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International Water Law's Ability to Address Jordanian Water Insecurity

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Abstract

This comment studies international water law, specifically between Jordan and Israel, by detailing the complex history of Jordan and Israel. The comment analyzes the unique progression of previously feuding states, specifically Jordan and Israel, and looks to a hopeful future. Potential solutions will require an abundance of creativity and cooperation, something historically challenging for the Jordan River Basin region, but which is arguably possible with shared goals and understandings of the inescapable impact of climate change on the Jordan River Basin. Further, this comment hopes to shed light on a more sustainable future that can inspire the international community as an example of potential transboundary environmental cooperation and sustainability.

This comment will first cover background of water law between Jordan and Israel, including the geopolitical context because water law is insufficient if complex regional issues are not considered. Then analyze the relationship between Jordan and Israel that supports cooperation, despite their tumultuous past. Finally, it will recommend both multilateral and unilateral solutions to stabilizing Jordan’s water crisis

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I. Introduction

Water is a fundamental natural resource, yet many states lack sufficient water access and security due to arid environments, climate change, population increases, and regional fragility.[1] Water scarcity occurs whenever states have insufficient access to water to meet the demands of the people.[2]

[1] See Jordan and Israel: Tensions and Water Cooperation in the Middle East, **Climate Diplomacy**, https://climate-diplomacy.org/case-studies/jordan-and-israel-tensions-and-water-cooperation-middle-east (last visited May 20, 2021) [hereinafter Tensions and Water Cooperation]; see also **Running Dry The Impact of Water Scarcity on Children in the Middle East and North Africa**, **UNICEF**, 1, 8 (2021), https://www.unicef.org/mena/media/12871/file/RunningDry-WASH-FullReport.pdf%20.pdf [hereinafter Running Dry].

[2] See Bachar Ibrahim & Henry Mensah, Linking Environmental Water Scarcity and Options for Adaption in the MENA Region, 9 **J. of Water Res. and Prot.**, 378, 380-81 (2017), https://www.scirp.org/pdf/JWARP_2017032914442621.pdf (recognizing that factors such as population growth,

Water law in its entirety did not develop thoroughly until post-WWII, and it is still relatively ambiguous.[3] As a result, there is no efficient method to enforce norms of international water law because there is no compulsory jurisdiction.[4] Nevertheless, three main principles emerged to guide international water law: 1) the upstream riparian is entitled to use the sovereign principle to access water, which provides that a state is entitled to absolute control of territory and the resources within; 2) the downstream riparian may assert the principle of prior use to access water, which gives states that have had a "historic right" to certain water ultimate control over that water; and 3) states which share a water resource must follow equitable utilization, including the sustainability of the resource.[5] Notably, the first and second international water

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agriculture, poverty, and national conflict all combine to water insecurity).

[3] See Anders Jägerskog, Why States Cooperate Over Shared Water: The Water Negotiations in the Jordan River Basin, **Dep't of Water and Env't Stud. Linköping Univ.** 89-90 (2003), http://www.diva-portal.org/smash/get/diva2:20723/FULLTEXT01.pdf.

[4] See id. at 90-91.

[5] See id.

principles are seemingly irreconcilable, making the implementation of water law difficult.

Historically, most societies formed in locations that had ready access to water; however, with increased technology, states began to thrive even in more arid areas. Nevertheless, water scarcity continues to impact many Middle East and North African (MENA) states, as there is inadequate water available to satisfy the growing need.[6] According to UNICEF, Jordan is commonly considered the second most water poor state in the world.[7] Further, experts predict that Jordan will exceed its resources by over 26% by 2025.[8] Nevertheless, recently, water

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[6] See Ibrahim, supra note 2, at 380 (highlighting the impact that water scarcity has on MENA states' human health, ecosystem, and sustainable development).

[7] See Hanna Davis, Hundreds Protest in Jordan Against Water-Energy Deal with Israel, **Al Jazeera** (Nov. 26, 2021) https://www.aljazeera.com/news/2021/11/26/hundreds-protest-in-amman-against-water-energy-deal-with-israel; see also **Running Dry**, supra note 1, at 15.

[8] See Ram Aviram et al., Coping with Water Scarcity in the Jordan River Basin, **The Century Found.** (Dec. 14, 2020) https://tcf.org/content/report/coping-water-scarcity-jordan-river-basin/?agreed=1.

security has become significant in heightening the negotiating power for international treaties.[9] When a state is desperate to secure necessary resources, the government tends to sacrifice more malleable geopolitical goals.[10] Ultimately, conflict and subsequent treaties must analyze the influence of water to properly view the situation.[11]

This Comment will argue that the impact of water scarcity, both through environmental and geopolitical causes, creates a strain on transborder relationships. In order for a state to be a strong, autonomous international player, water security is necessary. However, states that are water insecure cannot create more quality water; instead, states must leverage other resources into political capital.

Part II will provide a brief background on the history of international water law and how climate change has impacted the

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[9] See Treaty of Peace Between the State of Israel and the Hashemite Kingdom of Jordan, Isr.-Jordan, Oct. 26, 1994, 34 I.L.M. 46 1995 [hereinafter Treaty of Peace Between Israel and Jordan] (offering to provide Jordan with additional water and return land taken during the Six Day War in exchange).

[10] See e.g., id. (formalizing recognition of Israel, despite many Jordanians believing it betrayed Palestinians).

[11] See Jägerskog, supra note 3 at 87.

global perspective.[12] Part III will analyze how Jordan specifically can use its stable and peaceful position to increase its negotiating power and the role of third-party state and non-state actors in establishing equitable water treaties.[13] Part IV will recommend a potential solution that will both stimulate Jordan's internal economy and create sustainable water solutions to the instability.[14]

II. Background

A. The International Water Law Perspective – How the World Addresses Water Insecurity

With UN Resolution 64/292, the United Nations explicitly recognized a universal right to water and sanitation and the UN's commitment to ensuring the availability and sustainability of water access for all.[15] Water scarcity has a disproportionate

[12] See discussion infra Part II.

[13] See discussion infra Part III.

[14] See discussion infra Part IV.

[15] See Ensure Availability and Sustainable Management of Water and Sanitation for all, **United Nations Dep't of Econ. and Soc. Aff.**, https://sdgs.un.org/goals/goal6 (emphasizing that over two

impact on children, the poor, and other marginalized communities.[16] Notably, many countries that are already susceptible to water scarcity because of arid environments are also the states hosting millions of refugees, a highly disenfranchised group of people exceedingly impacted by water scarcity.[17]

When engaged with water law discourse, the international standard requires equitable and reasonable utilization of water resources; having an international standard, even an ambiguous one, creates more consistent and equitable discourse that governs international treaties and allocation of third-party aid. [18] Additionally, the international standard helps the

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billion people lack access to safely managed drinking water and 129 countries will lack sustainable water access by 2030).

[16] See **Running Dry**, supra note 1, at 5 (emphasizing inequality of water access in the MENA region).

[17] See **United Nations Relief and Works Agency for Palestinian Refugees in the Near East (UMRWA), In Figures**, (2020) [hereinafter UMRWA] (stating that in 2020 Jordan hosted 2,307,011 registered Palestinian refugees).

[18] Tamar Meshel & Moin A. Yahya, International Water Law and Fresh Water Dispute Resolution: A Cosean Perspective, 92 **Univ. Colo. L. Rev.** 509, 509 (2021).

international community understand where water support is most necessary.[19] When a state is plagued by consistent water scarcity, it takes a toll on the state's economic, geopolitical, and societal growth.

B. Jordanian Water Scarcity – How Water Scarcity Affects Jordan's Day-to-Day Sustainability Efforts

Since Jordan is commonly regarded as the second water poorest country in the world, the growing impact of water scarcity riddles nearly every aspect of Jordanian life.[20] Over half of Jordanian households only receive water once per week and water is accessed through private storage tanks for the remaining six days.[21] Jordan's current population is made up of over 2.3 million refugees, which falls into the categories of

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[19] Id. at 509.

[20] See Tensions and Water Cooperation, supra note 1; see also **Running Dry**, supra note 1, at 8 (2021).

