crossroads where the realms of water, politics, and security intersect. Challenges such as population growth, increasing urbanisation, agricultural demands, and environmental degradation exacerbate the strain on water resources, which not only threaten the region's ecological balance but also its socio-economic stability. For generations, the Middle East's network of rivers, aquifers, and water basins has been a focal point of dispute, with nations competing for dominance over these vital resources. Water scarcity is a significant factor in many conflicts, displacements, and migrations, and it undermines political stability in our region. Accordingly, there is an urgent need to adopt a systematic hydropolitical policy aimed at achieving regional objectives, co-creating long-term opportunities, and preventing acute

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¹ World Resource Institute. (2013). *Aqueduct Country and River Basin Rankings*. Retrieved 27 Oct. 2023 from <https://www.wri.org/data/aqueduct-country-and-river-basin-rankings-map>

crises. Conventional notions of sovereignty and exclusive unilateral control over water resources need to evolve towards a model emphasising shared responsibility and fair distribution.

This policy paper examines Israel's water policy in the Middle East from an Israeli perspective, recognising both the historical tensions surrounding access to water and the potential for cooperation and mutual benefit. Hydropolitics, often termed the "politics of water", examines the relationships and interactions among states sharing common water resources.² It recognises that water is a scarce resource and assesses the abilities of states to cope with changes affecting this resource. Transboundary water challenges have been the subject of extensive academic research, resulting in a wealth of knowledge covering conflicts, management, and cooperation in relation to natural water systems. Through a comprehensive analysis of the region's hydropolitical landscape, this paper aims to outline strategies and mechanisms for fostering diplomatic engagement, mitigating conflicts, and promoting sustainable water management practices. In this respect, hydropolitics could become a vital instrument in advancing Israel's critical geopolitical objectives amid the escalating challenges of climate change adaptation.

Hydropolitics emerges as a pragmatic and indispensable approach to address the complex interplay of interests and grievances surrounding water management in the Middle East. By embracing the principles of hydropolitics, the Middle Eastern states can transform shared vulnerabilities into prospects for collaboration and sustainable development. By actively fostering dialogue, cultivating trust, and crafting agreements, diplomatic efforts can transcend zero-sum narratives, paving the way for collaborative frameworks that prioritise sustainability, resilience, and the collective welfare of communities. We maintain that diplomatic efforts can lead to robust regional solutions without compromising Israel's security.

We identify three of Israel's primary geopolitical objectives. Firstly, securing Israel's water resources in the midst of the climate crisis through the implementation of sustainable measures. This includes diplomatic initiatives and the establishment of new partnerships targeted at safeguarding Israeli water resources for the welfare of its citizens. Secondly, employing hydropolitics as a strategy for integrating Israel into the regional arena and fostering stability in the Middle East. Hydropolitics has the potential to diminish hostilities between Israel and its neighbours, while simultaneously bolstering diplomatic ties and positioning Israel's presence in the region as a positive force. Leveraging Israel's resources and expertise can also promote peace between Israel and regional states, thereby enhancing international legitimacy. Thirdly, contributing to the overall well-being of citizens and promoting local resilience and stability despite persistent challenges. This objective is rooted in the understanding that social resilience, national resilience, and regional resilience are intertwined. Resilience can be achieved through support and knowledge transfer on diverse aspects of water management and associated technologies, as well as through the development of mutual dependence and strategic cooperation.

² Mahlakeng, M. (2019). A Theoretical Analysis of Hydropolitics. *World Affairs: The Journal of International Issues*, 23(4), 36-57.

This paper provides a comprehensive analysis of Israel's regional water relations through four case studies. It begins with an overview of the main findings of the Madrid Conference of 1991, a pivotal milestone in the peace process between Israel and its neighbours. Subsequently, it examines Israel's bilateral water relations with two nations in its immediate vicinity, namely Palestine and Jordan, and with a distant regional neighbour, namely Turkey. Drawing on lessons from historical hydropolitical initiatives and considering the unique socio-political dynamics of the Middle East, this paper offers new insights to advance the aforementioned objectives. Although Israel has the capability to tackle some of the challenges identified in this paper independently, we maintain that these challenges should be addressed through collaborative regional initiatives. From confidence-building measures to institutional frameworks for joint resource management, this paper outlines a roadmap for navigating the challenges of water scarcity whilst unlocking the potential for cooperation and peacemaking.

B. Lessons from a multilateral-regional framework - Madrid Conference of 1991

The Madrid Conference and its establishment of parallel bilateral and multilateral tracks

The convening of the Madrid Conference in 1991 was pivotal in advancing Israel's integration in the region and establishing its diplomatic ties with neighbouring countries.³ The peace process partners agreed to employ simultaneous bilateral and multilateral tracks for the negotiations.⁴ This model underscored the collective dedication to the peace process. The decision to embark on both tracks was not a compromise between alternative negotiation strategies; rather, it was a deliberate strategy. The intention was to offer platforms for matters of both high politics and low politics, with the belief that each could accelerate the progress of the other.⁵

In the bilateral negotiations, the Arab Core Parties, comprising Lebanon, Syria, and a joint Jordanian-Palestinian delegation, each engaged in separate discussions with Israel. Their aim was to address longstanding political conflicts which obstructed the path to reconciliation and peace, going back as far as 1948.⁶ Amongst these issues were territorial disputes, sovereignty, border delineation, security arrangements, and the political rights of the Palestinians. On the other hand, the multilateral track involved a broader array of participants beyond the Core Parties and was tasked with exploring a spectrum of technical issues transcending national borders.⁷ This latter forum deliberated on five key themes, namely Palestinian refugees, water resources, regional economic development, regional

³ Haddadin, M. J. (2002). Water in the Middle East peace process. *Geographical Journal*, 168(4), 324-340. <https://doi.org/10.1111/j.0016-7398.2002.00059.x>

⁴ Kaye, D. D. (1997). Madrid's forgotten forum: The Middle East multilaterals. *Washington Quarterly*, 20(1), 167-186. <https://doi.org/10.1080/01636609709550235>

⁵ Wolf, A. T. (1995). International Water Dispute Resolution: The Middle East Multilateral Working Group on Water Resources. *Water International*, 20(3), 141-150. <https://doi.org/10.1080/02508069508686465>

⁶ Gazit, M. (1995). The Middle East Peace Process. In *Middle East Contemporary Survey, Volume Xvi, 1992* (pp. 113-155). Routledge. <https://doi.org/10.4324/9780429039461>

⁷ Peters, J. (1998). The Arab-Israeli multilateral peace talks and the Barcelona process: Competition or convergence? *The International Spectator*, 33(4), 63-76. <https://doi.org/10.1080/03932729808456834>

security and arms control, and the environment. The overarching goal was to bolster and complement the efforts of the bilateral negotiations, by pursuing three key objectives: facilitating bilateral discussions of the peace process, seeking resolutions to significant regional challenges, and building trust among the parties involved to cultivate stronger cooperation and peace. Overall, while the bilateral process tackled historical legacies, the multilateral track looked toward shaping the future trajectory of the Middle East.

As negotiations advanced on the two tracks, Israel and the Palestinians also embarked on clandestine negotiations in Oslo, Norway.⁸ These covert talks yielded a landmark framework agreement between Israel and the Palestine Liberation Organization (PLO), culminating in a signing ceremony at the White House in 1993.⁹ Under this agreement, the PLO and Israel reciprocally acknowledged each other politically, and the joint Jordanian-Palestinian delegation split into two distinct entities. Each entity continued negotiations with Israel, adhering to the foundational principles outlined in the Madrid Conference: the relinquishment of territories seized by Israel in 1967 in exchange for a comprehensive and enduring peace settlement.¹⁰ During the Oslo Accords, water was among the five final status issues left unresolved due to the challenge of reaching an agreement on sharing limited natural resources. Any agreement reached then would have been perceived as favouring certain states while disadvantaging others.¹¹

Challenges identified by the Multilateral Working Group on Water Resources (MWGWR) Recognising the shared concerns over water challenges among Israelis, Jordanians, and Palestinians, the MWGWR was formed within the framework of the multilateral track to strengthen the Middle East peace process.¹² The first MWGWR conference, convened in Moscow in 1992, delineated the water challenges in the Middle East as follows:

1. Social, economic, and political differences pose challenges that must be acknowledged and overcome for regional water problems to be resolved.
2. Relations among states vary from open hostilities to peace, with ongoing fluctuations despite progress towards peace.
3. Many regional borders lack international recognition, which means that water access rights for the affected states are difficult to reconcile, and this ambiguity contributes to regional tensions.
4. Cooperation is crucial for optimal utilisation of water resources, given that 90% of surface water crosses borders and groundwater is shared amongst various parties.
5. The region faces a widening gap between water demand and supply, necessitating the creation of new water sources through technical means, along with efficient

⁸ Golan, G. (2009). The Peace Process. *Israel Studies: An Anthology*, 1-27. Retrieved 3 March 2024, from <https://www.jewishvirtuallibrary.org/jsource/isdf/text/golan.pdf>

⁹ Shlaim, A. (1994). The Oslo Accord. *Journal of Palestine Studies*, 23(3), 24-40. <https://doi.org/10.2307/2537958>

¹⁰ Haddadin, M. J. (2002). Water in the Middle East peace process. *Geographical Journal*, 168(4), 324-340. <https://doi.org/10.1111/j.0016-7398.2002.00059.x>

¹¹ Bromberg, G., Majdalani, N., & Abu Taleb, Y. (2020). *A Green Blue Deal for the Middle East*. <https://ecopeaceme.org/wp-content/uploads/2021/03/A-Green-Blue-Deal-for-the-Middle-East-EcoPeace.pdf>

¹² Jewish Virtual Library. (2002). Water in Israel: Case Study of the Middle East Water Resources Working Group. *Water*. Retrieved 3 March 2024, from <https://www.jewishvirtuallibrary.org/case-study-of-the-middle-east-water-resources-nbsp-working-group>

management. Structural economic reforms are also necessary to be able to effectively respond to growing water demands.

The MWGWR cooperation model

By prioritising issues of water scarcity, the parties involved in the MWGWR could set aside competing interests to work together. This approach aimed to build momentum by finding practical solutions to water problems, driving effective regional cooperation. It began by understanding shared needs, identifying common concerns, and seeking regional solutions, which then enhanced the bilateral negotiations and led to more cooperation. As progress was made, awareness grew and fueled further momentum.

During its formative years, the MWGWR laid the foundation for regional capacity building in water management and facilitated collaborative solutions to the Middle East's water challenges independently of regional political developments. At its inception, the Working Group consisted of 47 delegations, made up of 15 regional stakeholders and 32 international entities, including donor nations and global organisations.¹³ From 1992 to 1996, the MWGWR met officially nine times, both within and outside the MENA region. The final meeting took place in Tunisia in 1996. In between these formal meetings, the Working Group engaged in regular intersessional activities. These activities maintained the momentum of collaboration among the participants and played a crucial role in advancing the MWGWR's programmes. Since 1996, official meetings have ceased; nevertheless, some of the initial projects have persisted and even expanded to address emerging demands and bolster regional cooperation.¹⁴

As outlined in the 1992 Moscow meeting, the MWGWR's primary focus was on cultivating collaboration and coordinating efforts across four key themes¹⁵: a) Improving the availability of water data; b) Implementing water management practices, including conservation efforts; c) Addressing water supply infrastructure; d) Promoting concepts related to regional water management and cooperation.

MWGWR Sponsored Projects

The MWGWR projects aimed to advance the four aforementioned themes from the Moscow conference.¹⁶ Each project typically addressed multiple items from the MWGWR agenda. These initiatives varied in their nature and scale and consisted of regional studies, workshops, the establishment and enhancement of regional water data networks, the development of a regional desalination research centre, and the creation of a comprehensive training programme. Some projects were designed as modular clusters, allowing for flexibility and adjustment over time, while others were focused on specific

¹³ Ministry of Foreign Affairs of Israel. (2000). From Contention to Cooperation: A Case Study of the Middle East Multilateral Working Group on Water Resources. *The Multilateral Negotiations*. Retrieved 3 March 2024, from <https://www.gov.il/en/Departments/General/from-contention-to-cooperation-a-case-study-of-the-middle-east-multilateral-working-group-on-water-resources-17-apr-2000>

¹⁴ *ibid.*

¹⁵ Scheumann, W., & Schiffler, M. (1998). *Water in the Middle East: Potential for Conflicts and Prospects for Cooperation*. Springer.

¹⁶ *ibid.*

regional and local objectives. They focused on practical measures for immediate or future implementation, laying the groundwork for future collaboration and regional capacity building. Initially, projects typically involved regional parties and a donor nation or institution acting as a facilitator. Over time, as relationships strengthened, regional parties became more active in proposing additional activities and refining proposals from other MWGWR members. This marked the first time regional parties could collectively express the nature and scope of regional water issues. Several proposals emerged from these projects, including recommendations for institutionalising regional cooperation, such as implementing joint infrastructure ventures, establishing regional institutions and training centres, or laying the groundwork for regional initiatives. In essence, these projects marked the initial steps towards establishing mechanisms for regional action, fostering cooperation where none previously existed.

a) Improving the availability of water data:

- **The Regional Water Data Banks (RWDB) Project** - The RWDB project, launched in 1995, aimed to enhance and standardise regional hydrologic data to facilitate cooperation on water management.¹⁷ It established an Executive Action Team (EXACT) comprising members from regional parties and donor countries to act as a regional oversight body. The project's activities included creating regional directories, standardising data collection procedures, and improving monitoring capabilities through hardware enhancements like mobile laboratories and telemetry equipment. Despite a formal suspension in 1996, work on the project continued, gaining momentum with the approval of five additional initiatives in 1999 and the resumption of negotiations with the Palestinians under the Ehud Barak administration. These additional initiatives centred around rehabilitation efforts, real-time data collection, water treatment advancements, hydrological modeling enhancements, and compilation of precipitation data. Collaboration with multiple donor countries was integral to the execution of these endeavours.

b) Implementing water management practices, including conservation efforts:

- **Public Awareness and Water Conservation Project** - At the 1996 MWGWR meeting in Tunisia, the *Public Awareness and Water Conservation Project* was launched to raise awareness about water conservation.¹⁸ Representatives from Egypt, Israel, Jordan, Morocco, Oman, the Palestinian Authority (PA), and Tunisia collaborated, with the US providing technical assistance. Public awareness campaigns were conducted simultaneously in Israel, Jordan, the PA, and Tunisia, culminating in a video illustrating the regional water scarcity challenge and potential solutions. The next phase involved introducing a joint educational programme on water conservation into the school systems of Israel, Jordan, and the PA. This initiative marked the first time these school systems taught an identical regional programme on water conservation.

¹⁷ Keidar, J., & Kawash, F. (2005). Regional water data banks project multilateral working group on water resources. *Options Méditerranéennes. Série A: Séminaires Méditerranéens (CIHEAM)*.

¹⁸ Claussen, J., Daibes, F., Halwani, J., Hansen, S., Elias, S., & Weinthal, E. (2004). *Evaluation of CESAR's Activities in the Middle East Funded by Norway*. Royal Norwegian Ministry of Foreign Affairs. <https://www.regjeringen.no/globalassets/upload/kilde/ud/rap/2000/0265/ddd/pdfv/206403-cesar.pdf>

- **Optimisation of Intensive Agriculture Under Varying Water Quality Conditions** - In 1996, the *Optimisation of Intensive Agriculture Under Varying Water Quality Conditions* project was launched in Luxembourg in collaboration with the PA, Morocco, and Israel.¹⁹ The project aimed to establish an experimental farm in Beit Hanoun to facilitate technology transfer related to the usage of water. It primarily focused on developing sustainable farming practices in Gaza using saline and brackish water. Al-Azhar University of Gaza spearheaded the project's implementation.
- **Comparative Study of Water Laws and Water Institutions in the Region** - In 1995 the Norwegian government, through the Center for Environmental Studies and Resource Management (CESAR), conducted a comparative survey on water-resource management frameworks in various Middle Eastern countries.²⁰ In the initial stage, common elements across distinct water management systems were identified. A detailed comparison later laid the groundwork for potential consensus-building for formal cooperation. The study's appendices included English translations of relevant water laws and authority bylaws.

c) Addressing water supply infrastructure:

- **Regional Water Supply and Demand Study** - Sponsored by the German government, this study consisted of three stages. In the first stage, completed in 1996, existing and projected data from the participating regional parties were collected for the years 2010, 2020, and 2040 to assess water demand and supply, as well as water quality.²¹ The second stage explored alternative strategies for addressing the gap between demand and supply, including seawater desalination and conveyance from nearby freshwater sources or distant sources. Each party evaluated a different strategy, with desalination emerging as the most feasible option. The third stage, completed in 1998, involved identifying priority activities for implementation. The main recommendation proposed the joint development of prototype desalination plants along the coasts of the Mediterranean and Gulf of Aqaba.
- **Middle East Desalination Research Center (MEDRC)** - The MEDRC was inaugurated in Muscat in 1996. The establishment and initial operation of the project was funded by contributions from the United States, Oman, Japan, Israel, the European Union, and Korea.²² The programme's mission includes conducting,

¹⁹ Ministry of Foreign Affairs of Israel. (2002). Water Resources Working Group. *The Multilateral Negotiations*. Retrieved 3 March 2024, from <https://www.gov.il/en/Departments/General/water-resources-working-group>

²⁰ Trollidalen, J. M. (1997). Troubled waters in the Middle East: the process towards the first Regional Water Declaration between Jordan, Palestinian Authority, and Israel. *Pergamon Press*, 21(2), 101-108. <https://doi.org/10.1111/j.1477-8947.1997.tb00681.x>

²¹ Jewish Virtual Library. (2002). Water in Israel: Case Study of the Middle East Water Resources Working Group. *Water*. Retrieved 3 March 2024, from <https://www.jewishvirtuallibrary.org/case-study-of-the-middle-east-water-resources-nbsp-working-group>

²² Simonen, K. (2021). Oman Water Diplomacy Part I: The Establishment of the Middle East Desalination Research Centre (MEDRC). In *Ancient Water Agreements, Tribal Law and Ibadism: Sources of Inspiration for the Middle East Desalination Research Centre—and Beyond?* (pp. 161-180). Springer.

facilitating, and promoting research in water desalination to improve living standards in the Middle East and beyond. Furthermore, MEDRC assists local water authorities in effectively managing resources and implementing strategies to address domestic sector issues, particularly those related to transboundary water resources. In addition, it sponsors training seminars, workshops, and research projects globally.²³

d) Promoting concepts related to regional water management and cooperation.

