The Politics of Water: The Jordanian Water Crisis and the Future of Refugee Migration in the Middle East

Ruhama Bekele

SIT Study Abroad

Follow this and additional works at: https://digitalcollections.sit.edu/isp_collection

Part of the Environmental Policy Commons, Environmental Studies Commons, Fresh Water Studies Commons, Migration Studies Commons, Near and Middle Eastern Studies Commons, Peace and Conflict Studies Commons, and the Water Resource Management Commons

Recommended Citation
https://digitalcollections.sit.edu/isp_collection/3536

This Unpublished Paper is brought to you for free and open access by the SIT Study Abroad at SIT Digital Collections. It has been accepted for inclusion in Independent Study Project (ISP) Collection by an authorized administrator of SIT Digital Collections. For more information, please contact digitalcollections@sit.edu.
The Politics of Water:
The Jordanian Water Crisis and the Future of Refugee Migration in the Middle East

Ruhama Bekele
Colby College

Project Advisor: Dr. Raed Al-Tabini
Geopolitics of the Middle East
SIT JOR Independent Study Project
11 December 2022
Abstract

The rise of water-related conflicts around the world has challenged the norms of international relations as environmental developments have transboundary effects that threaten the security of sovereign states and have the potential to destabilize regions. Furthermore, water-related conflicts are more dangerous in countries like Jordan that suffer from extreme water scarcity and have high populations of refugees as a consequence of political instability in the Middle East/North Africa (MENA) region. The following research investigates the role of water in relation to geopolitical factors such as refugee migration, Israel’s diversion of the Jordan River, and the construction of Syrian dams on the Yarmouk River. In doing so, the research determines the extent to which refugees play a decisive role in the water crisis, the possibility of war with Jordan’s neighbors, and the future of Jordan’s refugee and regional water policy.

Keywords: Jordan River, water scarcity, international relations, refugee migration, Yarmouk River, environmental security
Acknowledgments

First and foremost, I would like to thank the supportive SIT staff in all aspects of the program; I would not have been able to conduct and complete this study without the help of each staff member. I would like to especially thank Dr. Ismaiel Abuamoud for his help in contacting interviewees and meeting with me to talk about my topic. I would also like to thank Dr. Raed Al-Tabini for introducing me to the topic and being a knowledgeable advisor. Additionally, I understand the time commitment and constraints of my interviewees and so I thank each participate in my research. Last but not least, I would like to thank Sakkha for her enormous help in our visa application process and general living experience in Amman.
Table of Contents

Abstract ......................................................................................................................... 1

Acknowledgments ........................................................................................................ 2

ToC ................................................................................................................................. 3

Introduction ................................................................................................................... 4

  1. Environmental Security ....................................................................................... 7

  2. Securitization .......................................................................................................... 11

Methodology and Ethics ............................................................................................... 13

Geopolitics of Jordan’s Water Resources ............................................................... 15

Effects of Refugees on Jordan’s Water Supply ....................................................... 20

Discussion of Data ....................................................................................................... 23

Conclusion ..................................................................................................................... 27

Bibliography ............................................................................................................... 31

Appendices ................................................................................................................. 34
Introduction

The politics of water is an emerging issue in international relations as the increasingly threatening effects of climate change have depleted the global water supply and continue to make water scarcity an urgent issue for the inhabitants of water-scarce regions. The lack of comprehensive and effective international laws surrounding water resources provides no incentives or consequences for states to cooperate with one another. Additionally, for upstream states that have the ability to divert water away from neighboring downstream states, water can be used as a method to punish or reward regional allies and enemies. This geostrategic advantage over one’s neighbor disincentivizes cooperation between neighboring states as cooperation would weaken that advantage over potential enemies. As a result, conflicts have begun to arise in recent years between neighboring states due to the unfair allocation of water resources within the region. For instance, the creation of the Grand Ethiopian Renaissance Dam (GERD), which disrupts the water supply of the Nile River’s downstream states such as Egypt and Sudan, has sparked an intense conflict between the three countries in recent years. The lack of binding international laws on water has emboldened Ethiopia to ignore the attempts of both Egypt and Sudan to negotiate for regulations on the GERD. The conflict has continued to intensify as both Egypt and Ethiopia have claimed to be open to the use of force to protect their water interests, suggesting the possibility of war between the three states in the near future.

The significance of water resources can be seen in the GERD conflict but the unfair allocation of water is made more acutely aware in water-scarce states like Jordan. Jordan is a downstream country with four major surface water resources: the Sea of Galilee, the Jordan River, and its two tributaries, the Yarmouk and the Zarqa Rivers. The asymmetry of power between Jordan and its neighboring states in the 20th century led to the unfair allocation of these water resources with Jordan
receiving a significantly unequal proportion of water compared to Syria and Israel. The 21st century only further exacerbated this issue as multiple crises within the region led to an influx of refugees within Jordan’s borders. The sudden increase in Jordan’s population led to the depletion of its already low water supply and has continued to challenge Jordan’s infrastructure. The power imbalance between the three countries has thwarted any attempt at negotiations on water resources as Israel has remained uncooperative in the fair allocation of water within the region. The lack of negotiations coupled with the increasing pressures placed on Jordan’s water supply and infrastructure by refugees suggests an outcome similar to Ethiopia’s conflict with Egypt. However, the use of force would not be favorable for Jordan as Israel’s military is much more powerful in terms of traditional and nuclear capabilities. Therefore, Jordan’s only other options are to change its refugee policy and/or to seek international mediation for multilateral agreements between the three states. The Middle East is a politically volatile region with many different actors with opposing interests so Jordan’s approach to the crisis is even more important in determining the stability of the region. Nevertheless, the necessity of water transcends all conflicts, which presents water’s potential to become an instrument for building peaceful relations. Consequently, Jordan’s response to its water crisis is an extremely significant concern as it has the ability to either strengthen friendly relations or to further destabilize the entire region.