[21] Toi Staff, After Years of Delays, Jordan Said to Nix Red Sea-Dead Sea Canal with Israel, PA **The Times of Israel** (June 17, 2021), https://www.timesofisrael.com/after-years-of-delays-jordan-said-to-nix-red-sea-dead-sea-canal-with-israel-pa/.

people most negatively impacted by water scarcity.[22] Combining the at risk populations with the naturally arid environment continuously impacted by climate change compounds Jordan's water scarcity crisis upon itself.

Although the standard culprit, climate change, is a significant driver of water insecurity,[23] Jordan is also plagued by regional fragility and dramatic population growth.[24] Fortunately, Jordan has been able to leverage its position as a regional peaceful staple in a contentious region into

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[22] See **UMRWA**, supra note 14 (stating that as of 2020, Jordan hosted 2,307,011 registered Palestinian refugees alone); see also Tapped Out: Water Scarcity and Refugee Pressures in Jordan, **Mercy Corps**, at 4 (2014) [hereinafter Tapped Out] (noting that refugees are concentrated in Northern Jordan, which quadrupled the water demand without sufficient supply and increasing reluctance towards refugee support).

[23] Aviram, supra note 8 (stating that the Jordan River is only producing 10% of its historical output of water, which is an unprecedented shortage).

[24] See **Running Dry**, supra note 1, at 8 (highlighting the unsustainability of emergency schemes put in place to temporarily relieve Jordan from the sudden burden on natural resources due to refugees).

negotiating power for international treaties.[25] Israel is obligated to provide Jordan with 50 MCM of water every year from alternative resources, not the Jordan or Yarmouk Rivers.[26] The Jordan and Yarmouk Rivers are the two main water access points for Jordan; however, by virtue of Jordan's down-stream position, the state receives water last and is subject to Israel and Syria diverting water for their own purposes.[27] Despite international water assistance, in some areas, Jordan's ground water aquifers have dropped by over a meter.[28]

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[25] See Audeh Quawas, Jordan: A Stable and Peaceful Country in a Turbulent Region. A Review of Jordan's Policy in the Last Decades and Some Future Perspectives, **Middle East Political and Econ. Inst.** https://mepei.com/jordan-a-stable-and-peaceful-country-in-a-turbulent-region-a-review-of-jordans-policy-in-the-last-decades-and-some-future-perspectives/ (noting that Jordan puts significant effort into security and border control, having been influenced by the turbulent issues in surrounding countries).

[26] Treaty of Peace Between Israel and Jordan, supra note 9, art. 6.

[27] Davis, supra note 7.

[28] Josie Garthwaite, Stanford Study Revealed a Deepening Water Crisis in Jordan – and a Way Forward, **Stanford News** (Mar. 29,

C. Jordan and Israel's Contentious Water History

a. The Roots of Jordanian-Israeli Relations

Jordan and Israel have an intensely complex and intertwined history, having both had claims to the same land in the West Bank and tensions resulting from cultural pressures.[29] The creation of Israel and Israel's political decisions to annex Palestinian territories directly impacted Jordan, both economically and societally.[30] Jordan suffered its first dramatic influx of refugees, a significant strain on its natural resources, in the late 1940s, following the British departure from Israel,[31] and the subsequent First Arab-Israeli War of

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2021) https://news.stanford.edu/2021/03/29/jordans-worsening-water-crisis-warning-world/.

[29] See Jägerskog, supra note 3, at 94 (noting the challenge of developing water infrastructure in the West Bank and Gaza, as it is under occupation).

[30] Géraldine Chatelard, Jordan – A Refugee Haven, **The Online J. of the Migration Pol'y Inst.**, 1 (2010) (last updated 2015), https://www.migrationpolicy.org/article/jordan-refugee-haven.

[31] See Jägerskog, supra note 3, at 80-81.

1948.[32] Following the First Arab-Israeli War,[33] tensions between Jordan and Israel grew as each began unilateral water development projects, having failed to reach mediated agreements in water cooperation.[34] Many Arab states, including Jordan, refused to formally cooperate with Israel because it would signify formal recognition of Israel, when Israel was seen by many states as an occupier.[35] In 1955, all the states, including Jordan and Israel, which border the Jordan River entered into an informal agreement to secure each states' rightful share of

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[32] See Chatelard, supra note 30 (citing Jordan's population increase from 500,000 to 1.5 million within two years).

[33] The Arab-Israeli War of 1948, **Office of the Historian**, https://history.state.gov/milestones/1945-1952/arab-israeli-war (stating that the First Arab-Israeli War was partially triggered by a UN Resolution that would have divided Palestine, formerly controlled by Britain, into Jewish and Arab states, but that was poorly received by both sides).

[34] Tensions and Water Cooperation, supra note 1.

[35] Maya Manna, Water and the Treaty of Peace Between Israel and Jordan, 10 **Ctr. for Macro Projects & Dipl. Working Paper Series** 58, 60 (2006) https://docs.rwu.edu/cgi/viewcontent.cgi?article=1031&context=cmpd_working_papers.

water.[36] Unfortunately, due to the geopolitics behind entering into a treaty with Israel, the agreement was never politically ratified, making enforcement difficult.[37]

Additionally, following the Six Day War, also known as the War of 1967, Israel greatly expanded its control over water resources, gaining an additional 17% dominion over the Jordan River Basin, inevitably increasingly restricting Jordan's ultimate water access.[38] Having lost control of the Golan Heights, Israel gained authority over the Upper Jordan River and Lake Tiberius, making any Jordanian water diversion plan null.[39] Ultimately, Jordan remains subject to other states' diversion of the Jordan River Basin, and consequently Jordan must discover a method for ensuring its rightful share of water resources.

According to the United Nations Relief and Works Agency for Palestinian Refugees in the Near East (UNRWA), as of December

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[36] Id.

[37] Id.

[38] See Jägerskog, supra note 3, at 85 (explaining that Israel gained control over two out of three sources of the Jordan River and expanded its access to the Yarmouk River).

[39] See Bruce Borthwick, Water in Israel-Jordanian Relations: Conflict to the Dangers of Ecological Disaster, 9 **Israel Affairs**, 165, 174-75 (2003).

31, 2020 2,307,011 registered Palestinian refugees live in Jordan.[40] Today so many Palestinians reside in Jordan that over half of Jordan's population is either Palestinian or Palestinian in descent.[41] In response to a second wave of Palestinian refugees entering Jordan in the mid-1960s, Jordan engaged in the East Ghor Canal Project, funded by United States Agency for International Development (USAID), with the hopes that it might alleviate some tension between Jordan and Israel.[42]

D. The Impact of Jordanian-Israeli Relations on Water Distribution – Viewed Through Treaties

a. The Jordan-Israeli Peace Treaty of 1994

Following decades of contentious and unproductive meetings throughout the mid-1900s, often facilitated by third-party states and actors, Jordan and Israel eventually began to cooperate.[43] Secret meetings between Israel and Jordan turned

[40] See **UMRWA**, supra note 17.

[41] Borthwick, supra note 39, at 170.

[42] See Jägerskog, supra note 3, at 94-95 (addressing the complications, like crisis-level water scarcity, of an increased population combined with less developed infrastructure to support the significant influx).

[43] Borthwick, supra note 39, at 176.

into public talks following the news of negotiations between Israel and the Palestinian Liberty Organization (PLO) in August of 1993.[44] Jordan proceeded to sever all ties to the West Bank and allowed the PLO to succeed from Jordan in recognition of its own sovereign state.[45]

On September 13, 1993 PLO Chairman, Yasser Arafat, and Israeli Prime Minister, Yitzhak Rabin, famously shook hands on the White House lawn, signifying the improving relationships of the region as a whole.[46] The improved relationship between Israel and the PLO established an easier path for Jordan and Israel to move forward in their relations.[47] Peace negotiations between

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[44] Id. (adding that these talks were brokered by the Norwegian government, an important third-party actor).

[45] Id. at 176-77 (noting the significant step in facilitating cooperation in realization of a political future).

[46] See Id. at 176 (following the PLO-Israel handshake, Rabin flew to Amman, Jordan to meet with King Hussein, relying partly on the momentum gathered at the White House to push forward additional negotiations).

