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The Jordan, Israel, and UAE Water-for-energy Deal: Potential and Pitfalls of Energy and Water Sharing-Agreements in the Middle East

By Hutuf Mansour and Alexander Reiffenstuel

The MENA Europe Future Energy Dialogue Conference in Jordan in June 2022 highlighted the regional significance of advancing regional cooperation to collectively counter the impacts of climate change and safeguard cross-boundary interests. However, such collaboration must be mutual-beneficial and inclusive by benefiting all involved actors to prevent further regional instability. The trilateral water-for-energy deal between Jordan, Israel, and the UAE, which sees the trade of solar energy produced in Jordan for desalinated water from Israel, illustrates how an imbalanced agreement could risk cementing regional power inequities and thus undermining stability in the long run. Nonetheless, this deal is an opportunity to diversify Jordan's water sources and secure water access in the long term. After all, energy and water sharing agreements in the Middle East can create important interdependencies and advance equal distribution of scarce resources, cross-border prosperity, and stabilize economies. Still, with the abstaining of the Palestinian Authority, the deal could risk reinforcing regional disparities between Palestine and Israel. Therefore, Jordan should engage in bilateral talks with the Palestinian Authority and ensure that no energy from Jordan is delivered to illegal settlements while simultaneously providing more energy and water to the Palestinian territories. Such enhancements would reduce Palestinian energy dependency on Israel, ensure domestic support in Jordan, benefit Israelis, Palestinians and Jordanians alike and ideally open new channels of communication for regional conflict mediation efforts.

Introduction

During Robert Habeck's visit to Israel, the Palestinian Territories, and Jordan in June, the German Vice Chancellor stressed the need for increased regional cooperation on energy and water and applauded the signed statement of intent between the UAE,

Jordan, and Israel concerning the *water-for-energy* deal. Habeck praised the deal for countering Jordan's endemic water scarcity and enhancing regional collaboration in the renewable energy and water sector to mitigate climate change and its impact on the different countries of the MENA region. The Vice Chancellor's comments come as talks of the *water-for-energy* deal advance, as seen in the creation of water and energy committees and the visit of an Israeli delegation to Jordan in March 2022.

Numerous ministers, policymakers, and international organizations emphasized during the MENA Europe Future Energy Dialogue (MEFED 2022) in Jordan the necessity of expanding regional cooperation in renewable energy and water sectors. Both the deal and the MEFED 2022 conference are transpiring in light of the deep-rooted and far-reaching transition the Middle East is experiencing. Especially climate change, increasing global demands for renewable energy, the European shift away from Russian gas and oil, and a post-carbon future pose unprecedented challenges and historical opportunities for this region. This transition is particularly impactful for Jordan, a semi-rentier and economically fragile state, with worsening water scarcity as refugee influxes, demographic transformations, and economic growth drastically increase demand for this overexploited and scarce resource.[1] However, Jordan also has tremendous solar power potential and is in an ideal geographic location to act as a transit country for regional energy trade.

Hence, this *water-for-energy deal* could act as a landmark agreement to safeguard Jordanian water security while advancing regional collaboration in the renewable energy sector. With the UAE and Israel publically cooperating, this project can be seen as an operationalization of the Abraham Accords Peace Agreement, which was signed in September 2020 and allowed for diplomatic relations and "normalization" between the UAE and Israel. As such, this agreement is deeply intertwined with the region's

[1] The Environment and Politics in Jordan: The Need for Action, Konrad Adenauer Stiftung Jordan Office, December 2021.

geopolitical developments, with critics in Jordan viewing this deal as advancing "normalization" and undermining their national water sovereignty.[2] Further, given that the Palestinian Authority (PA) denounced the Abraham Accords, the PA decided to abstain from participating in this *water-for-energy* deal, as joining it would have been, in their view a sign of approving the "normalization" between the UAE and Israel. Even if the PA excluded itself from discussions and the decision-making processes, as a direct consequence this deal runs the risk of entrenching existing power inequities and further isolating the PA from regional cooperation agreements. Palestinian voices claim that the water delivered to Jordan partially belongs to the Palestinians and that part of the energy delivered to Israel will later be indirectly sold to the PA. Hence, the *water-for-energy* deal could face potential drawbacks due to public criticism in Jordan and Palestine, an asymmetrical interdependency, and the PA's non-involvement.[3] To avoid this, further discussions should agree that no solar energy will be delivered to illegal settlements, that water flow to Jordan in times of drought or political tensions remains safeguarded and that Jordan commits itself to increase its energy and water export to Palestine. These amendments could advance social prosperity for Jordanians, Israelis, and Palestinians alike, alleviate mistrust and provide confidence for future energy and water cooperation deals.