- **Water Sector Training Programme** - The MWGWR conducted a regional assessment of training needs in the water sector to identify technical requirements for human resources and enhance the skills necessary for effective management of regional water resources.²⁴ This led to the training of approximately 275 personnel from Egypt, Israel, Jordan, Morocco, Oman, the PA, Saudi Arabia, Tunisia, and Yemen through seminars and courses held in Australia, Egypt, France, Israel, Japan, The Netherlands, Norway, Oman, and the United Kingdom, sponsored by the MWGWR's donor parties.
- **Declaration on Principles for Cooperation Among the Core Parties on Water-Related Matters and New and Additional Water Resources (DOP)** - The DOP was signed in 1996, a year after the completion of the Norwegian-led *Comparative Study of Water Laws and Water Institutions in the Region*.²⁵ It was a culmination of Norway's political leadership, particularly through CESAR, which strongly emphasised the importance of demonstrating tangible outcomes from the MWGWR process. By endorsing this declaration, the regional parties collectively committed to collaborating on the development of freshwater resources, and acknowledged the significance of:
 - Establishing appropriate frameworks within the region which bring together legal, economic, and institutional perspectives, and
 - Leveraging the identified commonalities among their respective water management systems as a basis for cooperation.

Aside from outlining the similarities amongst these systems, the declaration also delineated potential avenues for cooperation in developing new water resources and addressing other water-related issues. However, one major criticism of the declaration was that it preserved existing water allocations and therefore perpetuated inequalities and regional political imbalances. Nonetheless, this initiative provided Israel with a platform to publicly demonstrate its engagement in a political process primarily involving the Palestinians, who in turn also expressed their commitment to fostering cooperation on all shared water resources, including newly identified ones.

https://doi.org/10.1007/978-3-030-85218-4_7

²³ MEDRC. (2024). *WELCOME TO MEDRC*. Retrieved 4 March 2024 from <https://www.medrc.org/about-us/>

²⁴ Ministry of Foreign Affairs of Israel. (2000). From Contention to Cooperation: A Case Study of the Middle East Multilateral Working Group on Water Resources. *The Multilateral Negotiations*. Retrieved 3 March 2024, from <https://www.gov.il/en/Departments/General/from-contention-to-cooperation-a-case-study-of-the-middle-east-multilateral-working-group-on-water-resources-17-apr-2000>

²⁵ Wolf, A. T. (1995). International Water Dispute Resolution: The Middle East Multilateral Working Group on Water Resources. *Water International*, 20(3), 141-150. <https://doi.org/10.1080/02508069508686465>

The expansion of the declaration's scope was viewed as a vital step, signifying the parties' sincere commitment to cooperation. It clarified that the declaration would not impact existing agreements between the parties or hinder efforts to enhance cooperation on water-related matters. This assurance was crucial, as cooperation on new water resources was one aspect of the collaborative efforts. Although not legally binding, the DOP outlined a framework for cooperation.

- **Water Atlas Project** - The Water Atlas, spearheaded by the Norwegian government, is a comprehensive repository of around 850 pages of historical, scientific, technical, legal, and economic analyses.²⁶ Its coverage of water resources and associated concerns of Israelis, Jordanians, and Palestinians makes it a useful tool for assisting the participating regional parties in building a shared understanding and in exploring opportunities for cooperation on water resources.
- **Waternet Project** - The Waternet Project, launched in 1996 by the Norwegian Government, marks the first collaborative effort among Israeli, Jordanian, and Palestinian representatives to enact elements of the DOP.²⁷ It aimed to bolster Middle Eastern cooperation on water-related challenges by developing technical solutions for sharing information on politically sensitive issues related to water. It comprised three main components:
 1. Waternet-Local: established a common information system to display local data on water related matters.
 2. Waternet-Regional: aided in forming a shared regional water information system by linking the parties' local node to facilitate the regional exchange of water information.
 3. Regional Waternet and Research Center: set to be established in Amman, Jordan, with aims to develop and maintain the Waternet and promote regional cooperation on water-related issues as outlined in the DOP. The project was overseen by the Waternet Steering Group, with support from Local Steering and Technical Groups.

About a decade after its establishment, the Israeli Waternet-Local emerged as the sole functioning local network, facilitating information exchange across national nodes. This project provided Israel with the advantage of translating abstracts of numerous reports into English and consolidating unpublished papers into one network. However, in the PA, technical issues resulted in the suspension of its participation in the Waternet network since 2001 and prevented it from accessing or augmenting Israeli and Jordanian data. Jordan utilised Waternet to disseminate water-related information locally but faced technical challenges due to server breakdowns. The regional link remained non-operational primarily due to political

²⁶ Trolldalen, J. M. (1997). Troubled waters in the Middle East: the process towards the first Regional Water Declaration between Jordan, Palestinian Authority, and Israel. *Pergamon Press*, 21(2), 101-108. <https://doi.org/10.1111/j.1477-8947.1997.tb00681.x>

²⁷ Claussen, J., Daibes, F., Halwani, J., Hansen, S., Elias, S., & Weinthal, E. (2004). *Evaluation of CESAR's Activities in the Middle East Funded by Norway*. Royal Norwegian Ministry of Foreign Affairs. <https://www.regjeringen.no/globalassets/upload/kilde/ud/rap/2000/0265/ddd/pdfv/206403-cesar.pdf>

reasons. Despite the initiative's aim to promote data sharing, inadequate funding and technical limitations undermined its sustainability. The project's implementation lacked inclusivity, leading to dependency on external support and hindering maintenance efforts. Overall, while Waternet aimed to enhance regional cooperation, differing objectives among parties and technical constraints have limited its effectiveness in facilitating information exchange and fostering cooperation.

Trust as a key ingredient in the success of the MWGWR projects

The progress that has been made by the MWGWR projects owes much to the development of mutual trust and credibility among its participants.²⁸ This trust is evidenced by the sustained operations of the MWGWR despite fluctuations in the political climate. The parties adapted and maintained forward momentum, thanks to confidence-building measures developed through multilateral activities. Consequently, the participants have gained credibility not only amongst themselves but also with donor nations.²⁹ Transitioning from passive recipients to proactive initiators of regional projects, they have become more adept at articulating local and regional needs and spearheading initiatives through the MWGWR. Crucial to this process has been the role played by donor parties in providing sustained support in terms of leadership, expertise, and financial assistance. Working relations have evolved into true partnerships, transcending traditional donor-recipient dynamics. As trust and credibility have grown, the participating parties played a pivotal role initiating and defining new projects, modifying original plans to better address regional needs.

The Interplay of Bilateral and Multilateral Frameworks

Regardless of the efforts to maintain a clear distinction between the bilateral and multilateral tracks, it is evident that the two tracks have influenced each other.³⁰ As bilateral relations improved, collaboration in the multilateral sphere intensified, with representatives from Israel, Jordan, and Palestine participating in both tracks. However, challenges within the bilateral process did not automatically impact the multilateral sphere. While challenges arose, the earlier confidence-building efforts paid dividends. The multilateral track of the MWGWR adjusted but retained its momentum, operating in a less formal capacity. This informal approach facilitated the continuation and expansion of projects to address evolving needs. The trust established before 1996 helped insulate the process from the effects of adverse political developments. Informal meetings, both within the MWGWR and among regional parties, provided a platform to plan new initiatives and engage with donor nations as needed.

²⁸ Trolldalen, J. M. (1997). Troubled waters in the Middle East: the process towards the first Regional Water Declaration between Jordan, Palestinian Authority, and Israel. *Pergamon Press*, 21(2), 101-108. <https://doi.org/10.1111/j.1477-8947.1997.tb00681.x>

²⁹ Jewish Virtual Library. (2002). Water in Israel: Case Study of the Middle East Water Resources Working Group. *Water*. Retrieved 3 March 2024, from <https://www.jewishvirtuallibrary.org/case-study-of-the-middle-east-water-resources-nbsp-working-group>

³⁰ *ibid.*

Nevertheless, the process of confidence building has been dynamic and complex. Initially, the multilateral track mirrored bilateral grievances rather than mitigating them. Significant progress was therefore only possible after advances in the bilateral track. In addition, the divisive issues of water rights and allocations, viewed by some as prerequisites for collaborative projects, were addressed primarily in bilateral negotiations, where they were given lower priority on the agenda. Moreover, promoting the principles of integrated watershed management posed challenges, since water quantity, quality, and rights are each under the jurisdiction of separate negotiating frameworks: the water working group, the environment working group, and various bilateral negotiations, respectively. Furthermore, despite some overlap between the bilateral and multilateral groups, the multilateral group was limited in its scope, particularly due to the refusal of Syria and Lebanon to engage in multilateral discussions.³¹ This meant that contentious matters such as water allocation from the Jordan or the Yarmouk rivers were excluded from these discussions.

Insights from the MWGWR experience

- **The benefits Israel derived from the MWGWR initiatives**

The multilateral peace process offered Israel a unique opportunity to engage with regional states on critical water issues. Israel leveraged this platform to advance its hydropolitical interests, as the Water Group provided several unique advantages:

- Its formal structure allowed enemy Arab states to participate whilst being shielded from internal critique.
- Numerous countries stepped forward, both as donors and leaders. The Madrid conference saw a global coalition emerge under American leadership, which even included Eastern nations such as Japan, Korea, and Russia. In a less hegemonic global landscape, the future may not promise such a robust alliance, potentially shifting more responsibility onto regional players.
- The atmosphere resembled that of a "second track" due to the unique composition of delegation members and the sense of participating in an unprecedented frontier process.

Each of the aforementioned MWGWR projects contributed to Israel's hydropolitical objectives in distinct ways:

- a. The RWDB Project promoted transparency and fostered trust and regional awareness.
- b. Comparative Study of Water Laws facilitated harmonisation of water regulations among Jordan, Palestine, and Israel.
- c. The Regional Water Supply and Demand Study concluded that large-scale desalination is the most viable solution for bridging the gap between water demand and supply in the future.
- d. The Middle East Desalination Research Center remained operational and continued to serve as a hub for water experts, even during challenging political circumstances, and remains active to this day.

³¹ Trolldalen, J. M. (1997). Troubled waters in the Middle East: the process towards the first Regional Water Declaration between Jordan, Palestinian Authority, and Israel. *Pergamon Press*, 21(2), 101-108. <https://doi.org/10.1111/j.1477-8947.1997.tb00681.x>

Israel should continue to pursue regional projects through which it can advance its objectives and build stronger working relationships in the region. This is also essential for Israel's security, as any regional instability could quickly escalate and spill over into its territory.

- **The MWGWR established the foundation for future water cooperation across the region**

The multilateral peace process emerged as a powerful catalyst for positive transformation. The collaborative relationships fostered among regional participants presented an exceptional opportunity to advance initiatives that promote growth, prosperity, and peace in the region. By adhering to common goals, implementing targeted project plans, incorporating confidence-building measures, encouraging teamwork, and receiving proactive international guidance, a constructive environment has been developed which endorses capacity building at a regional level.

The MWGWR provides a practical framework for undertaking large-scale infrastructure projects and remains a successful model for regional cooperation in addressing water challenges, applicable beyond the region. Expanding upon the demonstrated success of the multilateral framework presents an opportunity to diversify the project portfolio and tackle a range of water management challenges crucial for sustainable development. This could include the challenges of resource monitoring, water quality improvement, conservation, pollution prevention, sewage management, and public health. The regional parties should also continue to engage in the multilateral framework model to devise new overarching regional policies.

C. Lessons from the Israeli-Palestinian water relations

In the semi-arid to arid Middle Eastern climate, the management of shared water resources raises tensions between Israel and Palestine.³² The combination of rapid population growth and the effects of climate change is poised to exacerbate the shortage of water resources in the region.³³ The main surface freshwater sources shared between Israel and Palestine include the Jordan River, the Sea of Galilee, and the Yarmouk River, while the primary ground water sources include the Western, Eastern, Northeastern, and Coastal Aquifers.³⁴



Transboundary surface water and groundwater resources of Palestine and Israel: Jordan River System and four aquifers³⁵

³² Ide, T., & Frölich, C. (2014). Water conflict or water cooperation? A discursive understanding of water conflict and cooperation in Israel and Palestine. Norwich Conference on Earth System Governance.

³³ Brooks, D. B., Trottier, J., & Giordano, G. (2020). Designing a New Water Future for Israelis and Palestinians. In *Transboundary Water Issues in Israel, Palestine, and the Jordan River Basin: An Overview* (1 ed., pp. 39-62). Springer Singapore. <https://doi.org/10.1007/978-981-15-0252-1>

³⁴ Spreadborough, N. (2022). From the River to the Sea: Water Conflict and International Law in Israel and Palestine. *Wisconsin International Law Journal*, 39, 459. <https://doi.org/10.2139/ssrn.3836975>

³⁵ Zeitoun, M. (2008). *Power and Water in the Middle East: The Hidden Politics of the Palestinian-Israeli Water Conflict*. I.B.Tauris & Co Ltd.

Main surface freshwater sources in the region

The Jordan River - The Jordan River originates from three major springs: the Banias in the Golan Heights, the Dan in Israel, and the Hasbani in Lebanon.³⁶ Spanning a total length of 360 km, the river flows southward to the Sea of Galilee before eventually emptying into the Dead Sea. It is segmented into the Upper Jordan River, extending from the confluence of the Banias, Dan, and Hasbani springs to the Sea of Galilee, and the Lower Jordan River, stretching from the Sea of Galilee to the Dead Sea. The construction of dams and diversion projects within the Jordan River Basin has led to a drastic 96% reduction in the flow of the Lower Jordan River, directly contributing to the falling water levels of the Dead Sea.³⁷ Sewage and agricultural runoff have also contaminated the river. Consequently, half of the original biodiversity has been lost, and much of the remaining wildlife is endangered.

The Sea of Galilee - Situated in the Jordan Valley of northeastern Israel between the Golan Heights and the Galilee region, the Sea of Galilee stands as the primary freshwater reservoir along the Jordan River.³⁸ It is mainly nourished by the Jordan River, with additional contributions from underground springs. Historically, it contributed about a quarter of Israel's annual water consumption. Presently, it provides only a fraction of Israel's water needs, ranging from 2% to 13%, due to declining water levels from prolonged droughts and the establishment of desalination plants along the Mediterranean coast.³⁹ In 2022, Israel completed the National Carrier Flow Reversal Project, allowing the New National Water Carrier to transport water from desalination plants in the centre of the country to the Sea of Galilee.⁴⁰ Israel is the first country in the world to transport desalinated water into a natural lake. This initiative is expected to stabilise the lake's water level, provide significant water supplies to Jordan, and enhance Israel's water security.

The Yarmouk River - The Yarmouk River, the primary tributary of the Jordan River, originates in Syria and merges with the Lower Jordan River. Its basin spans nearly 7,000 km² and is shared among Israel, Jordan, and Syria.⁴¹ Over recent decades, the river's annual flow has dramatically declined from approximately 450-500 MCM to 40 MCM due to extensive dam construction in Syria and groundwater extraction in the upper regions of the basin across Israel, Jordan, and Syria. Additionally, Jordan diverts a portion of the flow via the King Abdullah Canal for irrigation purposes in the eastern Jordan River Valley.

³⁶ Messerschmid, C., & Selby, J. (2015). Misrepresenting the Jordan River Basin. *Water alternatives*, 8(2).