[47] Dr. Joshua Krasna, The Jordan Israel Peace Treaty at 25: A Slightly Tarnished, but Still Important Silver Anniversary, **The Jerusalem Inst. for Strategy and Sec.** (June 06, 2019)

King Hussein of Jordan and Prime Minister Rabin stirred further talks of water allocation; necessarily King Hussein wanted to mitigate the significant damages that Jordan had incurred following the Six-Day War to provide additional security to the state.[48]

In October of 1994, Prime Minister Rabin proposed a peace deal that would return the Wadi Araba/Arava land back to sovereign Jordan control; additionally, the deal gave Jordan and additional 50 million cubic meters (MCM) of water from the Yarmouk River.[49] This proposal became the Treaty of Peace Between the State of Israel and the Hashemite Kingdom of Jordan (hereinafter The Peace Treaty), signed in the Wadi Araba region on October 26, 1994.[50] Article 6, the water-relevant section of

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https://jiss.org.il/en/krasna-the-jordan-israel-peace-treaty-at-25/.

[48] See Borthwick, supra note 39, at 176-77 (emphasizing the desire for Jordan to gain back the Wadi Araba/Arava region and gain increased water allocations from the Yarmouk River).

[49] Id. at 177-78.

[50] See Treaty of Peace Between Israel and Jordan, supra note 9; Borthwick, supra note 39, at 178 (noting that US President Bill Clinton attended the signing ceremony).

The Peace Treaty, details the requirements of each state with respect to water allocation and respect.[51]

The Peace Treaty sparked tension among the Jordanian public due to the historical animosity between the two states, despite the advantages that Jordan would receive in accord with the agreement.[52] The general public struggled to rectify an improved and beneficial relationship with Israel and Israel's ongoing occupation and annexation of the West Bank, which drove millions of Palestinians from their homes.[53] Further, some in Jordan believe that The Peace Treaty halted important and strategic political reforms occurring in Jordan in the mid-1990s.[54] Nevertheless, The Peace Treaty, despite its shortcomings, is an

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[51] Id.

[52] Krasna, supra note 47 (acknowledging that The Peace Treaty has never been popular among Jordanian people).

[53] Bruce Riedel, 25 Years on, Remembering the Path to Peace for Jordan and Israel, **Brookings** (Oct. 23, 2019) https://www.brookings.edu/blog/order-from-chaos/2019/10/23/25-years-on-remembering-the-path-to-peace-for-jordan-and-israel/.

[54] See Krasna, supra note 47 (stopping the first parliamentary elections in over 25 years, legalization of political parties, and termination of martial law in hopes of reducing opposition to The Peace Treaty).

important indicator of what states can accomplish when they focus on how to sustainably cooperate to most efficiently use collective resources.

Article 6 of The Peace Treaty details the specific "comprehensive and lasting settlement of all the water problems between [Jordan and Israel]."[55] Paragraph 1 expresses that both Israel and Jordan must mutually recognize the "rightful allocations" of the Jordan and Yarmouk Rivers and the Araba/Arava ground water in accordance with Annex II, detailed below.[56] Paragraph 2 emphasizes the necessity of Israel and Jordan to find practical solutions to their water scarcity.[57] Paragraph 3 recognizes that there is insufficient water to satisfy their needs, making it essential to find alternative methods of supplying water.[58] Paragraph 4 focuses on interstate cooperation in searching for solutions to water shortages and details four additional fields to cooperate in: development of existing and new water resources; prevention of contamination; mutual assistance to alleviate shortages; and joint research for

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[55] Treaty of Peace Between Israel and Jordan, supra note 9, art. VI, ¶ 1.

[56] Id.

[57] Id.

[58] Id.

water related areas.[59] The Peace Treaty's significant consideration to water resources and allocation signifies the regions commitment to finding a sustainable solution.

Notably, the language detailed in Article 6 of The Peace Treaty is relatively unspecific, using vague subjective terminology, such as "rightful allocation" and "various methods" that could be determined in multiple ways by the states.[60] These generalizations are one of the downfalls of looking to international treaties and relying on another state to solve internal resource issues. Ultimately, a country can interpret unspecific language however it wants. However, a consequence of indisputable treaty language would be challenging delays while the various parties hashed out exact specifications for every variable.[61] Realistically, that kind of specificity might not be feasible, but states could strike a balance in language that promotes rather than restricts further cooperation down the line.

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[59] Id.

[60] Id.

[61] See e.g., Treaty of Peace Between Israel and Jordan, supra note 9 (providing an example of a treaty which may not have been signed without vague language).

b. The 2021 Declaration of Intent

On November 22, 2021 Jordan, Israel, and the United Arab Emirates signed a Declaration of Intent consisting of two major components: the Prosperity Green Project and the Prosperity Blue Project.[62] Prosperity Green is a clean energy initiative and agreement for Jordan to supply Israel with electricity.[63] Prosperity Blue is a sustainable water desalination program in Israel to supply Jordan with additional water resources.[64] Both projects have hopes that the Declaration of Intent will form into a more solidified plan by the third quarter of 2022.[65] Although the Declaration of Intent does not go into great detail about the requirements of both parties, beyond their cursory obligations to provide water and energy, the Declaration of

[62] See Declaration of Intent Between the Hashemite Kingdom of Jordan, the State of Israel, and the United Arab Emirates, Jordan-Isr.-U.A.E., art. I, Nov. 22, 2021, I.L.M [hereinafter Declaration of Intent] (emphasizing that the two projects are both interdependent and contingent upon one another).

[63] Id.

[64] Id.

[65] Id.

Intent remains a powerful sign of interstate cooperation's ability to combat water scarcity.[66]

III. Analysis

A. Jordan's Water Scarcity as an Example of How Water Poor States are Compelled to Enter into International Treaties

Due to the positionality of Jordan, the county was forced into tactically agreeing to Israeli water development projects, as Jordan is situated downstream of both the Jordan and Yarmouk Rivers.[67] Naturally, being a lower-stream riparian (land which

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[66] See UAE, Jordan and Israel Collaborate to Mitigate Climate Change with Sustainability Project, **Ministry of Energy** (Nov. 22, 2021), https://www.gov.il/en/departments/news/press_221121 [hereinafter UAE, Jordan and Israel Collaborate] (quoting Israeli's Minister of Energy, "The declaration of intent. . . is not just good for the State of Israel and the Hashemite Kingdom of Jordan, but for the region as a whole and will send a strong message around the world about how nations can work together to battle the climate crisis.").

[67] See Tensions and Water Cooperation, supra note 1 (noting that the treaty is perceived as unfavorable towards Jordanians, but not surprising because of the power asymmetry); see also

borders a river), Jordan is subject to the whims of other upper-stream riparian states and has little ability to control any of the designated flow, since by time the water has reached Jordan, the water has already passed through multiple diversion points. While many Arab States, like Lebanon, have historically refused to enter into a formal treaty with Israel for political reasons, Jordan realized that its water scarcity problem was a full-blown crisis and needed neighborly solutions.[68] Strategically, Jordan's recognition that it needed Israel as an ally has been a significant factor in Jordan's development, alleviating some water stress that would likely have been present otherwise.

a. Why Water Scarcity is Powerful Enough to Make States Compromise – Jordan's Positionality

The most successful solutions to persistent problems often come when the need to solve the problem outweighs most other considerations, even political aspirations. Water scarcity, and

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Jägerskog, supra note 3, at 83 (stating that Jordan and Israel engaged in internal water reallocation projects for domestic, industry, and irrigation uses which amplified tensions between the two states).

[68] See Jägerskog, supra note 3 at 17 (stating other states, like Lebanon and Syria, have been slower to negotiate with Israel).

climate change more broadly, in the Middle East is one such problem that requires a solution now, else the Middle East North Africa (MENA) region countries could risk the eventual inhabitability of the region.[69] Without improved access to water, through upgraded infrastructure, and political negotiating ability to secure resources, Jordan will be unable to accommodate its ever-growing population.

However even with existing and anticipated transnational treaties, Jordan is still expected to exceed its water availability by over 26% by 2025.[70] This projection is further indication of the drastic measures that Jordan, and MENA region countries that lack water security, must take in order to ensure a stable future for the people living inside its borders. Moreover, Jordan will require international assistance to stabilize its growing water crisis, including aid from non-governmental organizations (NGOs), regional neighbors, and

[69] See Riedel, supra note 53 (noting the poor reception of The Peace Treaty and the continued deterioration of public outlook, particularly the Jordanian public, on Jordan-Israel relations).