The Water-for-Energy Deal and Amman-Aqaba Water Pipeline Project

Throughout the last decades, Jordanian water demand has been increasing rapidly, consequently raising pressure on the Kingdom to secure and diversify its water sources. To illustrate, in 2021, the Kingdom used 1.1 billion m^3 of water, roughly 50% flowing into household usage, compared to 840 million m^3 in 2006.[4] The situation has

[2] Hundreds protest in Jordan against water-energy deal with Israel, Al Jazeera; November 2021.
[3] According to EcoPeace the interdependency of water for energy trade is not necessarily symmetric, as the dependence on foreign water entails a bigger risk than dependence on foreign electricity. See Water Energy Nexus; Konrad Adenauer Stiftung and EcoPeace Middle East; 2017.
[4] Jordan Water Sector Facts & Figures, Jordan Ministry of Water and Irrigatio;, 2015.

worsened as 59% of water usage is dependent on groundwater sources, which are being exploited quicker than they can replenish.[5] Additionally, Jordan's continuing population growth is increasing agricultural and household usage, with governmental projections estimating an increased water demand of 800 million m^3 by 2040.[6] In an attempt to diversify its water source, the Kingdom launched the *Amman-Aqaba Water Desalination and Conveyance* Project in February 2020 and signed in November 2022 the statement of intent on the *energy-for-water* deal with Israel and the UAE.[7]

The *energy-for-water* deal between Jordan, Israel, and the UAE sees the creation of a 600-megawatt solar farm projected to be completed by the year 2026 in Jordan. This project is to be financed by Masdar, a UAE government-owned renewable energy company.[8] The solar energy produced would be sent to Israel in exchange for 200 million m^3 of water annually from a new coastal desalination facility near Nahariya, and Israel would transfer an additional 180 million US dollars annually, which Jordan and Masdar would share. The technical and financial initiation is scheduled to begin in the Fall of 2022. However, as of now, only a statement of intent between the three parties exists without legal or financial obligations. Hence, as delegates of the newly created water and energy committee are still engaged in discussions and addressing unsettled issues, there remains time to include new amendments within this deal.

While the Jordanian and international governments have praised this deal, it has been subject to domestic criticism in Jordan. Many Jordanians view this agreement as increasing Jordan's dependency, furthering "normalization" with Israel, and "marginalizing" Palestinians within the West Bank. Nonetheless, this agreement is an opportunity for Jordan to tackle its growing water demand through interdependency

[5] 59% of Jordan's dependence is on groundwater Al Ghad; March 2022.
[6] Kingdom's drinking water consumption stands at 1.1bcm, deficit to hit 60mcm in 2022, Jordan Times; December 2021, Jordan Times.
[7] Israel signs deal to double water supply to Jordan, France 24; October 2021.
[8] Israel, the UAE and Jordan... Signing the "Electricity for Water" deal, Al Hurra; November 2021

instead of purchasing water, as the stated quantity of 200 million m^3 of water would be double what Jordan is currently purchasing from Israel. Moreover, observers have argued that desalinated water is a more sustainable and long-term solution than overexploiting other scarce groundwater sources in Jordan.

In contrast to this controversial deal stands Jordan's *Amman-Aqaba Water Desalination and Conveyance* (AAWDC) Project, which sees the creation of a 450 km water pipeline transportation network between Aqaba and Amman. This pipeline would provide roughly 300 million m^3 of water annually to the Kingdom's Governorates, of which 150 million m^3 would be delivered to Amman. The project is based on two components: desalinated water from the Red Sea at Aqaba and extracted groundwater from the Rum/Disi Wellfield. The AAWDC interfaces with the 2013 completed *Disi Water Conveyance Project*, which extracts and distributes 100 million m^3 of water across the Hashemite Kingdom and includes a 325km long pipeline connecting the Disi Aquifer with Amman.[9] The project is set to be subcontracted by the end of 2022 and completed in 2027, after which the government is set to purchase desalinated water from the company.

It has been argued that this project is significant for the national security of Jordan, as it counters a domestic challenge and preserves internal stability.[10] However, there remain numerous hurdles. Firstly, the project comes at the cost of around 2.5 – 3 billion USD, with recently 570 million euros (591 million USD) pledged through grants and loans by the European Investment Bank and the European Bank for Reconstruction and Development.[11] The remaining funding will be determined by a tendering process in which different companies compete for the project and will be responsible for incorporating a green component. Yet, given the ongoing uncertainty of funding, the viability of this project remains ambiguous, with Jordan's former deputy Prime Minister for Economic

[9] King inaugurates Disi water project, Jordan Times; 2013.
[10] Jordan's security priorities. Jordan News, July 2022.
[11] The Aqaba-Amman Water Desalination and Conveyance Project (AAWDCP), EU Agenda; April 2022.