³⁷ Fanack Water. (2023). Water Resources in Israel. *Water of The Middle East and North Africa*. Retrieved 11 March 2024, from <https://water.fanack.com/israel/water-resources-in-israel/>

³⁸ Lazarou, E. (2016). *Water in the Israeli-Palestinian conflict*.

https://europarl.europa.eu/RegData/etudes/BRIE/2016/573916/EPRS_BRI%282016%29573916_EN.pdf

³⁹ Fanack Water. (2023). Water Resources in Israel. *Water of The Middle East and North Africa*. Retrieved 11 March 2024, from <https://water.fanack.com/israel/water-resources-in-israel/>

⁴⁰ Mekorot. (2024). National Carrier Flow Reversal Project. Retrieved 11 March 2024, from <https://www.mekorot-int.com/blog/project/national-carrier-flow-reversal-project/>

⁴¹ Fanack Water. (2023). Water Resources in Israel. *Water of The Middle East and North Africa*. Retrieved 11 March 2024, from <https://water.fanack.com/israel/water-resources-in-israel/>

Primary groundwater sources in the region

The Mountain Aquifer - The Mountain Aquifer is the region's premier underground reservoir, serving as the central groundwater resource for both Palestinians and Israelis. Stretching approximately 150 km through Israel and the West Bank (WB), it runs beneath the central mountain ridge and consists of three sub-aquifers: Eastern, Northeastern, and Western.⁴² The provisional water allocation under the Oslo Accords allocated 75% of the Mountain Aquifer's shared groundwater to Israel, leaving 25% for Palestinians in the WB.⁴³ Consequently, the Mountain Aquifer plays a central role in the ongoing peace negotiations between Israel and the Palestinians.⁴⁴

Despite demographic expansion and developmental advancements over the past three decades, Palestinian access to water from the Mountain Aquifer remains confined to the restrictions set by Oslo II, often under the oversight of Israeli authorities. In addition, ageing infrastructure and leakages result in the loss of one third of the water supplied to the WB. The aquifer's recharge zones are also susceptible to groundwater contamination, exacerbated by substandard sewage treatment and unsanitary waste disposal sites, often resulting from delays in implementing projects within Area C communities. An annual discharge of 47 MCM of inadequately treated sewage of Palestinian origin is estimated to contaminate the shared resources in the region.⁴⁵ Consequently, acute water scarcity pervades vast regions of the West Bank, exemplified by instances such as in Yatta, where municipal water is available only once every three months during summer.⁴⁶ Nevertheless, this situation also impacts Israel, as sewage from the WB is carried by transboundary streams into major Israeli cities, contaminating the groundwater of the Mountain Aquifer, of which Israel claims the majority share.

Since 1967, when Israel's national water company *Mekorot* assumed control of the WB's water resources, residents have been compelled to purchase water extracted from the Mountain Aquifer to meet their needs. However, there is still unmet demand in spite of these purchases, leading to persistent water scarcity. Disparities in water consumption between Israelis and Palestinians in the WB are evident, with Palestinians having access to around 90 liters per capita per day (l/c/d), lower than the World Health Organization's recommended minimum of 100 l/c/d.⁴⁷ The expansion of modern agriculture by Israeli settlers in the Jordan

⁴² Harpaz, Y., Haddad, M., & Arlosoroff, S. (2001). Overview of the Mountain Aquifer: a shared Israeli-Palestinian resource. In *Management of Shared Groundwater Resources: The Israeli-Palestinian Case with an International Perspective* (pp. 43-56). Springer, Dordrecht. https://doi.org/10.1007/978-94-010-0680-4_3

⁴³ Bromberg, G., Majdalani, N., & Abu Taleb, Y. (2020). *A Green Blue Deal for the Middle East*. <https://ecopeaceme.org/wp-content/uploads/2021/03/A-Green-Blue-Deal-for-the-Middle-East-EcoPeace.pdf>

⁴⁴ Feitelson, E., & Haddad, M. (2012). *Management of Shared Groundwater Resources: The Israeli-Palestinian Case with an International Perspective* (Vol. 18). Springer Science & Business Media. <https://doi.org/10.1007/978-94-010-0680-4>

⁴⁵ Giordano, G. (2016). Can Water Bring the Political Process to a Safer Shore? *Water Issues from Source of Conflict to Vehicle for Regional Cooperation and Stability*. https://old.ecopeaceme.org/wp-content/uploads/2017/07/KAS_Digital_Publication_Water_v2.pdf

⁴⁶ Bromberg, G., Majdalani, N., & Abu Taleb, Y. (2020). *A Green Blue Deal for the Middle East*. <https://ecopeaceme.org/wp-content/uploads/2021/03/A-Green-Blue-Deal-for-the-Middle-East-EcoPeace.pdf>

⁴⁷ United Nations Country Team. (2020). *Atlas of Sustainable Development 2020*. https://unsco.unmissions.org/sites/default/files/atlas_of_sustainable_development_2020.pdf

Valley has worsened the situation for the Palestinians.⁴⁸ Moreover, according to reports from the Palestinian Central Bureau of Statistics and the Palestinian Water Authority (PWA), only 73% of families in the WB consider their water suitable for drinking.⁴⁹

The Coastal Aquifer - The Coastal Aquifer stretches along the coastal plain from Carmel in the north to Egypt in the south, passing through the Gaza Strip. The majority of water is extracted by Israel, accounting for approximately 66% of the total amount, while the Gaza Strip draws about 23% and Egypt draws only about 11%.⁵⁰ Unlike the aquifers shared between Israel and the WB, the allocations for this aquifer were not defined in the Oslo II Interim Agreement. In 2003, Israel extracted an estimated 429 MCM from this aquifer annually, while Palestine extracted just 135 MCM.⁵¹ However, as per the Hydrological Service of Israel, roughly 15% of the water drawn from the Coastal Aquifer does not meet drinking water standards due to elevated chloride and nitrate levels. In recent years, the aquifer has experienced notable pollution from agricultural chemicals such as fertilisers and pesticides, along with challenges due to seawater intrusion as a result of excessive pumping. Furthermore, industrial waste, pesticide runoff from farms, and sewage sludge have contaminated many wells, leading to the abandonment of over 40% of them since 1980. Despite these challenges, the Coastal Aquifer contributes an estimated 240-300 MCM per year to Israel's water sector.⁵² As the Gaza Strip relies almost exclusively on the Coastal Aquifer Basin for its water supply, the situation there is dire, with approximately 96% of the groundwater unfit for consumption due to over-pumping and seawater infiltration.⁵³ Gaza faces an escalating sanitation crisis, as contamination is increasing from the discharge of untreated sewage from over 2 million people.⁵⁴ The ongoing Israel-Hamas war further aggravates this situation. The PWA has issued warnings about the imminent depletion of the aquifer.⁵⁵

Israel is also significantly impacted by the water and sanitation challenges in Gaza. According to a 2009 UN report, between 50,000 to 80,000 cubic meters of untreated or partially treated wastewater has flowed from Gaza into the Mediterranean Sea daily since 2008.⁵⁶ By 2018, the volume had increased to over 108,000 cubic metres per day,

⁴⁸ Lazarou, E. (2016). *Water in the Israeli-Palestinian conflict*. https://europarl.europa.eu/RegData/etudes/BRIE/2016/573916/EPRS_BRI%282016%29573916_EN.pdf

⁴⁹ Palestinian Central Bureau of Statistics. (2015). *Water and Sustainable Development*. Retrieved 12 March 2024, from <https://www.pcbs.gov.ps/postar.aspx?tabID=512&lang=ar&ItemID=1346&mid=3265>

⁵⁰ UN-ESCWA and BGR. (2013). *Coastal Aquifer Basin* (Inventory of Shared Water Resources in Western Asia, Issue). <https://waterinventory.org/sites/waterinventory.org/files/chapters/Chapter-20-Coastal-Aquifer-Basin-web.pdf>

⁵¹ Zeitoun, M. (2008). *Power and Water in the Middle East: The Hidden Politics of the Palestinian-Israeli Water Conflict*. I.B.Tauris & Co Ltd.

⁵² Fanack Water. (2023). *Water Resources in Israel*. *Water of The Middle East and North Africa*. Retrieved 11 March 2024, from <https://water.fanack.com/israel/water-resources-in-israel/>

⁵³ United Nations Country Team. (2020). *Atlas of Sustainable Development 2020*.

https://unsco.unmissions.org/sites/default/files/atlas_of_sustainable_development_2020.pdf

⁵⁴ EcoPeace Middle East. (2020). *COVID 19, Human Waste and Wastewater: Discussion Paper for Cooperation on Water and Wastewater Management in Israel, Jordan and Palestine*. <https://old.ecopeaceme.org/wp-content/uploads/2020/05/Coronavirus-and-Water-Wastewater-Cooperation-30-April-2020.pdf>

⁵⁵ Lazarou, E. (2016). *Water in the Israeli-Palestinian conflict*.

https://europarl.europa.eu/RegData/etudes/BRIE/2016/573916/EPRS_BRI%282016%29573916_EN.pdf

⁵⁶ Bromberg, G., Majdalani, N., & Abu Taleb, Y. (2020). *A Green Blue Deal for the Middle East*. <https://ecopeaceme.org/wp-content/uploads/2021/03/A-Green-Blue-Deal-for-the-Middle-East-EcoPeace.pdf>

channeled through nine sewage outlets along Gaza's coastline. This directly jeopardises the functionality of Israel's coastal desalination plants, which are crucial for the country's supply of drinking water. However, in recent years Israel's wastewater treatment facilities have effectively restored the cleanliness of the coastline. In 2023, Palestinians in Gaza were even able to swim in the sea for the first time in many years. However, the ongoing war in Gaza threatens to reverse these gains, posing a significant risk to Israeli water security and national interests.

A historical overview of Israeli-Palestinian cooperation on shared water resources

Following the Six-Day War, Israel gained control of the WB and the Gaza Strip and implemented stringent policies governing Palestinian access to the Mountain Aquifer. In the WB, the responsibility for supplying water needs is shared between the PA and Israel. In Gaza, since 2007 Hamas oversees the distribution of water from the Coastal Aquifer, supervises small-scale desalination plants, and manages the limited water supply received from Israel.⁵⁷ Although there is a degree of scarcity in the availability of water in major cities in the WB and a demand for irrigation in numerous villages, the scarcity is generally not considered severe in most instances. Nevertheless, the water crisis in Gaza remains severe. Ongoing deficits over the years have led to over-pumping from the Coastal Aquifer, resulting in a significant decline in the quality and quantity of water.⁵⁸ The longstanding disagreement regarding water allocation from the aquifers has become a fundamental unresolved issue in the broader Israeli-Palestinian conflict.⁵⁹

Before 1995, Israel-Palestine water relations lacked institutionalisation through any official joint body or platform.⁶⁰ The most significant agreement concerning water issues in the WB is the Oslo II Agreement, signed between Israel and the PLO in September 1995. Originally designed as an interim agreement for five years, it has persisted for several decades due to the parties' inability to reach a final consensus on its revision. Article 40 of the Oslo II Agreement, titled "Water and Sewage", outlines provisions related to water distribution between Israel and the PA.⁶¹ These include the allocation of the Mountain Aquifer, the shared responsibility for treating and reusing wastewater, and the establishment of a coordinated water management body, the Joint Water Committee (JWC).

In addition, numerous initiatives have been dedicated to fostering water cooperation in the region, resulting in the launch of bilateral and regional water cooperation projects by both

⁵⁷ UN-ESCWA and BGR. (2013). *Coastal Aquifer Basin* (Inventory of Shared Water Resources in Western Asia, Issue. <https://waterinventory.org/sites/waterinventory.org/files/chapters/Chapter-20-Coastal-Aquifer-Basin-web.pdf>

⁵⁸ Aviram, R., Katz, D., & Shmueli, D. (2014). Desalination as a game-changer in transboundary hydro-politics. *Water Policy*, 16(4), 609-624. <https://doi.org/10.2166/wp.2014.106>

⁵⁹ El-Fadel, M., Quba'a, R., El-Hougeiri, N., Hashisho, Z., & Jamali, D. (2001). The Israeli Palestinian Mountain Aquifer: A Case Study in Ground Water Conflict Resolution. *Journal of Natural Resources and Life Sciences Education*, 30(1), 50-61. <https://doi.org/10.2134/jnrlse.2001.0050>

⁶⁰ Oosterloo, K., & Dieperink, C. (2016). Conceptualizing the Politicisation of Transboundary Water Governance. Nairobi Conference on Earth Systems Governance, The Hague, the Netherlands.

⁶¹ Brooks, D. B., Trottier, J., Giordano, G., Brooks, D. B., Trottier, J., & Giordano, G. (2020). The Existing Oslo Arrangements. In *Transboundary Water Issues in Israel, Palestine, and the Jordan River Basin: An Overview* (pp. 25-37). https://doi.org/10.1007/978-981-15-0252-1_3

governmental and non-governmental organisations.⁶² One example is the RWDB project initiated in 1995, with the goal of enhancing the accessibility of water data and information.⁶³ In 2005, the Nanotechnology in the Service of Peace project was initiated with the objective of advancing research on the application of nanotechnology to water treatment.⁶⁴ Furthermore, the Cross Borders Stream project, a grassroots initiative launched in 2009, sought to engage in the development of master plans for the restoration of drainage basins. Additionally, the Good Water Neighbors (GWN), a civil initiative commenced in 2001, strived to foster dialogue and collaboration at the community level among residents in Israel, Jordan, and the Palestinian territories. This project focused on addressing the regional water situation primarily through educational and awareness-raising activities.⁶⁵

Nevertheless, due to the inherent connection between water projects and issues of water rights and justice, the collaboration remained limited.⁶⁶ Further substantial obstacles impeded the parties from attaining a mutually acceptable, enduring agreement. These include, as will be discussed below, political tensions, technological constraints, divergent values and perspectives, mistrust, the absence of external enforcement mechanisms, asymmetrical relations⁶⁷, and unequal water allocation.⁶⁸ The overall dispute, however, should not be ascribed to any single obstacle but rather to the interplay of these factors combined.

The significant barriers to reaching a successful agreement on the sharing of water resources

1. Divergent values and perspectives

While both Israel and Palestine experience water scarcity, their distinct values and perspectives on this issue become evident in their respective positions regarding water. The Israelis perceive the unrestricted access to water resources as an essential prerequisite for

⁶² Kramer, A. (2008). *Regional Water Cooperation and Peacebuilding in the Middle East*. https://protosh2o.act.be/VIRTUELE_BIB/Water_in_de_Wereld/CON-Waterconflicten_en_rampen/W_CON_E19_Regional_Water.pdf and see also Tal-Spiro, O. (2011). Israeli-Palestinian Cooperation on Water Issues. *The Knesset Research and Information Center*.

⁶³ Keidar, J., & Kawash, F. (2005). Regional water data banks project multilateral working group on water resources. *Options Méditerranéennes. Série A: Séminaires Méditerranéens (CIHEAM)*.

⁶⁴ Tal-Spiro, O. (2011). Israeli-Palestinian Cooperation on Water Issues. *The Knesset Research and Information Center*.

⁶⁵ Kramer, A. (2008). *Regional Water Cooperation and Peacebuilding in the Middle East*. https://protosh2o.act.be/VIRTUELE_BIB/Water_in_de_Wereld/CON-Waterconflicten_en_rampen/W_CON_E19_Regional_Water.pdf

⁶⁶ *ibid.*

⁶⁷ Aggestam, K. (2015). Desecuritisation of water and the technocratic turn in peacebuilding. *International Environmental Agreements: Politics, Law and Economics*, 15, 327-340. <https://doi.org/10.1007/s10784-015-9281-x> and see also Selby, J. (2013). Cooperation, Domination and Colonisation: The Israeli-Palestinian Joint Water Committee. *Water alternatives*, 6(1), 1.

⁶⁸ Lautze, J., & Kirshen, P. (2009). Water allocation, climate change, and sustainable water use in Israel/Palestine: the Palestinian position. *Water International*, 34(2), 189-203. <https://doi.org/10.1080/02508060902903175> and see also Shuval, H. (2007). Meeting Vital Human Needs: Equitable Resolution of Conflicts over Shared Water Resources of Israelis and Palestinians. In *Water Resources in the Middle East* (pp. 3-16). Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-540-69509-7_1

the survival of the Jewish state.⁶⁹ During the initial two decades of the State of Israel's existence, the development of water legislation and extensive water infrastructure was a fundamental element of nation-building efforts.⁷⁰ Water-related issues significantly influence Israeli-Palestinian relations, and these consistently occupy a prominent position on Israel's national security agenda. Israelis often view cooperation on water matters with the Palestinians as a zero-sum game.⁷¹

The Palestinians view Israel as being responsible for their water shortages in the WB and Gaza, and call for a reallocation of water resources.⁷² It is also important to acknowledge that despite the overall increase in water supply due to rapid advancements in seawater desalination by Israel, the question of whether desalinated seawater serves as a viable alternative to freshwater resources in transboundary contexts remains a contentious matter.⁷³ Palestinians argue that desalination is a substitute for freshwater resources, asserting that Israel should prioritise desalination while Palestinians rely predominantly on the Mountain Aquifer.⁷⁴ In contrast, Israel contends that desalinated water, produced through industrial processes, should be treated as an industrial product. The Israeli stance emphasises that only shared resources are negotiable, and each party should independently finance desalinated seawater to meet their respective needs.⁷⁵

Israelis and Palestinians also hold distinct perspectives on the objectives of a potential water-sharing agreement. Israel contends that it has already fulfilled its obligations under international law. It maintains that the scarcity of water in the Mountain Aquifer is attributable to Palestinians' failure to develop their own underground water resources, address leaking infrastructure, construct sewage treatment plants, adopt modern water-saving devices for irrigation, and implement water usage billing for their citizens, among other factors.⁷⁶ Additionally, Israel claims that the drying up within its borders is also the result of hundreds of illegal wells drilled by Palestinians.⁷⁷ Israel therefore proposes that the Palestinians should explore possibilities to address their water shortages, such as partnering with other nations in the Jordan basin, incorporating desalination technology, and reusing wastewater.⁷⁸ The Palestinians, however, encounter difficulties in fully executing on Israel's suggestions owing to their politically volatile environment and comparatively lower level of

⁶⁹ Lowi, M. R. (1993). Bridging the Divide: Transboundary Resource Disputes and The Case of West Bank Water. *International security*, 18(1), 113-138. <https://doi.org/10.1162/isec.18.1.113>

⁷⁰ Sultana, F., & Loftus, A. (2013). *The Right to Water: Politics, Governance and Social Struggles*. Routledge.

⁷¹ EcoPeace Middle East. (2019). *Climate Change, Water Security, and National Security for Jordan, Palestine, and Israel* Amman, Jordan.