[70] Aviram, supra note 8 (noting the refugee crisis' impact on Jordan's growing insecurity, which has seen hundreds of thousands of people enter Jordan).

distant state support, like the United States.[71] It is important for Jordan to carefully consider each external support system, as to not further reduce its international negotiating leverage.

Unfortunately, the Jordan River Basin is uniquely indifferent to political issues and boundaries.[72] Naturally occurring resources are unable to adjust to the worlds misuse. The deteriorating river does not heed Israel's continued occupation of the West Bank, and no matter the political circumstances, joint cooperation is necessary to prevent inalterable water scarcity.[73] Water conflict is often viewed as a contributing factor to international conflict, particularly in water poor regions because of the dire need for water access leading to contention.[74] At the end of the day, people need clean

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[71] Tapped Out, supra note 1 (noting the necessity of including the international community in water scarcity and refugee relief).

[72] See Aviram, supra note 8 (emphasizing Jordan's difficult water scarcity issue have been amplified due to the diversion of shared water by other states).

[73] Iuliana Kalenikova, The Integrated Water Basin Approach for the Sustainable Water Management in International and Regional Legislation, Háskóli Íslands 7, 23 (2009).

[74] Garthwaite, supra note 28.

water to survive and will always do whatever it takes to ensure access for themselves and their families, even if it means conflict.

Nevertheless, the decline of shared water resources requires joint geopolitical solutions because states must be on the same page for water management, otherwise risk undoing the sustainability work of another riparian.[75] For example, if one state decides funneling water into the river is productive, while another faces contamination from that addition, it creates a dramatic environmental issue. Additionally, modern water desalination projects require elite science, development, and technology, which are only achievable with significant monetary investment, which Jordan cannot afford on its own.[76] Therefore,

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[75] Aviram, supra note 8 (emphasizing that geopolitical dynamics greatly impact regional cooperation, but that most water resources are transboundary, making water management dependent on political relations).

[76] Tiziana della Ragione, Israel, Jordan and UAE Come Closer on a New Water-Renewable Deal Brokered by the US. What Does it Mean for the EU? 2 **Eur Mesco: Spot On** (2021) https://www.euromesco.net/wp-content/uploads/2021/11/Israel-Jordan-and-UAE_SpotOn-25.pdf (noting the UAE's role in funding

although Jordan must be cautious with external aid, international cooperation on water security is increasingly important to prevent societal conflict, as the more secure water becomes, the more stable the subsequent region will be as well.[77]

b. Article 6's of The Peace Treaty's Modern Impact on Jordan-Israel Water Relations

The Peace Treaty is exemplary of an international agreement that Jordan has had to enter despite perhaps underlying contrasting political aspirations.[78] One of the most notable, and potentially problematic, considerations for Jordan signing is that The Peace Treaty further recognizes Israel as a legitimate state, an issue close to the heart of many Jordanians due to the influx of Palestinian refugees and continued occupation of the

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the new solar energy project, detailed in the Declaration of Intent, in Jordan).

[77] See **Running Dry**, supra note 1, at 16 (pointing to a multi-year drought that contributed to deteriorating societal conditions and ultimately war).

[78] See Riedel, supra note 51 (emphasizing the unpopularity of The Peace Treaty when signed and the continued decline of opinion toward The Peace Treaty).

West Bank.[79] Recognition serves not only as a symbol to the region of a potentially changing political climate, one which includes Israel, but also to the broader world that some states are learning to accept the seemingly inevitable existence of Israel as a state.

However, some other states along the Jordan River Basin do not share Jordan's same willingness to balance political principles with societal necessities.[80] By cooperating with Israel, Jordan has been able to fortify a relationship that has proved beneficial in securing access to water allocation from the Jordan River Basin.[81] The improved relationship between the two countries has alleviated water stress on Jordan, ultimately providing increased flexibility for Jordan to focus on alternative sustainable solutions.[82]

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[79] See id. (considering that a formal treaty with Israel legitimized the Israeli occupation).

[80] See Anthony H. Cordesman, Israel and Syria The Military Balance and Prospect of War, **Center for Strategic & Int'l Stud.** 1, 8 (2007) https://www.csis.org/analysis/israel-and-syria (indicating that Jordan's peace with Israel has isolated Syria).

[81] E.g., Treaty of Peace Between Israel and Jordan, supra note 9; Declaration of Intent, supra note 62.

[82] Krasna, supra note 47.

Specifically, Article 6 of The Peace Treaty details water allocation and cooperation of Jordan and Israel to increase secure access to water.[83] Article 6's allocation of 50 MCM of additional water from Israel to Jordan was, and continues to be, fundamentally necessary to Jordan's survival. It became impossible for Jordan's King Hussein not to agree to the less than favorable political consequences.[84] For context, 50 MCM of additional water nearly doubled Jordan's water availability, providing increased water security to ebb the immediate pressures of the country.[85] However, a notable downfall of The Peace Treaty, is that Article 6's undefined language leaves much to the interpretation of states, leading to conflict over disputed analyses. Although some specifications for water distribution and treatment are designated in Annex II, many of

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[83] See Treaty of Peace Between Israel and Jordan, supra note 9, art. VI (adding that Prime Minister Rabin also agreed return land in Wadi Araba to Jordanian.).

[84] Borthwick, supra note 39 at 177.

[85] See Melissa Pawson, 'Catastrophe' faces Jordan's Water Sector as Climate Heats Up, **Al Jazeera** (Nov. 2, 2021), https://www.aljazeera.com/news/2021/11/2/experts-warn-of-catastrophe-facing-jordans-water-sector.

the conditions require honest reporting about water allocation.[86] Moreover, although Israel and Jordan are bound by The Peace Treaty, it has been repeatedly broken or ignored since signing, once in 1999 and once in 2010, usually due to unanticipated droughts plaguing the region.[87] The flexibility powerful states have on manipulating other treaty parties, which depend on the treaty, leads itself to further manipulation and power inequity.

Nevertheless, The Peace Treaty was the first instance of formal interstate cooperation among Jordan and Israel since Israel's creation in 1948 and it signified improving relations among countries in the contentious region.[88] Jordan is

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[86] See Treaty of Peace Between Israel and Jordan supra note 9, annex II(2)(c) ("Israel is entitled to maintain its current use of the Jordan River waters. . . Jordan is entitled to an annual quantity equivalent to that of Israel")

[87] See Ilene Prushner, Drought-hit Israel Cuts Water Supply to Jordan, **The Guardian**, (Mar. 16, 1999) https://www.theguardian.com/world/1999/mar/16/1 (stating that an extreme drought caused the first major test to The Peace Treaty, with Israel wanting to reduce water allocations to Jordan by over 50 percent).

[88] Treaty of Peace Between Israel and Jordan, supra note 9, art. VI.

consistently considered one of the most politically stable countries in the region, which is the main leverage that the country has to obtain important resources. In fact, The Peace Treaty remains one of the foundational treaties that continues to govern the portions of the relationship between Israel and Jordan, despite the need for updating.[89] However, Article 6 of The Peace Treaty lacks sufficient specific language that would bind the states to their agreement; instead, The Peace Treaty uses subjective language that leaves the power in the hands of Israel.[90] Additionally, bilateral solutions, such as The Peace Treaty, yield themselves to the capriciousness of a state's political whims and goals, which rarely align perfectly with another state's goals.[91]

Although The Peace Treaty sparked hope that the two countries could come together despite historical controversies, relations between Israel and Jordan peaked in the 1990s and

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[89] See Tensions and Water Cooperation, supra note 1 (highlighting how The Peace Treaty created a foundation for future water projects).

[90] Treaty of Peace Between Israel and Jordan, supra note 9.

[91] See Riedel, supra note 51 (noting the impact of Prime Minister Rabin's assassination and subsequent appointment of Netanyahu).

steady declined under Netanyahu.[92] Politics are decided by political leaders, making the people in charge quintessential to lasting change.[93] This can be a challenge when the public does not necessarily agree with the political decisions behind an international treaty.[94]

Despite underlying political tensions, Israel and Jordan have continued to develop multiple treaties, projects, and concepts since 1994, many of which unescapably relate back to

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[92] See Ghaith al-Omari & Simon Henderson, UAE to Fund Israel and Jordan Solar/Water Deal, **The Washington Inst. For Near East Pol'y**, (Nov. 18, 2021) https://www.washingtoninstitute.org/policy-analysis/uae-fund-israel-and-jordans-solarwater-deal (indicating that the lack of specificity ultimately resulted in failure to address common challenges).