Affairs, Jawad Al-Anani, calling the project "extremely costly" and its feasibility "extremely low".[12]

Experts also question Jordan's ability to implement the project due to limited space along the narrow coastal strip of the city of Aqaba overlooking the Red Sea, which is only about 30 kilometers long.[13] Lastly, given that the existing Disi project already extracts double the natural replenishing amount of the overexploited Disi Aquifer, this project's long-term viability and sustainability remain uncertain.[14] Hence, some argue that the AAWDC should focus on extracting most of the water from a future desalination plant in Aqaba and thereby supplement the water from the *water-for-energy* deal*,* thus allowing Jordan to safeguard its water supply and sovereignty.

Previous Water-Cooperation Agreements

The geographical characteristics of the Middle East, coupled with the exacerbating effects of climate change, resulting in an inevitable regional necessity concerning water cooperation agreements. After all, it has become evident that unilateral approaches undermine sustainable water supply chains, fragile regional relations, and social and economic stability in the long term. Given this necessity, prior regional water cooperation agreements were developed. For example, the Israel-Jordan Joint Water Committee (JWC) was enshrined within their 1994 Peace Agreement, while the Israel-Palestine JWC was established as part of the 1995 Oslo II Accords. Lastly, some agreements, such as Jordan's and Israel's Red-Dead Sea Plan, have also failed.

[12] Jordan's National Water Carrier Project to deliver desalinated water by 2027, Jordan Times; January 2022; See Shraideh calls on donors to fund national water carrier project, Petra News, January 2022; Aqaba – Amman Water Desalination & Conveyance Project (AAWDC), GVIP. Also see Hundreds protest in Jordan against water-energy deal with Israel, Al Jazeera; November 2021.
[13] At a cost of one billion dollars, will Jordan succeed in implementing a project to desalinate and transport water after the failure of the completion of the Bahrain conveyor? Al Jazeera; June 2021.
[14] Jordan depleting groundwater at 'alarming' rate — official, Jordan Times; July 2021

The implemented water-sharing agreements aim to ensure sustainable water usage and distribution while promoting development and prosperity. However, their implementations have been subject to criticism. In particular, the Israel-Palestine Joint Water Committee has been condemned, as the political, economic, and technical power imbalance supposedly enables Israel to institutionalize its control over the transboundary groundwater source originating in the West Bank and extend its illegal settlement policy. Simultaneously, it fails to support the agreed-upon sustainable water infrastructure development in the West Bank.[15] However, the JWC proved beneficial as it ensured a continuous communication channel between Israeli and Palestinian officials during the Second Intifada (2000 - 2005). This communication passage indicates the supplementary benefit of water cooperation, essential in a region characterized by political tensions.

Similarly, the Jordan-Israel Joint Water Committee and Regional Water Data Banks set the basis for current water cooperation. Yet, this agency has received public dissatisfaction in Jordan, as it allegedly increases the water dependency of Jordan on Israel.[16] This mistrust is based on prior setbacks. In 1999, Israel reduced the water quantity by 60%, and in 1998 and 2009, Israel delivered polluted water.[17] Additionally, asymmetrical technological and financial capacities have instigated limited implementation within Jordan. Despite these setbacks, the agreements ensured almost continuous annual purchasing of amounts ranging from 45 to 60 million m^3 of water by Jordan from Israel.[18] Israel has been selling water at a remarkably cheap tariff of 0.04 USD/m^3 of water to Jordan, much lower than the 2.26 USD paid by Israeli consumers.[19] In 2021, Jordanian and Israeli representatives of the JWC announced to double this

[15] A Breakthrough at Long Last? International Reports 3/2017, Konrad Adenauer Stiftung; 2017.
[16] Calls for demonstrations and arrests of activists... How do Jordanians view the electricity for water project with Israel? | cropping Al Jazeera; November 2021.
[17] Jordan and Israel: Tensions and Water Cooperation in the Middle-East. Climate Diplomacy, last accessed 27.06.2022.
[18] Jordanians protest water-energy deal with Israel. Jordan Times, November 2021.
[19] Israel to double volume of water sold to Jordan. Globes, October 2021.

figure, allowing Israel to sell an additional 50 m^3 million in October 2021, resulting in Jordan receiving roughly 100 m^3 million of water annually from Israel.[20]

In contrast to these arrangements stands the Red Sea-Dead Sea Water Conveyance Project. This project failed due to bureaucratic hurdles, financial difficulties, environmental concerns, and political issues.[21] This project planned the creation of a desalination plant and pipeline linking both Seas to prevent a further decline of the Dead Sea and provide purified water for domestic usage. However, after nearly 20 years, the plan failed as political disagreements overshadowed discussions, and funders eventually withdrew in 2021.