⁷² Ide, T., & Frölich, C. (2014). Water conflict or water cooperation? A discursive understanding of water conflict and cooperation in Israel and Palestine. Norwich Conference on Earth System Governance.

⁷³ Feitelson, E., Tamimi, A., & Rosenthal, G. (2012). Climate change and security in the Israeli–Palestinian context. *Journal of peace research*, 49(1), 241-257. <https://doi.org/10.1177/0022343311427575>

⁷⁴ Phillips, D. J., Attili, S., McCaffrey, S., & Murray, J. S. (2007). The Jordan River Basin: 2. Potential Future Allocations to the Co-riparians. *Water International*, 32(1), 39-62. <https://doi.org/10.1080/02508060708691964>

⁷⁵ Feitelson, E., Tamimi, A., & Rosenthal, G. (2012). Climate change and security in the Israeli–Palestinian context. *Journal of peace research*, 49(1), 241-257. <https://doi.org/10.1177/0022343311427575>

⁷⁶ Gvartzman, H. (2014). The Truth Behind the Palestinian Water Libels.

⁷⁷ Brooks, D. B., & Trottier, J. (2012). An Agreement to share water between Israelis and Palestinians: The FoEME proposal. *Friends of the Earth–Middle East (FoEME): Tel-Aviv, Israel*.

⁷⁸ Gvartzman, H. (2014). The Truth Behind the Palestinian Water Libels.

development in water infrastructure and services.⁷⁹ They have also rejected these suggestions and persistently seek compensation for what they perceive as aggressive water policies implemented by Israel.⁸⁰ Despite significant disagreements, Israel has conveyed a willingness to engage in collaborative efforts in the WB region, centred on sustainable water use and management, through various bilateral and regional initiatives. However, the establishment of consistent and enduring water partnerships remains sporadic and circumstantial.⁸¹

Another challenge is the distorted representations by both sides concerning the quantity of water held by the Mountain aquifer. Despite a joint estimate of 632 million m³ by Israeli and Palestinian experts, Israelis consistently downplay the size of this shared water resource, potentially limiting the volume of water that the Palestinians can claim.⁸² Conversely, the Palestinians tend to overestimate it, to increase their water entitlement.⁸³ These distortions also apply to the estimations of other regional water resources, driven by the desire to minimise the other party's rights to the shared resources.

2. Technological constraints

The utilisation of water for agricultural purposes is a key factor in the Israeli-Palestinian water crisis.⁸⁴ The intersection of substantial population growth and the demand for water in agriculture necessitates the implementation of advanced technological solutions. Agriculture remains the predominant consumer of water in Israel. Recognising the limitations of natural fresh water, the Israeli government has made substantial investments in alternative sources since the 1950s. Over the years, advancements in water usage for irrigation have been significant.⁸⁵ In 1990, about 95% of fresh and surface water was allocated to agriculture, but this proportion decreased to 55% by 2001, 45% by 2008, and approximately 40% by 2017.⁸⁶ The efficiency of water use has improved considerably, facilitated by various measures, including policy reforms such as price controls, subsidies, investment, direct payments, and insurance schemes, along with technological interventions like drip irrigation, sprinklers, micro-jets, wastewater treatment and reuse, and desalination.⁸⁷

Large-scale desalination is one of Israel's significant recent innovations. Prior to 2000, desalination in Israel was confined to small plants treating brackish water. Presently, five

⁷⁹ Obidallah, M. T. (2008). Water and the Palestinian-Israeli conflict. *Central European Journal of International & Security Studies*, 129, 103.

⁸⁰ Weinthal, E., & Marei, A. (2002). One Resource Two Visions: The Prospects for Israeli-Palestinian Water Cooperation. *Water International*, 27(4), 460-467. <https://doi.org/10.1080/02508060208687033>

⁸¹ EcoPeace Middle East. (2019). *Climate Change, Water Security, and National Security for Jordan, Palestine, and Israel* Amman, Jordan.

⁸² Alatout, S. (2000). Water Balances in Palestine: Numbers and Political Culture in the Middle East. In *Water balances in the Eastern Mediterranean* (Vol. 59, pp. 79).

⁸³ El-Fadel, M., Quba'a, R., El-Hougeiri, N., Hashisho, Z., & Jamali, D. (2001). The Israeli Palestinian Mountain Aquifer: A Case Study in Ground Water Conflict Resolution. *Journal of Natural Resources and Life Sciences Education*, 30(1), 50-61. <https://doi.org/10.2134/jnrlse.2001.0050>

⁸⁴ *ibid.*

⁸⁵ Feitelson, E. (2013). The Four Eras of Israeli Water Policies. In *Water policy in Israel: context, issues and options* (pp. 15-32). Springer, Dordrecht. https://doi.org/10.1007/978-94-007-5911-4_2

⁸⁶ OECD. (2010). OECD Review of Agricultural Policies: Israel. and see also Avgar, I. (2018). Israeli Water Sector: Key issues. *The Knesset Research and Information Center*.

⁸⁷ OECD. (2012). OECD-FAO agricultural outlook 2012-2021.

substantial desalination plants have been built in Ashkelon, Palmachim, Hadera, Sorek, and Ashdod, collectively capable of producing around 585 million m³ of water annually.⁸⁸ In the upcoming years, two more plants are expected to be built, a second plant in Sorek and a new plant in the Western Galilee area. Upon completion of these additional plants Israel anticipates that as high as 90% of the country's total drinkable water would be obtained through the desalination of saltwater and brackish water. This makes Israel a global leader in this field.

It is worth noting that Israel also supplies desalinated water to Jordan and the Palestinians. In 2022, Israel's Ministry of Energy and Infrastructure, along with the Kingdom of Jordan and the United Arab Emirates, signed a memorandum of understanding to achieve the COP 28 targets and promote regional prosperity. As part of this initiative, Israel committed to exporting 200 million cubic meters of water to Jordan in exchange for clean energy.⁸⁹ Nevertheless, in Gaza, due to the ongoing war, the access to water, including through desalination and external Israeli sources, has plummeted by 95 percent.⁹⁰

Israel has also established a nationwide system to integrate all water infrastructure, addressing the uneven spatial and seasonal variability of rainfall. The country has undertaken a substantial programme to reuse treated wastewater, alleviating the pressures of water scarcity. Furthermore, there has been a longstanding effort to enhance agro-technologies, specifically focusing on improving irrigation efficiency. These initiatives have significantly alleviated water stress in Israel.

As for the Palestinians, agriculture is a vital sector of their economy, ensuring food security and employment. The majority of fertile Palestinian farmland is concentrated in the WB, particularly in Area C. Prior to Israel assuming control, Palestinian agricultural production nearly equaled that of Israel.⁹¹ However, according to the Palestinians, the share of agriculture has diminished significantly since 1967, and this was attributed to water usage restrictions imposed by Israel.⁹² Nevertheless, Palestinians face challenges in adopting advanced water technologies, including modern irrigation systems, desalination plants, and adequate wastewater treatment. This challenge is twofold, as the impact of Israeli control is exacerbated by the purported neglect of the Palestinian Ministry of Agriculture in actively seeking and supporting emerging science related to agro-productivity and agro-technologies. According to the Palestinian Ministry of Agriculture, "The Ministry is both donor-dependent on the international community, which fails to address the core needs of

⁸⁸ Israel Ministry of Finance. (2021). *Background - Seawater Desalination in Israel*. <https://www.gov.il/en/departments/general/project-water-desalination-background>

⁸⁹ Israel's Ministry of Energy and Infrastructure. (2022). Jordan, Israel, and the UAE sign MoU to advance Project Prosperity, targeting COP 28 for implementation plan development. *Press Releases*. Retrieved 11 March 2024, from https://www.gov.il/en/departments/news/press_081122

⁹⁰ Hall, N., Kirschenbaum, A., & Michel, D. (2024). The Siege of Gaza's Water. Retrieved 12 March 2024, from <https://www.csis.org/analysis/siege-gazas-water>

⁹¹ UNDP. (2017). *Agriculture in Area C*. https://www.undp.org/sites/g/files/zskgke326/files/2022-11/resilience_series_-_agriculture_in_area_c_-_final.pdf

⁹² UNDP. (2016). *Building Resilience in Area C: Challenges and Opportunities*.

the sector, and paralysed via the occupation, which restricts access, mobility and resources".⁹³

Limited financial resources have compelled the PA to heavily depend on international aid for the development of their water infrastructure.⁹⁴ While international donors serve as a primary funding source, their donations often hinge on the political relationships between donors and recipients, making them unstable. Furthermore, some donors are hesitant to engage in projects in the WB that require permits from the JWC or Israel. Additional energy constraints also pose a challenge to advancements in the field of water management in agriculture.

3. Asymmetrical relations, unequal water allocation, mistrust, and political tensions

The JWC, established by the Oslo II Agreement to oversee the implementation of Article 40 commitments, operates under the principle of consensus, requiring approval from both Israelis and Palestinians for any project related to water abstraction from the Mountain Aquifer. Nevertheless, in practice, unequal power dynamics within the JWC have been observed.⁹⁵ JWC Israeli representatives frequently cause delays and exhibit a significantly higher approval rate for Israeli water projects compared to Palestinian ones.

A report revealed that from 2010 to 2014, a staggering 98% of Palestinian building permit applications for projects in Area C of the WB (encompassing 62% of the area) were rejected.⁹⁶ This disparity is exacerbated by the requirement for additional approval from the Israeli Civil Administration (ICA) for all projects in Area C, extending the decision-making process to as long as three years.⁹⁷ Consequently, even after obtaining JWC approval, Palestinians still face uncertainties in realising their projects.

The Joint Supervision and Enforcement Teams (JSETs), established as the enforcement branch of the JWC, were designed to oversee the implementation of Article 40 and address any violations.⁹⁸ However, the effectiveness of the JSETs have been hindered by several factors. While the Palestinians have access to the hydrological data collected by JSETs, this data is highly fragmented, offering limited access to historical hydrological data and other crucial information. As a result, the data are of little practical use, and Palestinians find themselves heavily reliant on Israeli databases, subject to the willingness of Israeli officials

⁹³ Joyce, T. (2016). The Palestinian farmers battling border restrictions and lack of water. *The Guardian*. <https://www.theguardian.com/sustainable-business/2016/apr/12/fruit-veg-exports-palestine-farmer-conflict-broken-supply-chain-west-bank>

⁹⁴ World Bank Group. (2018). *Securing Water for Development in West Bank and Gaza*. <https://doi.org/10.1596/30252>

⁹⁵ Tal-Spiro, O. (2011). Israeli-Palestinian Cooperation on Water Issues. *The Knesset Research and Information Center*.

⁹⁶ United Nations Office for the Coordination of Humanitarian Affairs. (2021). Most Palestinian plans to build in Area C not approved. <https://www.ochaopt.org/content/most-palestinian-plans-build-area-c-not-approved>

⁹⁷ Alvarez, J. C. (2009). *West Bank and Gaza-Assessment of Restrictions on Palestinian Water Sector Development*. The World Bank. <http://documents1.worldbank.org/curated/en/775491468139782240/pdf/476570SR0P11511nsReport18Apr2009111.pdf>

⁹⁸ Brooks, D. B., & Trottier, J. (2012). An Agreement to share water between Israelis and Palestinians: The FoEME proposal. *Friends of the Earth–Middle East (FoEME): Tel-Aviv, Israel*.

to share them. Since 2001, Palestinians assert that the work restrictions stemming from access and mobility limitations imposed by the Israeli authorities have made their efforts impossible. This has prompted the Palestinians and Israelis to collect data separately, further diminishing interaction between the two parties.⁹⁹

According to a 2009 report by the World Bank, the JWC has not lived up to its responsibility of establishing an effective collaborative governance framework for joint resource management, instead perpetuating the existing system of Israeli dominance.¹⁰⁰ Selby's empirical study, analysing 142 JWC and subcommittee meeting records from 1995 to 2008, corroborates the critique that the JWC is not functioning effectively.¹⁰¹

Concerned by the power asymmetry evident within the JWC body, the Palestinians ended their cooperation in 2010. Following a six-year suspension and extensive negotiations, the two parties forged a new agreement in 2017 to revive the JWC. This agreement introduced altered approval procedures, granting Palestinians the ability to install water pipes and networks without requiring JWC approval.¹⁰² Nevertheless, the new agreement affords Israel the same privileges, allowing the establishment of new supply lines for Israeli settlements without JWC approval. Consequently, Israeli dominance over the Palestinian water sector persists, as no additional water can be allocated to Palestinians without Israeli consent.¹⁰³

4. Absence of external enforcement mechanisms

Due to the absence of an accountability mechanism in the Oslo II Agreement, Palestinians contend that their position is substantiated and sanctioned by international law, particularly referencing the UN Convention on the Law of the Non-Navigational Uses of International Watercourses (UN Watercourses Convention) and the International Covenant on Economic, Social and Cultural Rights (ICESCR). The UN Watercourses Convention, ratified in 1997 and enacted in 2014, advocates for the use of fair watercourses and holds substantial influence in international transboundary water cooperation. Yet implementing it in practical terms proves to be complex, especially in terms of Palestinian-Israeli water disputes. The first reason is that the Convention, designed for sovereign states, did not offer regulatory mechanisms to Palestine until it gained recognition as a sovereign state by the UN in 2015. Prior to that, Palestine lacked access to enforcement mechanisms. Second, the Convention does not apply to the transboundary Mountain Aquifer, as it defines a watercourse as a

⁹⁹ *ibid.*

¹⁰⁰ Alvarez, J. C. (2009). *West Bank and Gaza-Assessment of Restrictions on Palestinian Water Sector Development*. The World Bank. <http://documents1.worldbank.org/curated/en/775491468139782240/pdf/476570SR0P11511nsReport18Apr2009111.pdf>

¹⁰¹ Selby, J. (2013). Cooperation, Domination and Colonisation: The Israeli-Palestinian Joint Water Committee. *Water alternatives*, 6(1), 1.

¹⁰² Dajani, M. (2017). *The "Apolitical" Approach to Palestine's Water Crisis*. <https://al-shabaka.org/briefs/apolitical-approach-palestines-water-crisis/>

¹⁰³ Selby, J. (2017). *Renewing cooperation on water: what hope for the two state solution?* <https://www.opendemocracy.net/en/north-africa-west-asia/what-hope-for-two-state-solution/>

system of surface waters and groundwaters converging at a common endpoint, a criterion not met by the Aquifer.¹⁰⁴

In 2002, the UN Committee on ICESCR provided an official interpretation of the human right to water, affirming that everyone should have access to “sufficient, safe, acceptable, physically accessible, and affordable water for personal and domestic uses”.¹⁰⁵ The Supreme Court of Israel affirmed access to water as a basic human right in 2011.¹⁰⁶ However, Israel contends that it is not responsible for Palestinian access to water, claiming that the Oslo II Agreement transferred the majority of powers and responsibilities to the Palestinian Council. Contrarily, the UN Committee has expressed disagreement, pressing Israel to implement measures that guarantee the provision of sufficient and safe water to meet the needs of the Palestinians in the WB and Gaza. Yet, due to the weak enforceability of the ICESCR, and given that the fulfilment of the human right to water interpretation depends on gradual implementation over time, assessing compliance with such an obligation is proving particularly challenging.¹⁰⁷ Consequently, it is unlikely that Israel would undertake significant measures to fulfill Palestinian rights to water in the near future.

Insights from the Israeli-Palestinian experience

- **Navigating cooperation amidst inherent asymmetry by cultivating a shift in mindset** - As noted by Selby, encouraging collaboration in situations with inherent asymmetry is not a neutral undertaking but rather a deeply ideological one that may skew policy priorities.¹⁰⁸ The Israeli and Palestinian perspectives on water, along with the importance they assign to it, inherently shape their positions on the subject. Israel associates its water resources with political or military goals aimed at ensuring sovereignty. It perceives collaboration as a potential risk that could compromise national security or put valuable assets at stake, thus promoting a zero-sum mindset.¹⁰⁹ This mindset, to a certain extent, reduces the potential for negotiation, as any departure from the status quo could be viewed as a threat to national security.

¹⁰⁴ General Assembly of the United Nations. (1997). *Convention on the Law of the Non-navigational Uses of International Watercourses*. https://legal.un.org/ilc/texts/instruments/english/conventions/8_3_1997.pdf and see also Mimi, Z. (2005). Management of Shared Aquifer Systems: a Case Study.

¹⁰⁵ UN Economic and Social Council. (2003). *General Comment No. 15: The Right to Water (Arts. 11 and 12 of the Covenant)*. UN Committee on Economic Social and Cultural Rights (CESCR).

¹⁰⁶ UN Committee on Economic Social and Cultural Rights. (2011). *Consideration of reports submitted by States parties under articles 16 and 17 of the Covenant: concluding observations of the Committee on Economic, Social and Cultural Rights : Israel*. <https://www.refworld.org/docid/52d65ec64.html>

¹⁰⁷ Heller, L. (2020). *Progressive Realization of the Human Rights to Water and Sanitation*. United Nations Human Rights Office of the High Commissioner.

https://www.ohchr.org/sites/default/files/Documents/Issues/Water/10anniversary/Progressive_Realization_FINAL_checked.pdf

¹⁰⁸ Selby, J. (2013). Cooperation, Domination and Colonisation: The Israeli-Palestinian Joint Water Committee. *Water alternatives*, 6(1), 1.