[93] See e.g., Declaration of Intent, supra note 62 (signing conducted by the UAE's Minister of Climate Change and Environment, H.E. Mariam Al Mheiri, Jordan's Minister of Water and Irrigation, H.E. Eng. Mohammad Al-Najjar and Israel's Energy Minister, Karine Elharrar).

[94] See Davis, supra note 7 (emphasizing Jordanian public discomfort with the Declaration of Intent).

shared resources.[95] These cooperative efforts allowed Jordan and Israel to continue to expand their relationship and contribute to future suitability treaties, which are necessary to the ever-growing climate crisis. For example, one of the most initially hopeful resources to come out of The Peace Treaty is the Israel-Jordan Joint Water Committee, established to help facilitate and interpret the specifications of Annex II in relation to Article 6.[96] The Joint Water Committee anticipated being a cooperative institutional body that could address water concerns and issues, ultimately reaching a peaceful resolution.

However, the Joint Water Committee has fallen short of international hopes, having done little to realistically combat the growing water scarcity crisis, pointedly demonstrating the limitations of treaty intentions and declarations.[97] Treaties represent states at their best and most amendable to cooperation. Treaties are grounded in international cooperation and hopeful aspirations, yet every aspect of treaties are rarely

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[95] See Treaty of Peace Between Israel and Jordan, supra note 9.

[96] See id., at annex II, art. VII.

[97] Tensions and Water Cooperation, supra note 2 (considering that obstacles are rooted in power asymmetry between Jordan and Israel and give Israel authority).

met.[98] In areas with abundant conflict, like the Jordan River Basin, treaties are veiled with respectful sentiment, and even less likely to serve productive purposes, despite the promising potential of an established treaty.[99]

Nevertheless, the international community has an inevitable role to play in improving water access globally, as treaties will continue to play an important role in improving Jordan's, and many other similarly situated states', water security.[100] Water scarce countries depend on external parties to provide assistance for lightening the burden. Since Jordan cannot realistically solve its water scarcity issue alone, the international community must cooperatively come together to

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[98] See e.g., Treaty of Peace Between Israel and Jordan, supra note 9.

[99] See e.g., id. (having language that indicates abundant purpose and respect for all parties). But see Tensions and Water Cooperation, supra note 2 (noting that the Joint Water Committee has not lived up to expectations, despite many aspects of The Peace Treaty relying on guidance from the Joint Water Committee).

[100] UAE, Jordan and Israel Collaborate, supra note 66 (announcing a new water-energy deal).

efficiently support resource management.[101] However, it is a careful balance to permit international assistance while simultaneously ensuring that external factors do not overpower internal and regional interests.

c. Declaration of Intent - A Promise for a More Sustainable Future

Climate change has been on the forefront of the world's mind increasingly and it already greatly impacts Middle Eastern countries like Jordan, Israel and the United Arab Emirates.[102] These countries have come together in the hopes of addressing and potentially fixing resource insecurity. Recently in November 2021, Jordan, Israel, and the UAE entered into a preliminary international agreement by signing a Declaration of Intent for a new water-energy deal, made possible by the 2020 Abraham Accords, yet another example of increased peace and cooperation among the region.[103] The Declaration of Intent is the first step

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[101] Tapped Out, supra note 22.

[102] UAE, Jordan and Israel Collaborate, supra note 66.

[103] See Abraham Accords Peace Agreement: Treaty of Peace, Diplomatic Relations and Full Normalization Between the United Arab Emirates and the State of Israel, U.A.E.-Isr., Sept. 15, 2020 [hereinafter Abraham Accords] (establishing a treaty

in the largest cooperative project undertaken between Israel and regional neighbors.[104] Israel developed in a populated and previously claimed land, meaning the state has subsequently had to fight for every acre of land within its highly contested borders. Conversely, Jordan has abundant undeveloped desert land that is difficult to develop or farm, but, with the right investment, could be ideal for solar farms.

The positionality of Jordan makes the state highly suitable for solar farms as it falls within the so-called "solar belt" of the world and has sprawling undeveloped desert land.[105] Jordan's solar energy potential sits somewhere between five and seven KWh/m^2, which equates to 1000GWh of solar energy per year, providing necessary clean alternative energy to a resource poor

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between the UAE and Israel which aimed at developing health, agriculture, tourism, environment, and energy).

[104] Barak Ravid, Scoop: Israel, Jordan, & UAE to Sign Deal for Huge Solar Farm, **Axios** (Nov. 17, 2021). https://www.axios.com/2021/11/17/israel-jordan-uae-huge-solar-farm-deal.

[105] Salman Zafar, Solar Energy in Jordan, **EcoMENA** (July 2, 2021), https://www.ecomena.org/solar-energy-jordan/.

state.[106] That much energy could be instrumental in growing Jordan's internal resources, which in turn strengthens Jordan's potential ability to leverage solar energy into a negotiating tactic in international treaties.

However, despite this impressive potential, Jordan's solar output is highly underutilized in a region where sustainable energy is increasingly needed.[107] Likely, Jordan has been restricted in developing solar energy infrastructure due to lack of funding and talent to develop a comprehensive solar farm, which makes partnerships with Israel and the United Arab Emirates a necessary and strategic decision.[108] Jordan's difficulties with economic capability restrict its ability to expand and enhance internal infrastructure, ultimately

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[106] See id. (highlighting that Jordan enjoys over 320 sunny days, making its location highly suitable for solar farms).

[107] See id. (stating that Jordan has major plans to increase its solar output to provide energy to desalination plants).

[108] See **Eur. Training Found., Policies for Hum. Cap. Dev. Jordan,** (2020) https://www.etf.europa.eu/sites/default/files/2021-02/04_trp_etf_assessment_2020_jordan.pdf (noting the challenges of having a formal and informal economy that hinders economic development and drives qualified individuals away from Jordan).

contributing the inevitable cycle of Jordan relying on third-party actors or countries to support it.

Solar energy is a powerful concept. Novel resources are difficult to come by, and Jordan has a unique opportunity to leverage one of its rare, possibly abundant, natural resources, solar energy, into increased negotiating power internationally.[109] One reason Jordan struggles to consistently obtain its proper water allocation from shared resources is because it lacks sufficient bargaining power.[110] Jordan has little to offer other countries other than its political and militaristic stability in an unstable region. The Declaration of Intent signifies the potential for renewable solar energy to provide Jordan with an increased capacity to contract out resource; this is seen through the Declaration of Intent's clean

[109] Zafar, supra note 105 (noting the potential for Jordan to sell solar energy to regional states).

[110] See e.g., UAE, Jordan and Israel Collaborate, supra note 66 (announcing a solar energy deal to provide Jordan increased natural resources).

energy project that would trade Jordanian energy for Israeli desalinated water.[111]

However, ultimately, Jordan still needs water. No matter the increased solar output Jordan could manufacture, the region still has a limited amount of water to share.[112] Due to Jordan's intense and increasing water scarcity crisis, the government has had to enter into treaties and agreements, particularly with bordering states, that do not necessarily perfectly align with Jordan's ultimate geopolitical goals.[113] Although Jordan and Israel have become unlikely, but groundbreaking allies, unless resource management, allocation, and facilitation adjusts soon, "rightful allocation"[114] will lose any substantial meaning. Natural water resources will not regard treaties, but

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[111] See Declaration of Intent, supra note 62 (specifying Project Prosperity Green, focused on clean energy and Project Prosperity Blue, focused on desalinated water).

[112] Al-Omari, supra note 92 (indicating that energy for water deals are essential, but the water crisis continues to deepen).

[113] Mark Zeitoun et al., The Yarmouk Tributary to the Jordan River II: Infrastructure Impeding the Transformation of Equitable Transboundary Water Arrangements, 12 no. 3 **Water Alternatives**, 1095, 1103-04 (2019).