Regional Implications, Challenges, and Opportunities

Jordan is a downstream state regarding the transboundary water flows of the Jordan and Yarmouk River (Syria and Israel are upstream states). This circumstance reduces Jordan's negotiation and water extraction capabilities, placing Jordan within a power imbalance regarding its riparian neighbors. The geostrategic significance of water for social prosperity, economic growth, agricultural production, and political stability becomes especially perceptible within Jordan, a state characterized by water scarcity, rising temperatures, and altering weather patterns due to climate change. Additionally, the war in Ukraine has amplified calls for increased self-sufficiency concerning wheat production, subsequently increasing water demand within Jordan's agricultural sector.[22] Hence, as water scarcity is exasperated and climate change advances, new cooperation frameworks and alliances will come into existence in the renewable energy and water sector. However, suppose such cooperation frameworks become exclusive and exploitive.

[20] However, this new agreement sets the price of water sold to Jordan to 0.65USD/m^3 of water. See Israel to double volume of water sold to Jordan. Globes, October 2021. Also see Jordan to purchase additional 50mcm water from Israel. Jordan Times, October 2021.
[21] After years of delays, Jordan said to nix Red Sea-Dead Sea canal with Israel, PA. Times of Israel, June 2021.
[22] Ukraine conflict pushes wheat prices up, strategic stockpile can last a year, Jordan News; February 2022.

In that case, they risk being overshadowed by existing power imbalances, as landlocked, arid, and economically weaker states might become more dependent on technologically advanced, coastal, or higher precipitation states.

Simultaneously, the region faces a common threat; water scarcity and climate change. Hence, new initiatives in renewable energy production and cooperation and water trade offer a significant opportunity to improve strained relations. Israel has become a regional water supplier due to its comprehensive desalination efforts, advanced water treatment plants, gray water usage, and technical know-how. Meanwhile, Jordan can become a regional leader in green energy production, export, and transit, due to its geographical location and solar power potential. Hence, the water-for-energy deal builds on both nations' potential. This deal could effectively safeguard national interests, advance social prosperity, improve energy and water inter-dependencies, and promote stability. This exchange of energy and water could encourage further regional cooperation in the energy and water sectors, foster increased regional inter-dependencies, and contribute to states linking water networks and power grids. In addition, this deal has the potential to imminently improve the livelihoods of citizens and communities, subsequently fostering increased trust between Jordanians and Israelis. However, as of now, the trade of solar energy for water is an asymmetrical interdependency since the dependency on the water is more dangerous than the dependency on a foreign power.[23] Especially as it is possible to withhold water through storage, while withholding solar energy is more complicated, as Photovoltaic systems continue to have problems with storage. Lastly, the decision of the PA to abstain risks isolating them from the regional interconnectivity, possibly damaging relations between Jordan and Palestine and thereby reducing Jordan's reliability as a trusted partner and ally of Palestinians in the West Bank, Israel, and Jordan.

Finally, it should be mentioned that water and energy sharing agreements possess tremendous conflict mediation potential by creating new communication channels and

[23] Water Energy Nexus; Konrad Adenauer Stiftung and EcoPeace Middle East; 2017.

sustainable energy and water solutions. This was initially voiced within the water for energy deal layout by ECOPEACE, which proposed Jordan, Israel, and Palestine as negotiation partners. This original proposal advocated the inclusion of Palestinians and Israelis, argued in favor of water-sharing agreements as a tool to reinitiate negotiations between Jordanians, Israelis, and Palestinians, advancing water and energy security for Palestine and subsequently improving overall living conditions.[24] However, as the UAE has become a key partner of this agreement due to its funding capabilities and interest to advance its ties with Israel, and the PA abstaining, this agreement which has the potential to alter power imbalances, could be exploited by technical, economic, and politically more influential actors to enhance their control. Hence, it becomes evident that such deals must be both environmentally and politically sustainable to be a viable option for the region.

Outlook and Recommendations

This analysis highlighted the difficulties and issues of prior water-sharing agreements as seen in the Joint-Water Committees by illustrating the fragile nature of such deals, which at times are overshadowed by political power dynamics and can safeguard existing disparities. Hence, the following recommendations address previous difficulties and offer suggestions for the water-for-energy deal to avoid similar pitfalls and maximize this agreement's potential. As such, this water-for-energy deal could set a constructive regional precedent. After all, the MEFED 2022 Conference emphasized the necessity for future collaboration. However, if this deal fails, it could result in public dissatisfaction, increases power imbalances, and discourage the development of future agreements.