¹⁰⁹ Brooks, D. B., Trottier, J., & Giordano, G. (2020). Designing a New Water Future for Israelis and Palestinians. In *Transboundary Water Issues in Israel, Palestine, and the Jordan River Basin: An Overview* (1 ed., pp. 39-62). Springer Singapore. <https://doi.org/10.1007/978-981-15-0252-1>

Because of the denial of their water rights and unmet basic water demands under Israeli control, Palestinians demand a territorial resolution.¹¹⁰

For any future agreement regarding shared water resources, it is imperative for both the Israelis and the Palestinians to foster a change in mindset which is fundamentally based on trust. On one hand, Israelis should recognise the benefits of forging a lasting agreement with the Palestinians concerning water and appreciate the positive ramifications this could have on their security, political stability, and the environment. On the other hand, Palestinians should shift their focus from attributing their water shortages solely to Israel and instead concentrate on improving their domestic water management wherever feasible. Cultivating an awareness that cooperation can bring mutual benefits without mandating absolute winners or losers can greatly ease the negotiation process, especially when parties actively strive to build and enhance trust. This dual perspective adjustment is an essential first step before beginning discussions about cooperating on water-related challenges in the region.

- **Enhancing Israeli-Palestinian cooperation for optimal management of shared water resources** - Israel and Palestine must recognise that collaborative efforts are paramount in addressing water scarcity in the region. Both parties need to acknowledge their shared responsibilities to jointly manage these resources. The JWC remains the most appropriate platform for navigating the complexities of water management between the two nations. Effective cooperation entails providing opportunities for both Israelis and Palestinians to engage in discussions, influence decision-making, and access relevant data. In this respect, it is crucial to establish a dedicated data platform to facilitate the exchange of information on shared Israeli-Palestinian water resources. This platform should nurture a collective Israeli-Palestinian identity and eliminate the notion of winners and losers in water allocation. Such a shift would redirect the focus towards effectively managing shared resources. The establishment of this platform would play a pivotal role in nurturing a responsible and effective partnership, facilitating collaborative efforts in planning and executing future projects with shared objectives. Moreover, it is likely to enhance transparency and reduce asymmetry between the two parties, increase their engagement, help build trust, and pave the way for sustainable solutions. Additionally, cooperation should extend beyond natural freshwater resources to include greywater and desalinated water resources, to ensure comprehensive and sustainable management practices.

While international laws are theoretically binding and have the potential to foster cooperation, their practical effectiveness is often limited by various factors. In our context, these factors include disputes over the Palestinian identity, the overall weak enforceability of international laws, and Israel's disagreements regarding the applicability of specific rules. In addition, Israel lacks trust in the Palestinians' ability to manage their water resources effectively. It perceives the Palestinians as unreliable partners who are incapable of meeting international standards. In this respect, agreed-upon solutions in negotiations often provide a more effective avenue

¹¹⁰ Nathan, D., & Fischhendler, I. (2016). Triggers for securitization: a discursive examination of Israeli–Palestinian water negotiations. *Water Policy*, 18(1), 19–38. <https://doi.org/10.2166/wp.2015.027>

for cooperation, as they are typically shaped by practical considerations rather than rigid adherence to international rules. Third-party involvement could further aid in fostering trust between the parties. Studies suggest that preventing and resolving conflicts related to water issues predominantly involve a comprehensive understanding of social conditions and the political context.¹¹¹ Furthermore, the literature highlights that establishing a robust joint institution is a highly effective approach for preventing and resolving conflicts related to transboundary waters. Accordingly, there is a pressing need for fundamental reform of the JWC, including expanding its responsibility to include conflict resolution. The success of this transformation hinges on fostering mutual trust and ensuring that both parties are on an equal footing as much as possible. Moreover, devising agreements that allow Palestinians to showcase their reliability in managing shared water resources would further nurture trust.

- **Addressing Palestinian water claims by increasing the volume of desalinated water** - One of the Palestinians' most pressing concerns is the issue of water rights and justice. Israel's ability to increase the volume of available water through desalination holds promise for addressing these concerns. One feasible solution could involve selling significant quantities of desalinated water to Palestinians at production cost, without diminishing the availability of water for Israelis. In addition, Israel could authorise the Palestinians to extract water from the three basins of the Mountain Aquifer, while simultaneously reducing its own extraction from these basins and enhancing its own water supply through desalination methods. By doing so, Israel would be seen as acknowledging Palestinian rights and ensuring a more balanced access of the shared resources. This approach could greatly contribute to building trust, reducing tensions, and incentivising Palestinian engagement with Israelis for mutual benefit.

Nevertheless, "equitable rights" should not be interpreted as equal distribution of natural water resources between Israelis and Palestinians. Rather, it should signify equal representation in joint management institutions and equitable participation in decision-making processes. This interpretation emphasises the need for collaborative management of water as a shared resource. In this regard, local communities and governments could jointly contribute to realising these goals.

- **Establishing accurate recharge estimates for shared Israeli-Palestinian water systems** - When considering natural water resources, the creation of a framework that delineates clear borders and quantifies available water is a fundamental basis for any collaboration on this issue. It is essential for Israel and the Palestinians to jointly establish an annual recharge estimate for a shared water system. Such an agreement will assure a fair distribution of resources between the two nations. The Mountain Aquifer is primarily replenished in the WB through rainfall and snowfall infiltration. However, disputes about its eastern boundary make it difficult to estimate

¹¹¹ Huntjens, P., & de Man, R. (2017). Water Diplomacy: Making Water Cooperation Work. *Policy Brief*, 2017-2004.

the annual recharge of the Western Aquifer Basin.¹¹² The existing estimates lack the precision needed for calculating sustainable abstraction rates. During the Oslo II Agreement, a team comprising Israeli and Palestinian water experts reached a consensus on an annual yield of 632 million m³ for the Mountain Aquifer.¹¹³ However, current water withdrawal significantly surpasses this agreed-upon figure.¹¹⁴ Despite various estimates available for the recharge of the Western Aquifer Basin, none can be considered as accurate.¹¹⁵ Accordingly, there is a need to establish an accurate estimate to effectively manage these resources and facilitate the equitable allocation of water among the parties.

- **Addressing climate change for regional stability** - Neither Israel nor Palestine have adequately addressed the significant implications of climate change in the region, and it is imperative to include this issue on their respective agendas. Establishing a comprehensive roadmap for regional adaptation and mitigation of climate change impacts could represent a significant stride towards fostering effective cooperation in the future. Beyond the environmental consequences, failing to address this issue could also jeopardise the long-term political stability of both nations. Concerted efforts in this regard are therefore pivotal for securing a more resilient and sustainable future for the region. It would be beneficial to collaborate with other nations on climate change, to enhance cooperation, mediate conflicts, and help disseminate knowledge across the region and beyond.

D. Lessons from the Israeli-Jordanian experience

Approximately 92% of Jordan's land is semi-arid or arid and receives annual rainfall of less than 200mm.¹¹⁶ Accordingly, it ranks among the nations facing the most acute scarcity of renewable water resources per capita globally.¹¹⁷ Although over 99% of the population have

¹¹² Amnesty International. (2009). *Troubled Waters – Palestinians Denied Fair Access To Water*. https://www.amnesty.eu/wp-content/uploads/2018/10/Water_report_digest.pdf and see also Mansour, M., Peach, D., Hughes, A., & Robins, N. (2012). Tension over equitable allocation of water: estimating renewable groundwater resources beneath the West Bank and Israel. *Geological Society, London, Special Publications*, 362(1), 355-361. <https://doi.org/10.1144/SP362.20>

¹¹³ Alatout, S. (2000). Water Balances in Palestine: Numbers and Political Culture in the Middle East. In *Water balances in the Eastern Mediterranean* (Vol. 59, pp. 79).

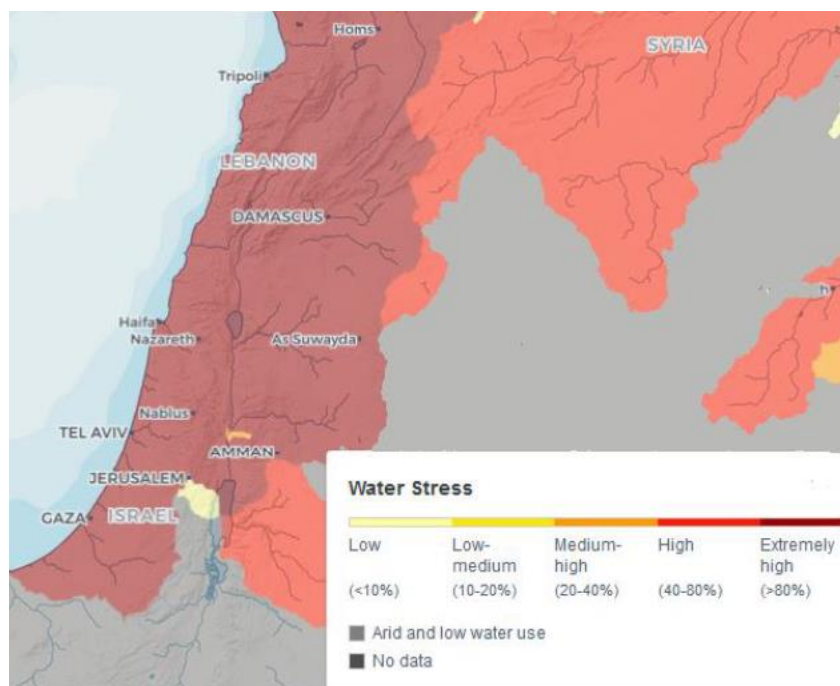
¹¹⁴ Alvarez, J. C. (2009). *West Bank and Gaza-Assessment of Restrictions on Palestinian Water Sector Development*. The World Bank. <http://documents1.worldbank.org/curated/en/775491468139782240/pdf/476570SR0P11511nsReport18Apr2009111.pdf>

¹¹⁵ Mansour, M., Peach, D., Hughes, A., & Robins, N. (2012). Tension over equitable allocation of water: estimating renewable groundwater resources beneath the West Bank and Israel. *Geological Society, London, Special Publications*, 362(1), 355-361. <https://doi.org/10.1144/SP362.20> and see also Hughes, A., Mansour, M., & Robins, N. (2008). Evaluation of distributed recharge in an upland semi-arid karst system: the West Bank Mountain Aquifer, Middle East. *Hydrogeology Journal*, 16, 845-854. <https://doi.org/10.1007/s10040-008-0273-6>

¹¹⁶ The World Bank. (2023). *International Bank for Reconstruction and Development* (Jordan Water Sector Efficiency Project (P176619), Issue PAD5170). <https://documents1.worldbank.org/curated/en/099052623124518529/pdf/BOSIB0d4798d310db097bc06922e98e0ee3.pdf>

¹¹⁷ Breulmann, M., Khurelbaatar, G., Sanne, M., van Afferden, M., Subah, A., & Müller, R. A. (2022). Integrated Wastewater Management for the Protection of Vulnerable Water Resources in the North of Jordan. *Sustainability*, 14(6), 3574. <https://doi.org/10.3390/su14063574>

access to water, roughly half receive it for less than 24 hours per week, while the other half receive water for 24-48 hours per week due to limited availability.¹¹⁸ At present, approximately 90,000 litres of water is allocated per capita for yearly consumption, which is considerably below the critical water scarcity threshold of 500,000 litres per capita per year.¹¹⁹ This figure is projected to decrease even further to 60,000 litres by 2040.¹²⁰ Due to climate change, Jordan is experiencing droughts more frequently, such as those witnessed in 2021 and 2022, during which water rationing reduced service provision to as little as 70 litres per capita per day.¹²¹ The National Water Master Plan predicts that climate change will lead to an additional 15% decrease in freshwater and groundwater resources by 2040.¹²² It is also expected to adversely impact water and wastewater infrastructure due to increased frequency and severity of floods and droughts.



Water Stress (withdrawals relative to available supplies) ¹²³

¹¹⁸ Ministry of Water and Irrigation. (2020). *Jordan Water Sector Facts and Figures 2020*. https://www.mwi.gov.jo/ebv4.0/root_storage/ar/eb_list_page/facts_and_figures_english_2020.pdf

¹¹⁹ The World Bank. (2023). *International Bank for Reconstruction and Development (Jordan Water Sector Efficiency Project (P176619), Issue PAD5170)*. <https://documents1.worldbank.org/curated/en/099052623124518529/pdf/BOSIB0d4798d310db097bc06922e98e0ee3.pdf>

¹²⁰ International Trade Administration. (2024). *Jordan - Country Commercial Guide*. U.S. Department of Commerce. <https://www.trade.gov/country-commercial-guides/jordan-environment-and-water-sector>

¹²¹ The World Bank. (2023). *International Bank for Reconstruction and Development (Jordan Water Sector Efficiency Project (P176619), Issue PAD5170)*. <https://documents1.worldbank.org/curated/en/099052623124518529/pdf/BOSIB0d4798d310db097bc06922e98e0ee3.pdf>

¹²² The Ministry of Water and Irrigation. (2023). *National Water Strategy 2023 - 2040*. https://www.mwi.gov.jo/EBV4.0/Root_Storage/AR/EB_Ticker/National_Water_Strategy_2023-2040_Summary-English_-ver2.pdf

¹²³ Katz, D. (2022). Basin Management under Conditions of Scarcity: The Transformation of the Jordan River Basin from Regional Water Supplier to Regional Water Importer. *Water*, 14(10), 1605. <https://doi.org/10.3390/w14101605>

Jordan primarily relies on water resources situated in the northern highlands and the Jordan River Valley.¹²⁴ Despite this, nearly a quarter of Jordan's renewable freshwater comes from its neighbours. Roughly 90% of the drinking water supplied to Jordan's capital originates from sources situated 125km to 325km away, reaching elevations of about 1200 meters above sea level, through a system involving five pumping stages.¹²⁵ In terms of its local water resources, Jordan faces challenges concerning both groundwater and surface water.¹²⁶ The extraction of groundwater, currently double the safe yield of its aquifers, is leading to their depletion, evident in shrinking aquifers, declining groundwater levels, and deteriorating water quality. In addition, Jordan's surface water availability fluctuates greatly, as it relies on variable rainfall patterns. To tackle some of these challenges, Jordan has implemented a comprehensive water supply framework, catering for both irrigation and urban needs.¹²⁷ Its primary water sources are:

- a. The Al Wahda Dam on the Yarmouk River.
- b. The King Abdullah Canal (KAC) in the Jordan Valley, which is primarily fed by the Yarmouk Waterway, the Mukhaibah springs near the Yarmouk Waterway, and several other watercourses that flow into the Jordan Valley.
- c. The As-Samra wastewater treatment plant, which processes the majority of Amman's wastewater before releasing it into the Zarqa Waterway.
- d. Water from the King Talal Dam on the Zarqa Waterway, which is redirected back to the KAC downstream of Deir Alla for irrigation purposes in the Lower Jordan Valley.

Nevertheless, the percentage of Non-Revenue Water (NRW), representing water produced but not delivered to consumers or paid for, remains substantial. As of 2023, this figure was evaluated at over 50%.¹²⁸ The primary causes of NRW include pipe leaks, illegal connections, unreliable water meters, and challenges related to meter reading.¹²⁹ Although NRW reduction interventions over the past decade have mitigated some losses, a comprehensive approach, coupled with institutional strengthening and maintenance, is still necessary to mobilise and sustain gains on a larger scale. As per Jordan's National Water Strategy (NWS) (2023-2040), Jordan is committed to addressing these challenges in the

¹²⁴ Suleiman, R. (2003). The Historical Evolution of the Water Resources Development in the Jordan River Basin in Jordan. *MREA-IWMI Working Paper. French Regional Mission for Water and Agriculture, Amman.* https://hydrology.nl/images/docs/alg/2012_11_Water_Jordan_IWMI_2003.pdf

¹²⁵ Ministry of Water and Irrigation. (2020). *Jordan Water Sector Facts and Figures 2020.* https://www.mwi.gov.jo/ebv4.0/root_storage/ar/eb_list_page/facts_and_figures_english_2020.pdf

¹²⁶ The Ministry of Water and Irrigation. (2023). *National Water Strategy 2023 - 2040* https://www.mwi.gov.jo/EBV4.0/Root_Storage/AR/EB_Ticker/National_Water_Strategy_2023-2040_Summary-English_-ver2.pdf

¹²⁷ Al-Kharabsheh, A. (2020). Challenges to Sustainable Water Management in Jordan. *Jordan Journal of Earth & Environmental Sciences*, 11(1).

¹²⁸ The World Bank. (2023). Estimated 1.6 million People in Jordan to Benefit from New Project to Tackle Jordan's Water Crisis and Build Climate Resilience. <https://www.worldbank.org/en/news/press-release/2023/06/18/estimated-1-6-million-people-in-jordan-to-benefit-from-new-project-to-tackle-jordan-s-water-crisis-and-build-climate-res>

¹²⁹ The Ministry of Water and Irrigation. (2023). *National Water Strategy 2023 - 2040* https://www.mwi.gov.jo/EBV4.0/Root_Storage/AR/EB_Ticker/National_Water_Strategy_2023-2040_Summary-English_-ver2.pdf

upcoming years and reduce NRW to 25% by 2040, through the implementation of its National Conveyance Project.¹³⁰

The projections informing the 2022 update to the NWS indicated that water demand in Jordan will surpass available water by over 20% by 2025, with a projected deficit of 40% by 2040, if no further interventions are taken.¹³¹ The increasing demand for water is primarily driven by population growth, including a significant refugee influx, expansion of irrigated lands, and industrialisation.¹³² In addition, minimal rainfall, unsustainable agricultural practices, excessive pumping of aquifers and groundwater, NRW losses, limited water resources, declining water quality, and the impacts of climate change all intensify the situation, escalating it into a crisis.¹³³ Furthermore, the joint management of Jordan's surface water resources by neighbouring countries has resulted in Jordan being deprived of its fair share of water resources.¹³⁴ Consequently, the disparity between water supply and demand is widening, leading to a pronounced scarcity of water resources in Jordan. This issue is recognised as the most significant environmental and societal challenge confronting the country today.¹³⁵

Jordan's water resources are allocated across three primary sectors: agricultural, municipal/domestic, and industrial. Together, these sectors consume nearly one billion cubic metres of water annually.¹³⁶ The Government of Jordan (GOJ) has explored various avenues to boost water supply including tapping into deep aquifers and exploring brackish or large-scale seawater desalination.¹³⁷ Additionally, through the National Conveyance Project, it has examined strategies such as improving irrigation techniques, reducing distribution losses, embracing water harvesting practices, advocating for rational water usage, introducing water recycling systems, and investing in desalination technologies.¹³⁸ However, despite these efforts, a sustainable solution capable of meeting all demands without increasing the average cost of water remains elusive.