[114] See Treaty of Peace Between Israel and Jordan, supra note 9.

manufactured solutions can be tailored to the needs and allocations of political agreements. Jordan and Israel must continue to fight climate change and persistent resource scarcity by focusing on the necessity of cooperation for the survival of their states.[115] For many years following the creation of Israel, the consequent animosity many Arab states had towards Israel for the annexation of Palestine seemed to be an impossible hurdle to overcome.[116]

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[115] See UAE, Jordan and Israel Collaborate, supra note 66 (quoting a UAE Minister, "[t]oday's achievement is a powerful demonstration of how progressive climate action can not only enhance resource security, but also serve to build bridges between peoples and reinforce regional stability.").

[116] See Manna, supra note 35, at 60 (critiquing an informal water agreement between the states along the Jordan River that never transferred into policies because it would "entail tacit Arab recognition of the state of Israel.") (citing Amy Otchet, A Jordanian Fire Extinguisher: An Insider's View on One of the Most Historic Water Agreements ever Signed - The Deal between Israel and Jordan, **The Unesco Courier** (2001)).

B. Externalities and Their Impact on Hopeful International Cooperation

Additionally, The Declaration of Intent is an example of Jordan using supplemental external resources and actors to stabilize the country internally.[117] Jordan is in a much more challenging economic position than Israel and struggles to have sufficient economic output.[118] Jordan relies on its strong relationship with the EU to support economic projects.[119] However, the UAE funding makes Jordan reliant upon UAE agreement to create and sustain the solar farm.[120] Notably, Jordan requires

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[117] Barak Ravid, supra note 104.

[118] Compare GDP Growth (annual %) – Jordan, **The World Bank**, (last visited July 12, 2022), https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=JO (showing that Jordan's most recent GDP growth is just over two percent) with GDP Growth (annual %) – Israel, **The World Bank**, (last visited July 12, 2022), https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=IL (showing that Israel's most recent GDP growth is upwards of eight percent).

[119] Quawas, supra note 25.

[120] Al-Omari, supra note 92.

external financial assistance for major infrastructural and scientific projects. Unfortunately, this reliance means that Jordan is not only subject to other states with respect to resources, but also with respect to money. Nevertheless, hopefully, including the UAE in the Declaration of Intent provides the necessary funds and third-party stability to further Jordanian-Israeli relations by economically supporting a collaborative transborder effort to increase regional water sustainability and security.[121] Importantly, the international community must ensure that contributions and support happen to betterment of Jordan and other water poor states.[122]

C. Economic Considerations to Sustainable Water Solutions

Jordan would not be able to front a significant portion of a massive infrastructural project like The Red-Dead Canal Project, detailed below, especially without internal investment. Israel and third parties would be taking a risk in funding a project that is entirely on Jordanian land, especially with the

[121] Id.

[122] See Tapped Out, supra note 1 (emphasizing the importance of a coordinated international response to mitigate undermining relief efforts).

fickle nature of infrastructure and resource management in the region. Risk of failing multilateral projects and wavering external commitments to making resource managements cooperative reduces the overall feasibility of multilateral solutions to water scarcity.[123] This creates a dichotomy in which water resources are shared, but shared water solutions still struggle.

a. The Failed Red-Dead Canal Project and What Should be Done Differently

Proponents of the Red-Dead-Canal understood that the project would be a multi-billion-dollar investment, leading the World Bank to conduct research into the ultimate practicability of the project.[124] Since the project was extremely financially burdensome, Jordan would have required significant loans and investment to actually make the project realistic. Further, although the project was going to be jointly financed by Israel, Jordan, and third-parties, the entire system would have been in

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[123] See e.g., Prushner, supra note 87 (considering how unexpected environmental changes impact preexisting treaty agreements).

[124] **Friends of the Earth, Comments of EcoPeace/Friends of the Earth Middle East to World Bank Public Hearings Concerning the Red Dead Conduit Project** (2013).

Jordanian territory, leaving fundamental discretion to Jordan should conflict arise.[125]

Since The Peace Treaty was merely the first step towards a more prosperous and cooperative relationship, especially in regards to water, Jordan and Israel proceeded to try to create new projects to alleviate their water scarcity. The Peace Treaty spurred hope which suggested that a long-pondered canal might actually come to fruition and progress from unilateral endeavors to a bilateral cooperation project.[126] The Peace Treaty not only emphasized the importance of water specifically, but it also pledged joint efforts towards the rehabilitation the Jordan

[125] Doron Markel, The Red Sea-Dead Sea Conveyance Feasibility Study, 2008-2012, **Research Gate**, 181, 188 (2013) (estimating that the total construction cost to the Red-Dead Canal Project would be between US$10-11 billion, plus US$ 400 million in annual maintenance costs).

[126] See UAE, Jordan and Israel Collaborate, supra note 66; see also Jeremy M. Sharp, The "Red-Dead" Canal: Israel-Arab Efforts to Restore the Dead Sea, **CRS Report for Congress**, 1, 5 (2008) https://sgp.fas.org/crs/mideast/RS22876.pdf [hereinafter Sharp].

Valley Region, requiring substantial cooperation between Jordan and Israel.[127]

For nearly two decades, many prominent water scarcity scholars looked to the sizeable Red-Dead Canal Project to alleviate water scarcity in the Jordan River Basin; many hoped that the Red-Dead Canal Project would might relieve some water stress and the disastrous depletion of the Dead Sea by joining the two water resources.[128] Additionally, scholars hoped that the Red-Dead Canal Project, and similar joint water ventures, would alleviate some political tensions that hinder internal economic development by making the two countries increasingly reliant upon one another.[129] Due to the elevation differences between the

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[127] See Sharp, supra note 126, at 5 ("a message that [Israel and Jordan] do live in one area with a common destiny.").

[128] See The Red-Dead Canal and its Cultural Impact on Wadi Araba, **Wadi Araba Archaeological Research Project**, https://home.gwu.edu/~amsii/wadiarabaproject/RedDeadCanal.htm (last visited June 23, 2022) (speculating about the hopeful potential of the Red-Dead Canal project). But see **Friends of the Earth**, supra note 124 (criticizing its shortcomings).

[129] See Tensions and Water Cooperation, supra note 29 (considering that similar resource cooperation might lead to a "win-win" situation).

Red Sea and the Dead Sea, scholars hoped that the project might also produce hydro-electricity.[130] The Red-Dead Canal was proposed as an expansive 112-mile pipeline across the Wadi Araba/Arava.[131] The coordination among all the necessary parties – Jordan, Israel, World Bank, external funding – to get the Red-Dead Canal completed would have been a notable feat in itself.

b. Problems with the Red-Dead Canal Project

However, despite the potential benefits of the Red-Dead Canal Project, it was not without its faults, including the extreme costs to realistically implement such a sprawling project and questionable environmental impact.[132] The challenges to the Red-Dead Canal are reminiscent of how multilateral cooperation can run into an impediment before much progress even has an opportunity to begin. The Red-Dead Canal appeared as a novel model of potential regional cooperation, but realistically

[130] Red-Dead Canal's Impact, supra note 124.

[131] Sharp, supra note 126 at 5.

[132] See **Friends of the Earth**, supra note 124 (finding the Red-Dead Project could have negative environmental impacts); see also Sharp, supra note 126, at 5 (estimating the cost of the Red-Dead Canal project would upwards of multi-billion dollars).

the project pressured the international community, including the World Bank, to support efforts despite potential shortcomings.[133] Unfortunately, sometimes hopeful solutions can be confused with exchanging one problem for a different problem to alleviate public pressure to take action. Some instead advocate for increased sustainability efforts, both internally and transnationally, rather than draining one body of water into another.[134] This route would be more realistic than excessive, almost impractical, infrastructural development.

Recently, Jordan has reportedly rescinded from the Red-Dead Canal Project, choosing to focus on more internal solutions.[135] Some cite a lack of Israeli commitment to the project as an influential factor, others consider the lack of feasibility as reasons Jordan might be reluctant to move forward, while still others cite disagreement on project parameters.[136] Finally, there

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[134] See **Friends of the Earth**, supra note 124 (considering that the Red-Dead Canal would cause significant environmental harm).

[135] Staff, supra note 21 (referencing bureaucratic, funding, and environmental challenges as reasons Jordan decided to forgo further efforts).