[24] Water Energy Nexus; Konrad Adenauer Stiftung and EcoPeace Middle East; 2017.

Firstly, the US, which assisted in brokering the agreement through its climate envoy John Kerry, should utilize its regional influence to stronger encourage the PA to participate in such agreements and embolden the Jordanian, Emirati, and Israeli governments to involve the PA. Further, the US and the EU should continue to mediate regional energy and water agreements by providing technical assistance and safeguarding inclusive decision-making processes to ensure social stability and participation. A prime example of European assistance could be the "New Levant" agreement, which sees the creation of oil and gas pipelines between Iraq, Jordan, and Egypt.[25] Moreover, the EU and the US should use their mediation capabilities, linked to their technical and financial support, to foster inclusive water and energy agreements, encouraging regional cooperation to an extent where marginalized groups are included in lead-up negotiations. Simultaneously the US and EU should ensure that future water and energy sharing contracts don't cement power imbalances and sideline communities.

Secondly, Jordan, the UAE, and the United States should ensure within the legal framework and its practical implementation that their *energy-for-water* deal does not enforce the exclusion of the Palestinians and becomes an instrument of Israeli control over Palestinian water access. Therefore, it should avoid similar arrangements and implementations found in the Israeli-Palestinian "Joint Water Committee", as this enforced Israeli supremacy over Palestinian water rights.[26] This could be achieved by integrating an international observatory body to oversee the implementation of upcoming developments and decision-making processes to ensure mutual-beneficiary clauses. In addition, there should be a crisis observatory body or committee to ensure water delivery in times of drought or political tensions to avoid unilateral actions of a state in instrumentalizing this agreement for political benefits or to exert pressure.

[25] 'The New Levant' an ambitious vision faced by various challenges, Jordan Times; October 2021.
[26] A Breakthrough at Long Last? International Reports 3/2017, Konrad Adenauer Stiftung; 2017.

The Middle East finds itself at a time of transition; climate change, water scarcity, and global renewable energy demands are altering the economic foundation of oil rentier and semi-rentier states (such as Jordan). In addition, the signing of the Abraham Accords has enabled greater regional cooperation between the UAE, Bahrain, and Israel. However, in particular, Jordan has voiced severe concern towards this political agreement, as it neglected the rights of Palestinians and risks undercutting the prospect of a two-state solution, as it does not require Israel to halt its illegal settlements in the West Bank.[27]

Given these regional transformations and the domestic criticism in Jordan and Palestine of the Abraham Accords and the *water-for-energy* deal, Amman should engage in bilateral talks with the PA before agreeing on a legally binding agreement with Israel and the UAE. Such discussions would enable indirect involvement of the PA and thereby send a clear signal to Palestinians in the West Bank and Jordan, indicating the Kingdom's continued commitment to Palestinian integrity, inclusion in the region and their ambition towards sovereignty. Within a final agreement with Israel and the UAE, Jordan should integrate suggestions expressed by the PA and tackle voiced concerns by diverting additional amounts of domestic water to the West Bank, as well as an agreed-upon amount of the solar energy produced to the West Bank.[28] These actions would allow the West Bank to gradually become independent of Israeli water and energy supply, thereby reducing prices and making this deal more inclusive. Moreover, Jordan should ensure that the energy produced by its solar field is not delivered to illegal settlements by installing a certain degree of energy tracking. Such amendments would increase Palestinian involvement and sovereignty, address the illegal settlements, benefit Palestinians, Jordanians and Israelis, and indicate Jordan's commitment to safeguarding Palestinian rights, subsequently increasing domestic support for the *water-for-energy* deal.

[27] Foreign minister: Israel must choose between just peace or continued conflict, Ad Dustour; June 2021.
[28] Jordan announced it would increase its electricity export to the PA from prior 35 up to 80 megawatts in July 2022. See Jordan to export more electricity to the Palestinian Authority, The National News; March 2022.

In conclusion, despite the existing pitfalls of this deal, energy and water agreements are an opportunity to further regional economic integration. Also, such arrangements are environmentally and economically more viable and prosperous than unilateral actions. Lastly, in addition to the financial and environmental benefits, energy and water agreements are an opportunity for the region to enhance its interdependency and interconnectivity, preserve and open new communication channels during political crises and allow for cross-boundary prosperity. These benefits are vital in a region overshadowed by political and social tensions, mistrust, and conflicts.