¹³⁰ *ibid.*

¹³¹ The World Bank. (2023). *International Bank for Reconstruction and Development* (Jordan Water Sector Efficiency Project (P176619), Issue PAD5170).

<https://documents1.worldbank.org/curated/en/099052623124518529/pdf/BOSIB0d4798d310db097bc06922e98e0ee3.pdf>

¹³² Iseri, Z. (2023). The Impact of Water Politics on Migration in Jordan. https://poetcommons.whittier.edu/scholars/15/?utm_source=poetcommons.whittier.edu%2Fscholars%2F15&utm_medium=PDF&utm_campaign=PDFCoverPages

¹³³ International Trade Administration. (2024). *Jordan - Country Commercial Guide*. U.S. Department of Commerce. <https://www.trade.gov/country-commercial-guides/jordan-environment-and-water-sector>

¹³⁴ Mustafa, D., Altz-Stamm, A., & Scott, L. M. (2016). Water User Associations and the Politics of Water in Jordan. *World Development*, 79, 164-176. <https://doi.org/10.1016/j.worlddev.2015.11.008>

¹³⁵ Dirioz, A. O. (2024). Water for Peace Revisited: Reconsidering the Role of Securitization in Water Cooperation. In *Theorizing Transboundary Waters in International Relations* (pp. 105-120). Springer. https://doi.org/10.1007/978-3-031-43376-4_7

¹³⁶ International Trade Administration. (2024). *Jordan - Country Commercial Guide*. U.S. Department of Commerce. <https://www.trade.gov/country-commercial-guides/jordan-environment-and-water-sector>

¹³⁷ The World Bank. (2023). *International Bank for Reconstruction and Development* (Jordan Water Sector Efficiency Project (P176619), Issue PAD5170).

<https://documents1.worldbank.org/curated/en/099052623124518529/pdf/BOSIB0d4798d310db097bc06922e98e0ee3.pdf>

¹³⁸ The Ministry of Water and Irrigation. (2023). *National Water Strategy 2023 - 2040* https://www.mwi.gov.jo/EBV4.0/Root_Storage/AR/EB_Ticker/National_Water_Strategy_2023-2040_Summary-English_-ver2.pdf

While desalinating seawater and transporting it over long distances would incur substantial costs, Jordan can alternatively opt to procure water from Israel or other nations. This would be less costly but nevertheless raise concerns regarding sovereignty and political sensitivities. In late 2023, it was reported that the Saudi Minister of Environment, Water, and Agriculture convened with Jordanian Minister of Water and Irrigation in Riyadh to deliberate on bilateral cooperation in the water sector.¹³⁹ They discussed opportunities to exchange knowledge and expertise on addressing water scarcity in the region. In particular, they examined strategies for mitigating the impacts of climate change and explored alternative water resources such as desalination and recycled water. That meeting was considered a success, paving the way for a new era of strategic cooperation between Jordan and Saudi Arabia aimed at bolstering regional water security through sustainable initiatives. In the years to come we will be able to assess the full extent of this cooperation and its impact in the region.

Another significant challenge Jordan is facing in relation to its water crisis is the associated energy inputs. While energy may not be the primary focus of the water sector, it undeniably plays a pivotal role in the overarching national water strategy. Energy is crucial for ensuring water security and financial sustainability. It currently constitutes approximately half of the operational budget of the Water Authority of Jordan, a figure which is expected to increase further.¹⁴⁰ This rise is attributed to powering desalination processes, managing wastewater services, and pumping water from greater depths and longer distances to reach populated areas. Jordan confronts multiple challenges in this regard.¹⁴¹ The costs of electricity have surged significantly, surpassing the total revenues from water bills nationwide. Moreover, energy demands are projected to double with the implementation of the National Conveyance Project and the extension of distribution networks to accommodate expanding urban populations. Consequently, Jordan is exploring avenues to improve its energy efficiency and adjust its energy mix to include more renewable energy sources.

Israeli-Jordanian relations

Israel and Jordan share complex hydro relations, representing the most developed ties Israel has with any of its neighbours.¹⁴² These relations involve the sharing of resources like the Jordan River and the Jordan Valley, which also form the longest land border between the two nations. Israel's strategic relationship with Jordan is multifaceted.¹⁴³ While it perceives the Hashemite rule as vulnerable, it also considers Jordan a stable security buffer

¹³⁹ Costu, S. (2023). Saudi National Water Company Collaborates with Jordan to Enhance Water Sector. <https://bnnbreaking.com/tech/sdaias-future-intelligence-programmers-empowering-5000-students-in-ai>

¹⁴⁰ The Ministry of Water and Irrigation. (2023). *National Water Strategy 2023 - 2040* https://www.mwi.gov.jo/EBV4.0/Root_Storage/AR/EB_Ticker/National_Water_Strategy_2023-2040_Summary-English_-ver2.pdf

¹⁴¹ *ibid.*

¹⁴² Fergusson, J. (2023). *In Search of the River Jordan: A Story of Palestine, Israel and the Struggle for Water*. Yale University Press.

¹⁴³ Kibrik, R., Goren, N., & Kahana-Dagan, M. (2021). *Israel's Relations with Arab Countries: The Unfulfilled Potential* <https://mitvim.org.il/wp-content/uploads/2021/01/Israels-Relations-with-Arab-Countries-The-Unfulfilled-Potential-January-2021.pdf>

along its eastern border. Over the years, the dynamics of Israeli-Jordanian water-related issues have evolved, characterised by distinct periods of development.



Jordan River Basin ¹⁴⁴

Unilateral actions define the period between 1948 and 1967, as each nation pursued independent water projects, such as the National Water Carrier of Israel or the KAC system in Jordan. The period between 1970 and 1994 was marked by localised and limited cooperation, particularly over water withdrawals from the Yarmouk River.¹⁴⁵ The formal cooperative relations established from 1994 to 2010 under the framework of the Peace Treaty included comprehensive agreements on water resource sharing in terms of quantity and management.¹⁴⁶ Since 2010, with the strategic introduction of desalination as a water

¹⁴⁴ Katz, D. (2022). Basin Management under Conditions of Scarcity: The Transformation of the Jordan River Basin from Regional Water Supplier to Regional Water Importer. *Water*, 14(10), 1605. <https://doi.org/10.3390/w14101605>

¹⁴⁵ Suleiman, R. (2003). The Historical Evolution of the Water Resources Development in the Jordan River Basin in Jordan. *MREA-IWMI Working Paper. French Regional Mission for Water and Agriculture, Amman*. https://hydrology.nl/images/docs/alg/2012_11_Water_Jordan_IWMI_2003.pdf

¹⁴⁶ Talozzi, S., Altz-Stamm, A., Hussein, H., & Reich, P. (2019). What constitutes an equitable water share? A reassessment of equitable apportionment in the Jordan–Israel water agreement 25 years later. *Water Policy*, 21(5), 911-933. <https://doi.org/10.2166/wp.2019.143>

source for Israel, there has been a steady increase in Israel's support to Jordan by supplying approximately 10% of its water needs. This support, akin to Jordan having a desalination plant on Israel's Mediterranean coast, exemplifies the use of hydropolitics to stabilise relations and support friendly regimes. However, there remains a gap between the Jordanian government's appreciation of this support and its limited impact on public sentiment towards relations with Israel, dampened by social, religious, and nationalistic factors.¹⁴⁷ Despite the Peace Treaty's provisions for the reallocation of shared water resources, the public perception in Jordan often views Israel's support as returning what rightfully belongs to Jordan, illustrating the intricate dynamics of water as a low-politics issue.¹⁴⁸

Significant Israeli-Jordanian initiatives

Over the years, Israel and Jordan have embarked on collaborative endeavours aimed at tackling the pressing water challenges confronting the region. Notable projects include the Red Sea–Dead Sea Conveyance (RSDSC) initiative, the Restoration of the Jordan River project, and Project Prosperity. These initiatives signify a concerted effort by Israel and Jordan to address critical issues such as water scarcity, environmental degradation, and sustainable development, with the overarching aim of promoting long-term environmental sustainability and regional stability.

The Red Sea–Dead Sea Conveyance (RSDSC) initiative - One of the major Israeli-Jordanian initiatives to mitigate the acute water scarcity in Jordan and the Palestinian territories, while also addressing the evaporation of the Dead Sea, was the RSDSC project. It sought to leverage the difference in elevation between the Red Sea and the Dead Sea to transport large quantities of water while simultaneously generating energy and desalinating water along the way.¹⁴⁹ This initiative is considered one of the few realistic options for replenishing the Dead Sea and preventing its demise. However, despite support from the World Bank and the completion of a prefeasibility study, the project has encountered resistance on two fronts.¹⁵⁰ Firstly, environmental organisations in Israel have raised concerns about the potential risks to the Arava Valley ecosystem, particularly considering seismic activity. Secondly, there were uncertainties regarding the mixing of the Red Sea's water with the Dead Sea's water. Given the project's significance to Jordan, the decision was made to shift the route into Jordanian territory, where environmental hurdles are perceived to be more manageable. While the project faced challenges in securing the necessary funding, the Israeli Prime Minister opted to put it on hold and explore more cost-effective approaches to increasing water supply to Jordan. Subsequently, efforts were made to repurpose the project framework by initiating the construction of a desalination plant in Aqaba. Israel would collaborate on the construction and purchase 30 million cubic metres

¹⁴⁷ Mustafa, D., Altz-Stamm, A., & Scott, L. M. (2016). Water User Associations and the Politics of Water in Jordan. *World Development*, 79, 164-176. <https://doi.org/10.1016/j.worlddev.2015.11.008>

¹⁴⁸ Katz, D. (2022). Basin Management under Conditions of Scarcity: The Transformation of the Jordan River Basin from Regional Water Supplier to Regional Water Importer. *Water*, 14(10), 1605. <https://doi.org/10.3390/w14101605>

¹⁴⁹ Synergia Foundation. (2019). *The Red Sea-Dead Sea conveyance*.

<https://www.synergiafoundation.org/insights/analyses-assessments/red-sea-dead-sea-conveyance>

¹⁵⁰ ESIA Project Team. (2017). *Red Sea Dead Sea Water Conveyance Study* <https://www.eib.org/attachments/registers/82425040.pdf>

per year for use in the Israeli Arava settlements, while selling an equivalent quantity south of the Sea of Galilee.¹⁵¹ Additionally, as part of the Red-Dead agreement, Israel agreed to sell 30 million cubic metres to the PA.



The Red Sea-Dead Sea conveyance plan ¹⁵²

The ambitious RSDSC project was suspended in 2021.¹⁵³ The construction of the desalination plant encountered challenges and there were disagreements between Israel and Jordan, primarily related to the anticipated high cost of desalinated water.

Restoration of the Jordan River - Under the short tenure of the previous Bennett-Lapid government, Israel approved a comprehensive plan to rejuvenate a significant stretch of the river, with the aim to restore its former vitality and promote tourism along its banks.¹⁵⁴ This project targets the portion of the river within Israeli territory, which is approximately 37 km long and extends from the Sea of Galilee to its convergence with the Bezek Stream. While this region holds historical and religious significance for Judaism, Christianity, and Islam, it has suffered greatly from pollution and water diversion. The plan includes measures to prevent wastewater and saltwater intrusion into the river, increase freshwater flow from the Sea of Galilee, and improve water quality for both ecosystem restoration and recreational use. Additionally, the plan involves distributing freshwater to farmers in the Jordan Valley, catering to diverse agricultural needs across the region. However, the plan does not address

¹⁵¹ *ibid.*

¹⁵² Synergia Foundation. (2019). *The Red Sea-Dead Sea conveyance*.

<https://www.synergiafoundation.org/insights/analyses-assessments/red-sea-dead-sea-conveyance>

¹⁵³ Surkes, S. (2021). After years of delays, Jordan said to nix Red Sea-Dead Sea canal with Israel, PA. <https://www.timesofisrael.com/after-years-of-delays-jordan-said-to-nix-red-sea-dead-sea-canal-with-israel-pa/>

¹⁵⁴ Sukres, S. (2022). Government inks plan to clean part of Jordan River, make it fit for swimming again. Retrieved 11 March 2024, from <https://www.timesofisrael.com/government-inks-plan-to-clean-part-of-jordan-river-make-it-fit-for-swimming-again/>

the issue of declining water levels at the Dead Sea and the low water levels at the Qasr al-Yahud baptism site.

The official Declaration of Intent to cooperate on the restoration and sustainable development of the Jordan River was signed by Israel and Jordan at the United Nations Climate Change Conference (COP 27) in 2022.¹⁵⁵ It aims to address ecological concerns, preserve the river's historical and religious significance, boost tourism, and fulfill commitments outlined in the 1994 Israel-Jordanian Peace Treaty. The agreement underscores the shared understanding between both nations that revitalising the river necessitates cross-border cooperation. This is particularly crucial due to the river's transboundary nature and the presence of approximately 800,000 Israeli, Palestinian, and Jordanian residents along the Jordan River valley.¹⁵⁶ This collaboration also holds promise for generating additional employment opportunities and enhancing living standards for residents on both sides of the river.

Project Prosperity - At COP 27, the UAE, Jordan, and Israel signed a Memorandum of Understanding (MoU).¹⁵⁷ This agreement is dedicated to advancing clean energy and sustainable water desalination efforts to address climate change challenges, enhance water and energy security, and promote renewable energy and stability in the Middle East. The initiative is known as Project Prosperity, and it outlines two levels of bilateral partnership:

1. **Prosperity Blue** involves a sustainable water desalination project in Israel, intending to annually produce and export 200 MCM of potable water to Jordan.
2. **Prosperity Green** entails the establishment of a 600MW solar photovoltaic plant with electric storage in Jordan, aimed at generating clean energy for export to Israel.

The MoU was signed in the presence of dignitaries from the three nations and signifies the progression from the initial Declaration of Intent signed at the Dubai Expo in 2021. The actual implementation plans were to be discussed as part of COP 28, which took place in Dubai in November 2023. Israel's involvement in these discussions was initially planned to be substantial, with a proposed delegation of one thousand personnel. However, due to the ongoing Israel-Hamas war and tensions around the humanitarian crisis in Gaza, only 28 officials participated in the event in the end.¹⁵⁸

The conflict between Israel and Hamas exacerbated tensions between countries of the Global North and South during the conference.¹⁵⁹ Many governments in the Global South

¹⁵⁵ Sukres, S. (2022). Israel and Jordan pen agreement to clean up Jordan River. Retrieved 11 March 2024, from <https://www.timesofisrael.com/israel-and-jordan-pen-agreement-to-clean-up-jordan-river/>

¹⁵⁶ Bromberg, G., Majdalani, N., & Abu Taleb, Y. (2020). *A Green Blue Deal for the Middle East*. <https://ecopeaceme.org/wp-content/uploads/2021/03/A-Green-Blue-Deal-for-the-Middle-East-EcoPeace.pdf>

¹⁵⁷ Israel's Ministry of Energy and Infrastructure. (2022). Jordan, Israel, and the UAE sign MoU to advance Project Prosperity, targeting COP 28 for implementation plan development. *Press Releases*. Retrieved 11 March 2024, from https://www.gov.il/en/departments/news/press_081122

¹⁵⁸ Al Desoukie, O. (2024). Limited Israeli Delegation at COP28 Amid High Tensions. *Trusted Mideast News*. Retrieved 11 March 2024, from <https://themedialine.org/by-region/limited-israel-delegation-amid-high-tension>

¹⁵⁹ K nneke, J., & Adolphsen, O. (2024). *Traditional conflicts and dynamic coalitions at the World Climate Conference: COP28: new room for manoeuvre in international climate politics*. <https://www.econstor.eu/bitstream/10419/284703/1/1880047608.pdf>

view the West's position on the Gaza conflict as evidence of selective adherence to liberal norms, eroding trust essential for cooperation on climate issues. The conference quickly became politicised, with several high-ranking officials voicing their opposition to Israel's activities in Gaza and Pro-Palestinian activists protesting in support for a ceasefire. The Israeli delegation leveraged the situation to advocate for the release of hostages still held by Hamas. In light of the ongoing war and the political tensions, a decision was made to suspend this initiative.