[136] Compare id.; with, Hadassah Brenner What is the Red Sea Dead Sea Canal that Jordan Renounced? Explainer, **The Jerusalem Post**

was a growing concern that the Red-Dead Canal Project would cause detrimental harm to the environment.[137] A negative potential environmental impact of the Red-Dead Canal Project is even more difficult to overlook since it is a project that specifically aims at improving environmental consequences of climate change. The confidences that many might have had that the Red-Dead Canal Project would signify increased cooperation might have overstated the feasibility.[138]

The seemingly failed Red-Dead Canal Project indicates that improved political relationships, international support, and promising concepts do not provide realistic solutions because states' own resource security outweighs political obligations.[139]

(June 17, 2021, 11:16 PM), https://www.jpost.com/health-science/what-is-the-red-sea-dead-sea-canal-that-jordan-renounced-explainer-671294, and World Bank Releases Statement on Jordan's 'Red Sea-Dead Sea' Project, **Roya News** (May 20, 2021, 12:23 PM), https://en.royanews.tv/news/28334/2021-05-29.

[137] See **Friends of the Earth**, supra note 124.

[138] See id.

[139] Compare Aviram, supra note 8 (reconciling the ambition behind the Red-Dead Canal Project with the lack of realistic implementation), with Sharon Udasin, World Bank: Red-Dead Pipeline is Feasible, **The Jerusalem Post** (Jan. 17, 2013),

Jordan cannot rely exclusively on treaty relationships to protect its needs; instead, Jordan requires sustainable water solutions that involve both expansive, internal infrastructural development and external, multilateral cooperative arrangements to ensure future sustainability and protection of shared water resources.

D. International Treaties' Steadfast Focus on Desalination as Potential Solution for Water Security

Desalination, conceptually sounds like an amazing solution to water scarcity challenges in Jordan and in the broader MENA region. Through this process, saline water becomes fresh water that can, with the proper treatment, be suitable for human consumption and use.[140] Desalination is the process of removing salt and other minerals from water to make it suitable for human

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https://www.jpost.com/enviro-tech/world-bank-red-dead-pipeline-is-feasible (noting that the World Bank stated the Red-Dead Canal would be feasible, but warning against environmental concerns).

[140] Water Science School, Desalination, **USGS**, (Sept. 11, 2019) https://www.usgs.gov/special-topics/water-science-school/science/desalination.

needs, and it repeatedly comes up whenever water scarcity issues arise.[141] Arguably, creating functional drinking water from saline water looks like a strong potential solution. Although desalination is not a modern tool, creating desalination on a sustainable large scale poses unique challenges.[142]

Ultimately, whatever water production method a state relies upon must be dependable, otherwise the countries involved risk significant overuse and detriment to their states production capacity. In 2013, the amount of water acquired and distributed through desalination methods rose over 10%, indicating the growing need and availability of desalination technology.[143] Desalination has the potential to address and mitigate initial water scarcity concerns, allowing Jordan precious time to further develop internal infrastructure. However, one of the dominant reasons that water desalination is not used even more broadly is because of the high cost associated with the process on a large scale.[144]

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[141] Id. (estimating that approximately 70% of the worldwide desalination occurs in the Middle East).

[142] See id. (noting that desalination is one of the earliest methods for water treatments).

[143] See id.

[144] See id.

a. International Treaties' Focus on Desalination as a Signifier that Desalination is a Necessary Infrastructural Need to Water Security in Jordan

In fact, the Peace Treaty, directly references rightful allocations of desalinated water between Israel and Jordan.[145] It further designated specific water from the Jordan River to be designated to go through the desalination process within four years of The Peace Treaty's signing.[146] The emphasis placed on desalination in The Peace Treaty indicates the necessity of using known, trusted, and reasonable methods and solutions to water scarcity for creating an agreeable treaty. For example, the treaty specifically designates:

> 10 [million cubic meters] of desalinated water from the desalination of about 20 [million cubic meters] of saline springs now diverted to the Jordan River. Israel will explore the possibility of financing the operations and maintenance cost of the supply to Jordan of this desalinated water.[147]

Moreover, The Declaration of Intent also directly references specifically desalinated water, with respect to the

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[145] Treaty of Peace Between Israel and Jordan, supra note 9.

[146] See id.

[147] Id. annex II(2)(d) (emphasis added).

Prosperity Blue Project.[148] Israel, through its increased technology and resources, has a larger capacity to desalinate water on a large scale, which makes it a promising negotiating point for Jordan to request. Further, The Declaration of Intent not only details that Israel will supply Jordan with additional desalinated water, but it also indicates the development of a prolonged cooperative desalination program.[149] The Declaration of Intent acknowledges the varied strengths and weaknesses of Jordan, Israel, and the UAE, creating realistic and promising new strategic relationships. For example, the solar energy aspect of The Declaration of Intent could provide power to support a desalination plant.[150]

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[148] Declaration of Intent, supra note 62 (requiring desalinated water from Israel, rather than just water allocation from water resources).

[149] UAE, Jordan and Israel Collaborate, supra note 66 ("Water desalination is an important component. . . for the water sector's sustainability, and we are continuously looking. . . to help increase water supply, such as receiving up to 200 MCM of desalinated water as part of this declaration.").

[150] See Zafar, supra note 105.

Nevertheless, desalination is not the only method by which water security will be achieved;[151] there must be multiple implemented solutions working together to create water stability. Desalination still requires water, saline water, but water nonetheless. Even resources like the Dead Sea and the Jordan River have still seen dramatic reductions in water levels more recently, likely resulting from climate change and poor resource management.[152]

If the root of the problem is limited rainfall and depleted groundwater and desalination efforts might not have the overarching impact people hope. Therefore, unique multifaceted approaches will be necessary to hold off the growing water scarcity crisis currently developing in Jordan and provide the required amount of water to the increasing population. Additionally, many scholars warn against exclusive reliance on desalination because the technology still requires geographic requirements.[153]

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[151] See e.g., id.

[152] **Friends of the Earth**, supra note 124.

[153] See Tapped Out, supra note 22, at 14 (noting that desalination is "no silver bullet").

IV. Recommendation

A. Multilateral Water Cooperation and Solutions

a. The Necessity, But Not Exclusive Solution, for Regional Resource Cooperation to Prevent Inconsistent Overuse of Scarce Water

Water, generally, is a shared resource that requires solutions that cross boarders, particularly when multiple states share the resource, like the Jordan River Basin. Although projects like the Red-Dead Canal have surface appeal, the realistic implementation of such a sprawling infrastructural, bilateral development is unlikely.[154] Multilateral water solutions will strengthen the Jordan River Basin region by ensuring all states have similar collective goals.[155] Cross border collective goals can potentially safeguard against misuse

[154] See **Friends of the Earth**, supra note 124 (considering that water projects should not be excessively expansive because of execution difficulties).

[155] See UAE, Jordan and Israel Collaborate, supra note 66 (noting the importance of coordination and cooperation to the achievement of their joint goals); *E.g.,* Declaration of Intent, supra note 62.

and inequitable distribution of essential water resources, which becomes essential to reasonable usage of water.

Further, strong multilateral arrangements will keep upper-stream states from diverting water along either the Jordan or Yarmouk rivers away from depending lower-stream riparian states, like Jordan. However, as is evidenced by The Peace Treaty, unspecific and vague treaty language does not yield itself to reliable implementation.[156] Future treaties must have specific technical details that provide for all foreseeable contingencies in order to be properly functional.[157] Moreover, methods must be in place to hold upper-stream states responsible for the impact their actions have on lower-stream riparian states. For example, Jordan, a lower riparian state, would need a political, economic, or environmental equalizer to ensure upper riparian states do not overuse their portion of shared water resources.[158]

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[156] Treaty of Peace Between Israel and Jordan, supra note 9 ("rightful allocations" and "various methods").

[157] Al-Omari, supra note 92 (noting the cancellation of projects due to weak language and disagreements).

[158] See UAE, Jordan and Israel Collaborate, supra note 66 (noting that creative solutions can positively contribute to managing disparate internal state issues).

However, notably many Arab States, like Syria and Lebanon, have historically refused to enter into a formal treaty with Israel for political reasons.[159] This means that there are states along the Jordan River Basin who are in extreme conflict. It would likely be challenging, potentially impossible in the current political climate, for every Jordan River Basin state to cooperate sufficiently enough to realistically reinvigorate and heal the Jordan River Basin water supply.[160] Due to the regional tensions, solutions cannot be exclusively treaty based, which is discussed further below.