Insights from the Israeli-Jordanian experience

- **The importance for Israel to maintain collaborative efforts in water management** - Beyond the ethical obligation to alleviate suffering, Israel should acknowledge that instability in Jordan has the potential to spill over into its own territory, posing a direct threat to its national security. By actively working to avert a humanitarian crisis in Jordan, Israel is not only safeguarding the welfare of its neighbour but also investing in its own long-term security and the stability of the entire region. Israel should therefore continue to explore every possible avenue to alleviate Jordan's water scarcity through formal and informal channels.
- **Navigating Jordanian water claims: bridging differences in political and civilian perceptions of Israel** - Despite numerous collaborations between Israel and Jordan, a disparity persists between the Jordanian government's appreciation of Israeli support and the public's view of it. The Jordanian public often views Israeli assistance as merely returning what rightfully belongs to Jordan. Israel should therefore explore proactive strategies to engage with the Jordanian public and influence its perception of Israel. This might involve promoting cultural exchanges, fostering educational programmes highlighting shared interests and benefits, and developing further joint projects to address common challenges on both sides of the Jordan Valley. Such initiatives hold the potential to positively shape the perception of Israel amongst the Jordanian public, especially considering that Jordan is home to the largest Palestinian minority outside of Israel. Advancing towards a two-state solution for the Israeli-Palestinian conflict would also directly impact Jordanian perceptions of Israel and enhance trust-building between the two nations. Nevertheless, as previous experience has shown, it is essential to prioritise small-scale projects which could yield positive outcomes in shorter timeframes before embarking on larger endeavours which are prone to failure. In this way, it would be possible to better manage expectations and avoid disappointments which would inevitably erode trust.
- **Interlinking water scarcity, agricultural demands, and energy dependence** - Israel should recognise that the issue of water scarcity is also closely related to agricultural needs and is heavily reliant on energy resources. To effectively tackle these challenges in Jordan, Israel should explore ways to support its agricultural and energy sectors. By facilitating the transition to renewable energy sources, Jordan can improve efficiency and meet more of the substantial energy needs of its water sector. Israel's involvement could be pivotal in addressing Jordan's water scarcity issues and in promoting sustainable development in the region. While the concept of utilising Jordan's extensive desert areas for photovoltaic fields to generate electricity for Israel

in exchange for desalinated water has attracted significant political attention, its overall value proposition remains minimal. Nevertheless, it creates a theoretical long-term dependency of Israel on energy from Jordan as a means of balancing relations. The overall dependency on Jordan's stability supersedes all other potential long-term dependencies. Therefore, despite the obstacles, it is necessary to maintain support for this initiative and explore additional avenues to assist and bolster Jordan's energy sector. Other ways to support Jordan might involve facilitating its integration into the European electrical grid via Israel or assisting in tackling its significant NRW challenges. Israel's expertise in this regard could be shared with Jordan to alleviate some of its urgent water-related issues.

E. Lessons from the Israeli-Turkish experience

Turkey has emerged as a potential supplier of water for the entire Middle East, with its 25 hydrological basins¹⁶⁰ and 320 natural lakes.¹⁶¹ The Euphrates and Tigris river basins collectively contribute approximately 30% of Turkey's surface flow.¹⁶² Yet, as a result of extensive dam construction and irrigation projects along these rivers, water scarcity is especially severe in its Southeastern region.¹⁶³ These initiatives have notably diminished the downstream water flow, exacerbating tensions with neighbouring countries, particularly Iraq and Syria, which heavily rely on these rivers for their water needs.

As of 2020, Turkey boasted a renewable internal freshwater volume of approximately 2,700,000 litres per capita per year, a stark contrast to the 80,000 litres recorded in Israel or the mere 9,000 litres recorded in Egypt.¹⁶⁴ Nonetheless, due to the country's population growth rate and climate change implications, experts anticipate that this figure will likely decrease to approximately 1,000,000 litres per capita per year by 2030.¹⁶⁵ It is anticipated that the average annual temperature in Turkey will increase by 1°C to 2°C from 2016 to 2040, by 1.5°C to 4°C from 2041 to 2070, and by 1.5°C to 5°C from 2071 to 2099.¹⁶⁶ Some forecasts even suggest a temperature surge of 3°C in winter and 8°C in summer between 2071-2100.¹⁶⁷ This increase in temperature is likely to adversely affect Turkey's water resources and exacerbate water stress in the country.

¹⁶⁰ Tigrek, S., & Kibaroglu, A. (2011). Strategic Role of Water Resources for Turkey. In *Turkey's Water Policy: National Frameworks and International Cooperation* (pp. 27-42). Springer. https://doi.org/10.1007/978-3-642-19636-2_2

¹⁶¹ Fanack Water. (2022). Water Resources in Turkey. *Turkey Water Report*. Retrieved 23 Feb. 2024, from <https://water.fanack.com/turkey/water-resources-in-turkey/>

¹⁶² Giovanis, E., & Ozdamar, O. (2021). The Transboundary Effects of Climate Change and Global Adaptation: the Case of the Euphrates-Tigris Water Basin in Turkey and Iraq. *Economic Research Forum*.

¹⁶³ The Water Project. (2012). Water in Crisis - Turkey, Syria, and Iraq. Retrieved 23 Feb. 2024, from <https://thewaterproject.org/water-crisis/water-in-crisis-turkey-syria-iraq>

¹⁶⁴ The World Bank. (2020). Renewable internal freshwater resources per capita (cubic meters). Retrieved 23 Feb. 2024, from <https://data.worldbank.org/indicator/ER.H2O.INTR.PC>

¹⁶⁵ Ergur, S. (2023). Turkey is Faced with the Crisis of Having Per Capita Water Resources Decline by One-Third by Mid-Century. *Turkey News Brief and Action Alert*. Retrieved 24 Feb. 2024, from <https://www.climatecorecard.org/2023/09/turkey-is-faced-with-the-crisis-of-having-per-capita-water-resources-decline-by-one-third-by-mid-century>

¹⁶⁶ Fanack Water. (2022). What Does the Future Hold for Water in Turkey? *Turkey Water Report*. Retrieved 24 Feb. 2024, from <https://water.fanack.com/turkey/what-does-the-future-hold-for-water-in-turkey/>

¹⁶⁷ *ibid.*

Over the past decade, Turkey has made significant strides in water management and policy. The establishment of the Ministry of Forestry and Water Affairs in 2011 marked a pivotal step. Under this ministry, the General Directorate of Water Management was tasked with formulating policies to optimise water resource utilisation and develop comprehensive national and international water management strategies.¹⁶⁸ The establishment of this General Directorate aimed to consolidate the fragmented water management structure into a unified entity. As a candidate for EU membership since 2009, Turkey has been obligated to align its water-related policies and legislation with the EU Water Framework Directive.¹⁶⁹ In response, the General Directorate has initiated capacity development projects to enhance water quality monitoring, formulate river basin protection plans, and address capacity gaps for implementing the EU Flood Directive. More recently, recognising the inadequacy of the existing Law of Water (1926) in addressing contemporary challenges, a proposal for a new water law has been introduced.¹⁷⁰ This proposed legislation aims to reconcile issues of authority and responsibility, bridge gaps in water-related laws, and address the evolving demands of a growing population and increased urbanisation, while ensuring comprehensive assessment of water quantity and quality.

Turkey's hydropolitical stance

Turkey formalised its hydropolitical stance in the 1980s, coinciding with the country's extensive development projects in irrigation and dam construction, which presented technical opportunities for international water transfer.¹⁷¹ As Conker and Hussein argue, Turkish decision-makers regarded water resources as strategic foreign policy instruments aimed at enhancing the country's regional influence.¹⁷² However, the pursuit of regional influence did not necessarily entail seeking a hegemonic role; rather, it aimed to rebalance bilateral commercial relations by fostering interdependence, such as exchanging Arab oil for Turkish water resources.¹⁷³ A direct outcome of this strategy was the commodification of water, transforming it into a marketable commodity capable of yielding economic gains and political influence. Given the perceived political and economic benefits akin to those of oil or gas, Ankara consistently advocated its water trade agenda and explored potential regional markets. Consequently, since the late 1980s, Turkey has employed hydropolitics in an endeavour to establish trade partnerships on multiple fronts, extending the possibility of water trade beyond the Eastern Mediterranean countries to also include the Gulf States. These partnerships were also facilitated by shifts in international dynamics following the end

¹⁶⁸ *ibid.*

¹⁶⁹ Sumer, V., & Muluk, C. (2011). Challenges for Turkey to Implement the EU Water Framework Directive. *Turkey's Water Policy: National Frameworks and International Cooperation*, 43-67. https://doi.org/10.1007/978-3-642-19636-2_3

¹⁷⁰ BURAK, Z. S., Sibel, Z., Ülker, D., & BAYIRHAN, İ. (2022). The Legal Framework of Water Quality Management in Turkey. *Turkish Journal of Water Science and Management*, 6(1), 121-144.

¹⁷¹ Kibaroglu, A. (2015). An analysis of Turkey's water diplomacy and its evolving position vis-à-vis international water law. *Water International*, 40(1), 153-167. <https://doi.org/10.1080/02508060.2014.978971>

¹⁷² Conker, A., & Hussein, H. (2019). Hydraulic Mission at Home, Hydraulic Mission abroad? Examining Turkey's Regional 'Pax-Aquarum' and Its Limits. *Sustainability*, 11(1), 228. <https://doi.org/10.3390/su11010228>

¹⁷³ Glied, V., & Kacziba, P. (2021). Water Scarcity and Water Trade: Turkish Attempts to Supply a Drying Region. <https://doi.org/10.24132/actaff.2021.13.1.3>

of the Cold War. As a NATO member, Turkey was able to strengthen ties with neighbouring countries amidst the weakening of the communist bloc.¹⁷⁴ This was reinforced by US foreign policy initiatives that promoted Arab-Israeli reconciliation through endeavours aimed at ensuring water stability.

- **The Peace Water Pipeline** - In 1986 the project that marked the initial step towards a significant water trade partnership was aptly named the Peace Water Pipeline.¹⁷⁵ Led by Turkish Prime Minister Turgut Özal, the project aimed to tackle regional water challenges primarily in Arab nations but also in Israel. In essence, the project aimed to cultivate regional stability by constructing pipelines and leveraging water cooperation as a confidence-building measure.¹⁷⁶ The discourse surrounding the project highlighted not only the geographical, hydrological, and climatic necessities¹⁷⁷ but also accentuated the shared advantages of cooperative utilisation of water resources through regional alliances.¹⁷⁸

The planning phase commenced in 1986 with ambitious objectives in mind.¹⁷⁹ Initially, the concept entailed transporting water from the Ceyhan and Seyhan rivers to regional partners via two pipelines. The eastern Gulf Route was projected to stretch 3900 km, with main and side branches conveying water through Syria and Jordan to Gulf States like Kuwait, Bahrain, Qatar, and the United Arab Emirates. Preliminary plans outlined a total daily transport capacity of 2.5 million m³ along the eastern pipeline, with construction costs estimated at approximately 12 billion USD. Alongside Syria and Jordan, the western pipeline aimed to supply Saudi Arabia, connecting key economic and tourist hubs such as Aleppo, Homs, Amman, Medina, and Jeddah.¹⁸⁰ The planned 2650 km western pipeline was designed with a daily transport capacity of 3.5 million m³, with potential investment costs estimated at 8 billion USD.

However, the grand ambitions of the Peace Water Pipeline project encountered numerous obstacles. Alongside technical and geographical hurdles, the exorbitant investment costs emerged as a formidable barrier.¹⁸¹ From the project's inception, Turkey's decision to allocate a substantial cost-sharing role to oil-rich Arab nations

¹⁷⁴ Kibaroglu, A. (2015). An analysis of Turkey's water diplomacy and its evolving position vis-à-vis international water law. *Water International*, 40(1), 153-167. <https://doi.org/10.1080/02508060.2014.978971>

¹⁷⁵ del Río Luelmo, J. (1996). Water and Regional Conflict: Turkey's 'Peace Pipeline'. *European Urban and Regional Studies*, 3(1), 67-74. <https://doi.org/10.1177/096977649600300105>

¹⁷⁶ Glied, V., & Kacziba, P. (2021). Water Scarcity and Water Trade: Turkish Attempts to Supply a Drying Region. <https://doi.org/10.24132/actaff.2021.13.1.3>

¹⁷⁷ Conker, A., & Hussein, H. (2019). Hydraulic Mission at Home, Hydraulic Mission abroad? Examining Turkey's Regional 'Pax-Aquarum' and Its Limits. *Sustainability*, 11(1), 228. <https://doi.org/10.3390/su11010228>

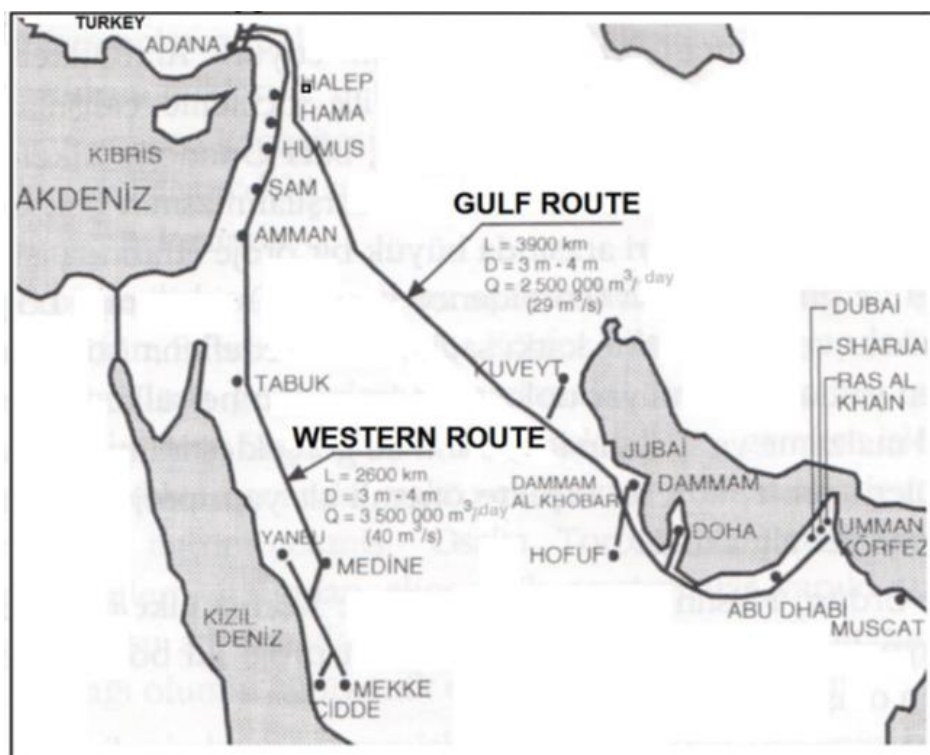
¹⁷⁸ Rende, M. (2007). Water Transfer from Turkey to Water-Stressed Countries in the Middle East. *Water Resources in the Middle East: Israel-Palestinian Water Issues—From Conflict to Cooperation*, 165-173. https://doi.org/10.1007/978-3-540-69509-7_16

¹⁷⁹ Glied, V., & Kacziba, P. (2021). Water Scarcity and Water Trade: Turkish Attempts to Supply a Drying Region. <https://doi.org/10.24132/actaff.2021.13.1.3>

¹⁸⁰ Rende, M. (2007). Water Transfer from Turkey to Water-Stressed Countries in the Middle East. *Water Resources in the Middle East: Israel-Palestinian Water Issues—From Conflict to Cooperation*, 165-173. https://doi.org/10.1007/978-3-540-69509-7_16

¹⁸¹ Gruen, G. E. Ibid. Turkish Water Exports: A Model for Regional Cooperation in the Development of Water Resources. In (pp. 157-164). Springer. https://doi.org/10.1007/978-3-540-69509-7_15

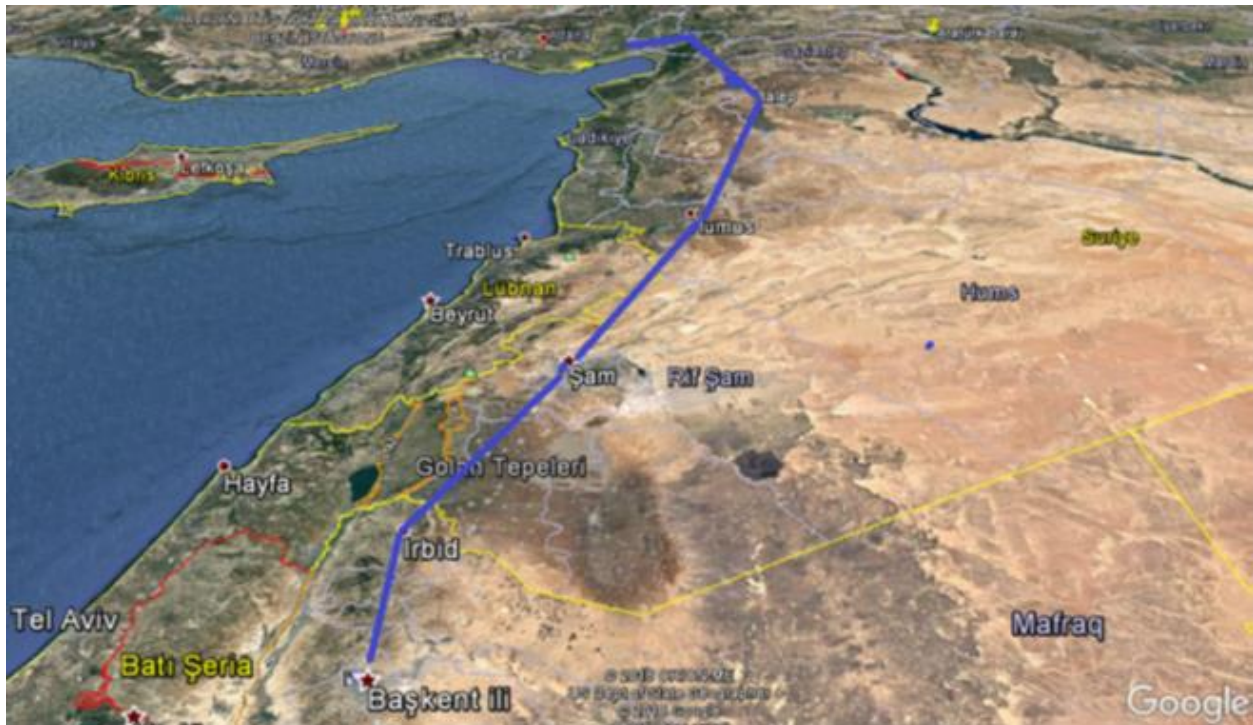
posed a challenge. Eventually, rather than proceeding with the costly pipeline construction, these countries opted to develop similarly expensive, yet domestically controlled, desalination and water treatment facilities. Beyond technical and financial constraints, political considerations dampened the enthusiasm of potential partners. While Turkey highlighted regional cooperation, shared benefits, and the mutual utilisation of resources, prospective importers weighed the potential risks. Arab states were wary of becoming reliant on external water sources, which could potentially tilt the balance of relations with Turkey and grant undue influence to transit countries. Furthermore, the Arab states were also reluctant to include Israel as a benefactor of the project.¹⁸² Consequently, the initial plans involving Israel underwent modifications, and Turkey's official position maintained that any prospective water agreement with Israel would be entertained only after Israel finalised a peace treaty with its Arab neighbours.