Since The Peace Treaty, which is commonly designated as a sign of the cooperation potential for the region, has been broken repeatedly or unenforced and has lacked any noteworthy implementation in recent years, some might consider how future multilateral treaties could be executed with more solidity. For a successful multilateral water treaty to exist, terms cannot be left undefined or up to the interpretation of the water strong state. The ease with which Israel has been able to interpret The Peace Treaty to its own needs has shown how important clear

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[159] See Jägerskog, supra note 3, at 17. But see e.g., Abraham Accords, supra note 95 (recognizing Israel as an official state in 2020).

[160] See e.g., Cordesman, supra note 80.

requirements are for the nearly inevitable potential for droughts.[161] Realistically, it will be challenging to define and specify each aspect of a treaty, especially with more states involved.

b. Jordan's Ability to Turn its Refugee Crisis into Economic Growth, Increasing its International Negotiating Leverage

Jordan needs to fortify its economic output in order to be less reliant on third party investment. One method to do this would be through refugees, a particularly contentious regional issue. Although refugees are often seen as a major contributing factor to water scarcity in Jordan, they could also be contributors to potential solutions.[162] Refugees can increase a

[161] See Zeitoun supra note 113, at 1107-09 (noting that an asymmetric distribution of water between Israel and Jordan and infrastructural solutions would be necessary to improving equal supply); see also Tensions and Water Cooperation, supra note 1 (noting that both Syria and Israel have diverted water resources).

[162] See Tapped Out, supra note 22, at 14 (noting that the influx of Syrian refugees upended Jordan's original plans for water management); see also Jordan Issues Record Number of Work

country's economic output and can contribute to a workforce that will increase GPD and ultimately create better internal infrastructure. However, this is not a promotion for exploiting refugee labor. In fact, giving work opportunities to refugees would provide a creative way for refugees to integrate into standard Jordanian society, potentially alleviating some of the increased tensions between Jordanian's and refugees.[163] Initiatives, such as the Jordan Compact, emphasizes the international community's dedication to facilitating trade and funding.[164]

While this solution will not reduce refugee's reliance on scarce water resources, it will contribute to the national

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Permits to Syrian Refugees, **UNHCR** (Jan. 25, 2022), https://www.unhcr.org/en-us/news/press/2022/1/61effaa54/jordan-issues-record-number-work-permits-syrian-refugees.html [hereinafter Jordan Issues Work Permits] (announcing that Jordan issued 62,000 work permits to Syrian refugees in 2021).

[163] See Tapped Out, supra note 22, at 14 (noting growing Jordanian public frustrations with the government for permitting excessive refugees).

[164] See **UNHCR** (stating that the Jordan Compact is an international "initiative to improve access to education and legal employment for Syrians forced to flee their homes.").

economy, which will subsequently help stabilize Jordan internally.[165] Notably, the United Nations Refugee Agency's (UNHCR)Regional Director for the Middle East and North Africa contended that when "given a chance, refugees can bring innovation, reliability, regional networks and technical know-how to the workplace and make significant contributions locally."[166] Increased integration of refugees into the Jordanian workforce has great potential to improve Jordan's economic output and GDP, lessening its reliance on external aid and funding.

By becoming more self-sufficient, Jordan will further increase its leverage to negotiate on a global scale for important resources, like water. Jordan will likely continue to rely on international assistance to cope with the refugees, but has the opportunity to transform international aid into economic development, eventually reducing its dependence on the international community.[167] Jordan's reliance on external states to provide stable water access creates a dependency on treaties and other nations for water constancy; treaties which could ultimately be broken or interpreted on less favorable terms. To

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[165] Id.

[166] Id.

[167] See id.

achieve the water autonomy that Jordan, like all sovereign states, wants, deep internal water reforms will be necessary to prevent the mismanagement of the little water resources that are available.[168] Streamlining efficiency and ensuring that every precious drop of fresh water is protected will require complex, multifaceted solutions.

B. Unilateral Water Solutions

a. Infrastructural Improvements

Nevertheless, internal unilateral solutions will also be necessary to providing Jordan with increased security, both in regards to its resources and international political position. Despite the necessity of states to work transnationally, Jordan must also rely predominately on its own internal infrastructure to ensure social, economic, and political strength. Jordan experiences significant loss of water due to aging infrastructure.[169] Billions of liters of water are lost through leaks from faulty pipes, never reaching the population that

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[168] Aviram, supra note 8.

[169] **USAID**, Jordan Water Infrastructure (last visited July 12, 2022) https://www.usaid.gov/jordan/fact-sheets/jordan-water-infrastructure.

desperately requires increased access.[170] This water would be instrumental in lightening the grip of water scarcity on both Jordanians and refugees within the state, as many of the faulty pipe carries water to important refugee camps.[171] This could potentially be funded through partial and strategic reallocation of some refugee funds or, more realistically, by improving its own internal economic output, perhaps through integration of refugees, as discussed above.

b. Desalination

In addition to improved water management, through multilateral coordination and upgraded infrastructure, water desalination is necessary to create additional water resources, as the water accessed via Jordan River Basin is fully exploited, if not significantly over exploited.[172] Although international treaty focus on desalination might be misplaced as the exclusive water solution, it can still be beneficial when coordinated with

[170] Tapped Out, supra note 22, at 17 (stating the water needs of 2.6 million people could be quenched if infrastructural issues were corrected).

[171] Id. at 9.

[172] Zeitoun, supra note 113, at 1104.

alternative water saving techniques. Water desalination efforts could further contribute to Jordanian water security, as it would stop further overuse of scarce fresh water.[173] However, desalination is highly costly, and currently Jordan's economic instability cannot support a high investment project without additional funding. Since Jordan already intends to increase its solar energy output, repurposing that energy to power internal desalination plants could reduce to the high costs of operation.[174]

Nevertheless, increased water access, though multilateral treaties and resource negotiations, tends to be the cheaper option, yielding Jordan to prefer that option over internal development. This is a relatively short-term solution, as the rates of the Jordan River Basin are depleting dramatically and quickly.[175] Although significant issues arise when relying exclusively on desalination as a means of water stability, desalination must still be utilized in conjunction with resource

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[173] Tapped Out, supra note 22, at 14 (noting that the most reliable solution might be sustainable management of the existing resources).

[174] Zafar, supra note 105 (noting Jordan's intention to create a solar desalination plant).

[175] **Running Dry**, supra note 1, at 9.

management, international cooperation, and national stabilization to have significant impact.

c. Internal Investment in Solar Energy

In addition to national economic development by integrating Jordan's refugee population into a more naturalized workforce, Jordan can also capitalize upon its solar energy potential.[176] In order to facilitate Jordan's agency and ability to negotiate internationally, one of the necessary aspects of water cooperation, Jordan must invest in its solar energy potential. Jordan has a unique opportunity to improve its water security by investing in novel resources, such as solar energy, to increase negotiating power and treaty formation ability with neighboring states that require sustainable energy access. Since Jordan is in the solar belt, the country has an abundant number of potential resource attribution it can use as a future negotiating tactic.[177] However, in order to sufficiently implement and maintain solar infrastructure Jordan must establish a method for increased economic output.

Water solutions will inevitably be multifaceted. The multilateral and unilateral solutions suggested here must be taken in consideration of one another. Water scarcity is a

[176] Zafar, supra note 105.

[177] Id.

complex issue and no single change will address it competently.[178] Therefore, although the concepts are separate and distinct, they must be considered as a whole and addressed collectively.

Conclusion

Water is an inevitable necessity for all thriving societies and living entities. States that have more water security inevitably have more international strength. Sustainable water resources are essential for global human rights, as the UN has established a standard for clean and healthy water access. For Jordan to significantly improve its water security, the state must improve its leverage to negotiate in international treaties. Jordan can achieve this by improving its economic stability by integrating refugees into the work force and investing in novel solar energy farms to create a sought-after resource that can be traded on an international scale. Arid environments create challenging difficulties to overcome. States which have more water security also have more negotiating power for international treaties and a heightened ability to manipulate desperate States into agreeing to an unfavorable

[178] Id.

treaty. When dealing with environmental crises, states must look beyond mere geopolitical considerations and focus on the importance of sustainable security.