The Peace Water Project ¹⁸³

¹⁸² Bani Salameh, M. (2021). Dam Wars: Are Ethiopia, Turkey, and Iran Leading to Water Armageddon? *Middle East Policy*, 28(1), 147-157. <https://doi.org/10.1111/mepo.12547>

¹⁸³ Yildiz, D. (2018). The Peace Water Pipeline and innovative hydro diplomacy. Is Turkey's "Peace Water Pipeline Project" Worthwhile to be Considered Again? *World Water Diplomacy and Science News*.



The Shorter Eastern Pipeline ¹⁸⁴

- **The Manavgat Project and the cooperation with Israel** - After the Peace Water Pipeline project, the idea of transporting water from Turkey's Manavgat River to Israel gained attention when Israeli Prime Minister Ehud Barak visited Turkey in 1999.¹⁸⁵ This ambitious venture envisioned the potential export of 180 million m³ of water from the Manavgat river basin, utilising tankers for transportation.¹⁸⁶ While transportation necessitated the creation of new tankers tailored for this task, the adaptability of maritime shipping also opened up the prospect of Turkey becoming a water provider to Eastern Mediterranean nations, such as Greece and Malta.

Between 1992 and 1999, Turkey invested in infrastructure worth approximately 150 million USD in the Manavgat estuary, situated 80 km east of Antalya.¹⁸⁷ These facilities catered to the partial needs of Turkish cities in the region and became available for international use in the early 2000s, coinciding with Israel's expressed interest in importing water from Turkey. In 1996, the Israeli government released a report titled "Development Alternatives for Cooperation in the Middle East and East Mediterranean Region", which proposed collaboration between Israel, Egypt, Jordan, and the PA to import water from Turkey to address water shortages. Turkey's former president, Suleyman Demirel, during an official visit to Israel in 1999, suggested that

¹⁸⁴ *ibid.*

¹⁸⁵ The Washington Institute of Near East Policy. (2003). Turkish Water to Israel? *Policy analysis - Policy Watch 782*. Retrieved 26 Feb. 2024, from <https://www.washingtoninstitute.org/policy-analysis/turkish-water-israel>

¹⁸⁶ Güreler, Ý., & Ülger, M. (2007). Manavgat river water: A limited alternative water resource for domestic use in the Middle East. In *Water Resources in the Middle East: Israel-Palestinian Water Issues—From Conflict to Cooperation* (pp. 175-183). Springer. https://doi.org/10.1007/978-3-540-69509-7_17

¹⁸⁷ Glied, V., & Kacziba, P. (2021). Water Scarcity and Water Trade: Turkish Attempts to Supply a Drying Region. <https://doi.org/10.24132/actaff.2021.13.1.3>

water from the Manavgat River could alleviate Israel's chronic water scarcity. Demirel estimated that Turkey could initially supply Israel with 180 million m³ of water per year, with a potential increase to 4 billion m³ annually in the future.¹⁸⁸ He asserted that this volume would fulfill Israel's needs several times over, at a significantly lower total cost compared to desalination.

After protracted negotiations, an agreement was outlined in 2002 and detailed in 2004, stipulating the delivery of 50 million m³ of water annually over a twenty-year period.¹⁸⁹ The agreement aimed to bridge a transport distance of approximately 600 km between Manavgat and Ashkelon. While tankers presented a more cost-effective and secure alternative to pipelines in deep-sea environments, they still required the construction of pipelines, storage facilities, water treatment plants, and pumping and filling stations, in addition to transport vessels. By 2006, Turkey had invested approximately 147 million USD into this infrastructure.¹⁹⁰

Despite the hefty investment costs, Turkey anticipated substantial political and economic advantages from exporting water to Israel. During the 1990's, Turkish foreign policy grappled with numerous external pressures, ranging from water disputes with Syria and Iraq to deteriorating relations with Arab nations, alongside separatist movements led by the Kurdish PKK.¹⁹¹ Faced with these challenges, Turkey viewed Israel as a potential ally capable of alleviating its regional isolation and restoring its waning influence in the region. While the project itself didn't offer immediate economic windfalls, Turkey saw Israeli exports as a pilot initiative that could yield significant economic benefits with the involvement of other international partners in the future.¹⁹²

The significance of the Turkish-Israeli water transfer was underscored by both parties' recognition of water as a globally tradable commodity. However, in practice, this meant that, apart from investment and transportation expenses, market conditions also influenced perceptions of purchase prices. One of the primary hurdles to the project was that the specified minimum price of 0.7 USD/m³ would have minimised Turkish profits and proved more expensive than Israel's domestic water resources.¹⁹³ For Israel, Manavgat served as a more cost-effective alternative than desalination plants but was pricier than domestically sourced water. Alongside high investment costs, the project faced eventual failure due to increased Israeli rainfall post-2004

¹⁸⁸ Pamukcu, K. (2020). Water Trade between Israel and Turkey: A Start in the Middle East? Retrieved 25 Feb. 2024, from <https://mepc.org/journal/water-trade-between-israel-and-turkey-start-middle-east>

¹⁸⁹ Conker, A., & Hussein, H. (2019). Hydraulic Mission at Home, Hydraulic Mission abroad? Examining Turkey's Regional 'Pax-Aquarum' and Its Limits. *Sustainability*, 11(1), 228. <https://doi.org/10.3390/su11010228>

¹⁹⁰ Gruen, G. E. (2007). Turkish Water Exports: A Model for Regional Cooperation in the Development of Water Resources. In *Water Resources in the Middle East: Israel-Palestinian Water Issues—From Conflict to Cooperation* (pp. 157-164). Springer. https://doi.org/10.1007/978-3-540-69509-7_15

¹⁹¹ Conker, A., & Hussein, H. (2019). Hydraulic Mission at Home, Hydraulic Mission abroad? Examining Turkey's Regional 'Pax-Aquarum' and Its Limits. *Sustainability*, 11(1), 228. <https://doi.org/10.3390/su11010228>

¹⁹² Rende, M. (2007). Water Transfer from Turkey to Water-Stressed Countries in the Middle East. *Water Resources in the Middle East: Israel-Palestinian Water Issues—From Conflict to Cooperation*, 165-173. https://doi.org/10.1007/978-3-540-69509-7_16

¹⁹³ *ibid.*

and escalating oil prices, which amplified transportation costs, concurrent with the gradual deterioration of relations with Turkey.¹⁹⁴ These parallel developments initially dampened Israeli enthusiasm and ultimately sealed the fate of the Manavgat Project.

Overall, while there have been sporadic instances of cooperation and shared interests in the water sector between Israel and Turkey, especially after the Oslo Accords, the relationship remains affected by broader political tensions and regional dynamics. Although there have been occasional instances of cooperation and dialogue, particularly regarding water technology and management, overall, the relationship has been characterised by periods of strain.¹⁹⁵ The diplomatic relations between the two nations deteriorated significantly in the early 2010s, especially following the Gaza flotilla incident and the subsequent downgrading of diplomatic ties.¹⁹⁶ In addition, due to the ongoing Israel-Hamas war, Turkish public sentiment towards Israel has become increasingly hostile. The complex geopolitical landscape of the Middle East, coupled with Turkey's relationships with other regional actors, have influenced the overall trajectory of the Israel-Turkey relationship, and overshadowed the potential areas of cooperation, including in the water domain.¹⁹⁷

Insights from the Israeli-Turkish experience

- **Utilising Turkish water infrastructure in an emergency** - In an emergency, Israel could potentially benefit from leveraging Turkey's established water infrastructure. In particular, the transportation of Turkish water via tankers emerges as a viable solution during crises. Israel should evaluate the costs and benefits of this option for rapid relief in the case of a water crisis due to severe droughts or acute pollution of the sea. Such rapid relief could also be relevant for Gaza's current water shortage due to the ongoing war. If feasible, such cooperation during crises could potentially be expanded to assist other neighbouring countries, fostering increased regional stability during times of uncertainty.
- **Promoting regional cooperation over localised independent projects** - Israel should actively seek additional opportunities to collaborate with Turkey on water initiatives, highlighting the advantages of joint endeavours over independent efforts. Regional cooperation offers a promising avenue to address the shared challenges concerning water resources in the region while fostering greater trust between the countries. Establishing effective channels of communication with Turkey is especially crucial during periods of political instability, as the complex water challenges necessitate robust and long-term solutions that could also extend to other Arab countries in the region. In addition, attention should be redirected from water disputes

¹⁹⁴ Szwedo, P. (2019). *Cross-border Water Trade: Legal and Interdisciplinary Perspectives* (Vol. 32). Brill.

¹⁹⁵ Wrobel, S. (2023). Turkey conglomerate sees opportunities for collaboration with Israeli startups. Retrieved 25 Feb. 2024, from <https://www.timesofisrael.com/turkey-conglomerate-sees-opportunities-for-collaboration-with-israeli-startups/>

¹⁹⁶ Özhan, T. (2010). Turkey, Israel and the US in the Wake of the Gaza Flotilla Crisis. *Insight Turkey*, 12, 7-18.

¹⁹⁷ Efron, S. (2018). *The future of Israeli-Turkish relations*. Rand Corporation Santa Monica, CA. https://www.rand.org/content/dam/rand/pubs/research_reports/RR2400/RR2445/RAND_RR2445.pdf.

centred on sovereignty and identity towards disputes concerning trade and pricing, as both Israel and Jordan view water as a commodity. This shift in focus could help facilitate further cooperation and mitigate potential ideological conflicts.

F. Concluding remarks

Israel's water relations with Palestine, Jordan, Turkey, and the broader Middle East are characterised by a complex interplay of conflict, negotiation, and cooperation. While historical and political tensions have often hindered progress, initiatives such as the Madrid Conference of 1991 have provided crucial platforms for dialogue and mediation. Through bilateral agreements, technological advancements, and multilateral frameworks, there have been notable strides towards sustainable water management and regional cooperation. However, challenges persist, including equitable allocation, environmental concerns, and geopolitical dynamics. To address these challenges, it is essential to foster mutual understanding, build trust, and promote inclusive decision-making.

This policy paper has presented three primary geopolitical objectives for Israel, each pivotal in navigating the complexities of the region and advancing Israel's national interests. Firstly, the imperative for Israel to secure water resources amidst the climate crisis; secondly, the strategic utilisation of hydropolitics for integrating Israel into the regional arena and as a catalyst for diplomatic engagement and peace-building efforts; and lastly, the enhancement of community-level resilience to also reinforce broader social and national resilience. This paper then demonstrated that hydropolitics offers a pragmatic approach to realising these objectives. Embracing the principles of hydropolitics enables regional states to reframe shared challenges as opportunities for cooperation. Through dialogue, trust-building, and agreements, diplomatic efforts can transcend divisive narratives, laying the groundwork for collaborative frameworks that prioritise sustainability and resilience. Although Israel could address some of the challenges identified in this paper on its own, engaging in collaborative initiatives is essential for establishing long term stability in the region.

- **Water as a basic human right and the need for regional cooperation to effectively manage it** - Before engaging in negotiations over water agreements, it is imperative to consider two factors. Firstly, water should be viewed as a fundamental human right which is vital for drinking, hygiene and for use in agriculture. It should not be viewed as means to dominate, punish, or exploit another party. Secondly, it is essential to recognise that Israel and Palestine both rely on the same water system and should therefore jointly manage it. In addition, on a broader scale, Israel should strive to cooperate on water management with other regional states across the Middle East, as instability in one state has the potential to spill over to its neighbours and undermine the entire region. In this context, it is also essential to acknowledge the strong link between hydropolitics and geopolitics, and the potential for water related issues to quickly escalate into regional crises.
- **Navigating power asymmetry** - The issue of power asymmetry amongst regional states has been identified as a significant challenge. The citizens of Israel, Palestine, Jordan, and Turkey have markedly different living standards due to significant differences in socio-economic development. These asymmetrical power dynamics

shape the political landscape and pose various challenges which hinder effective cooperation. Additionally, the parties' differing priorities and needs create divergent expectations and perceptions regarding their cooperation, which are challenging to reconcile. Any initiative seeking to enhance regional water cooperation and peacebuilding in the Middle East must therefore consider the existing asymmetries in social and economic development, as well as political power. It is crucial to address these asymmetries in the design and implementation of future initiatives, to ensure that cooperation yields mutual benefits, and to prevent any one party from benefiting disproportionately from asymmetric power dynamics. These efforts should therefore include measures for building the capacities of the weaker parties.

- **Transitioning from water allocation rights to water as a tradable commodity -** Israel can attempt to address regional water disputes by boosting the production of desalinated water and shifting away from the traditional emphasis of water rights to embrace a perspective that treats water as a tradeable commodity. Nevertheless, this new paradigm would introduce other challenges, such as the need to govern this new type of resource and ensure it remains in the hands of the public, with fair allocation which would not exacerbate existing power imbalances. This new paradigm also underscores the importance of collaborative water management among local communities and governments.
- **Lessons learnt from Madrid Conference of 1991 and the MWGWR framework -** The Madrid Conference of 1991, and particularly the creation of MWGWR framework within the multilateral track, marked a pivotal moment in addressing water challenges in the Middle East. Firstly, the MWGWR identified the core obstacles to effective cooperation on water resources in the region. These included the recognition that social, economic, and political disparities present a barrier in addressing regional water disputes. In addition, the nature of inter-state relations, ranging from open hostilities to peace, was found to strongly influence the ability of states to cooperate at a regional level. Furthermore, the issue of borders lacking international recognition, resulting in undefined water rights, has been identified as a significant contributor to heightened tensions among states in the region. This challenge not only exacerbates existing conflicts but also hinders regional cooperation, especially given the transboundary nature of the water resources in the region.

Secondly, the projects of the MWGWR underscored the essential role of trust in the success of any regional water initiative. Nevertheless, cultivating trust necessitates investment in various avenues. Apart from the official political channel, it is critical to establish an alternative channel capable of withstanding political tensions and operating consistently even during times of uncertainty. This channel should include experts, local communities, civil initiatives, NGOs, and donor states to ensure the development and operation of robust initiatives over the long term. This approach would foster the gradual development of trust between the parties, and thereby enhance cooperation on water management.

The projects undertaken by the MWGWR serve as a testament to the power of dialogue and cooperation in addressing the complex water challenges facing the region. These initiatives have provided invaluable platforms for enhancing mutual

understanding, building trust, and formulating comprehensive solutions. As we move forward, it is imperative to devise further initiatives aimed at bridging the gaps between water demand and supply and bolstering regional cooperation. These initiatives should leverage the latest technological advancements, adopt efficient management practices, and build upon the successful models already established within the MWGWR framework.

- **Strategies for advancing water cooperation between Israel and its regional neighbours** - Promoting effective cooperation on water initiatives between Israel and neighbouring states would require the implementation of diverse measures. Strategies may include enhancing public awareness about the advantages of collaborative water initiatives, sharing expertise to address mutual challenges, promoting academic collaborations to drive innovative water solutions, and exploring avenues for joint management through formal and informal agreements and frameworks. To further advance cooperation, ongoing dialogue and diplomatic efforts are essential to navigate geopolitical complexities and foster mutual trust. In this respect, establishing transparent and informal communication channels and mechanisms for conflict resolution could facilitate smoother collaboration. Furthermore, incentivising private sector and third-party involvement and investment in water-related projects could further enhance the sustainability and scalability of joint initiatives, as well as aid in building trust. Ultimately, continuous commitment and proactive engagement from Israel and the regional states enable the full potential of collaborative efforts in the water domain to be realised.
- **Political commitment is essential to drive water cooperation in the Middle East forward** - The absence of political commitment can hinder the implementation of technical solutions to existing water problems and diminish the effectiveness of water cooperation for sustainable water management. A lack of political will for cooperation can also weaken the initiatives undertaken by community groups. Therefore, donor parties should actively engage in promoting regional water cooperation with national governments and local authorities, recognising the mutual benefits it offers for economic development, security, and peace in the region. In addition, it is essential that experts, local communities, and regional forums cultivate strong relationships capable of withstanding political tensions and ensuring continuous collaboration during challenging times. Moreover, effective political agreements can propel water agreements forward, and conversely, robust water agreements can facilitate progress towards resolving the Israeli-Palestinian conflict, as both processes rely on trust-building, transparency, and mutual interdependence.