The other aspect of this research, refugee migration, will be analyzed in accordance with its relationship with Jordan’s water crisis. Officially, Jordan hosts 760,000 refugees while only having about 11 million people within its borders. However, the Jordanian government estimates there to be over 1.4 million refugees in Jordan; an extra 600,000 or so unregistered refugees due to their migration prior to the deterioration of the Syrian state. The relationship between refugees and Jordan’s water supply is a multifaceted one as the truth often diverges from reality when considering
the vulnerability of refugees and the interests of government officials. Often, refugees are used as scapegoats by these officials to turn the public’s attention away from the poor quality of Jordan’s infrastructure and to receive aid from the international community. In fact, Jordan’s poor infrastructure has been a point of contention between the public and the government prior to the arrival of refugees. The influx of refugees simply exacerbated and highlighted several issues with Jordan’s infrastructure. Although this presents an immense threat to the Hashemite Kingdom, it also presents the positive effects refugees have on Jordan’s infrastructure. For instance, in 2013, a village in northern Jordan with a high concentration of Syrian refugees demonstrated against the government’s mismanagement of water while demanding water to be piped directly to their homes instead of being delivered by tanker trucks. The demonstration captured the attention of King Abdullah II and piped water was shortly promised to the villagers. This demonstration showed the potential of refugees to either directly or indirectly serve as political catalysts for infrastructural developments. These effects, both positive and negative, will be investigated to determine the overall effect of refugee migration on Jordan’s water crisis.

The following research will be examining the causes and effects of Jordan’s limited supply of water in relation to refugee migration. The study will take into consideration several factors in Jordan’s water crisis such as the unfair distribution of water in the region, the uncooperative attitude of neighboring states, the lack of proper infrastructure, and the strain placed on the water supply and infrastructure by the historic influx of refugees. The theoretical framework that will be used to investigate these factors will be the theory of environmental security which states that environmental degradation creates cross-border effects that facilitate the rise of conflicts between neighboring states. Despite the regional environmental degradation of its water resources, Jordan welcomes a large number of refugees from around the region, which in turn exacerbates the political conflicts that arise
from Jordan’s environmental insecurity. Consequently, this research will focus on the politics of water rather than the environmental effects or sustainability aspect of the issue. The purpose of researching the politics of the situation is to understand and perhaps predict the behavior of states in the near future. However, Jordan’s position within the situation is remarkably unique as its status as a refugee hub differentiates it from other states in water-related conflicts, making predictions on Jordan’s behavior more difficult. This study will examine the relationship between refugee migration and Jordan’s water supply while also examining the effects of Jordan’s water crisis on its foreign policy. Will Jordan become more aggressive in demanding a fair allocation of water from its neighbors or will it turn its back to refugees? To answer these questions, this research will attempt to determine the degree to which refugee migration plays a role in Jordan’s water crisis.

**Environmental Security**

The theory of environmental security follows three main conceptualizations of the connection between the environment and international relations. First, Westing (1989) illustrates this connection by exploring the idea of “comprehensive human security” of which Westing delineates “two intertwined components: political security on the one hand (with its military, economic, and social/humanitarian sub-components); and environmental security on the other (with its protection-oriented and utilization-oriented sub-components)” (Westing 1989, p.1). According to Westing, in order to achieve comprehensive human security, the requirements of both components must be sufficiently met as there is an inherent connection between the state of the environment and the security of nations. Furthermore, Westing explains the two prerequisites to achieve environmental security which includes “(1) a protection requirement, that is, the quality of the human environment must be safeguarded; and (2) a utilization requirement, that is, any exploitation (harvesting or use) of
renewable natural resources must be carried out on a sustainable basis” (p.2). Westing’s utilization requirement is directly relevant to Jordan’s water crisis as Israel’s depletion of the Jordan River and Dead Sea by the creation of pumping stations on the Sea of Galilee would be considered an unsustainable exploitation of a renewable natural resource. In addition, the overpumping of aquifers by Jordanians is contributing to this crisis as the demand for water has far exceeded its supply. Therefore, the unsustainable utilization of water resources, both within and outside of Jordan’s borders, creates a threat to the comprehensive human security of Jordanians which could in turn facilitate conflict within the region.

Second, Græger (1996) explains that “environmental degradation, but also poor respect for environmentally attuned resource management, may lead to disputes within countries and between otherwise friendly countries” (p.110). Similar to Westing, Græger recognizes the connection between human security and the protection of the environment. However, Græger emphasizes the inherently transnational nature of the environment as “decisions made by one state to appropriate, or degrade, common property resources will affect other states” (p.112). Therefore, traditional international laws based on sovereignty and non-interference cannot be applied to regulate environmental security. Consequently, international agreements, whether bilateral or multilateral, have largely been unsuccessful in preventing the destruction of the environment and the rise of conflicts between neighboring states on the basis of environmental degradation. Græger’s approach to environmental security is the most significant interpretation of environmental security for this research as the depletion or diversion of water resources by Jordan’s neighbors has led to the rise of a water crisis within Jordan which may facilitate the degradation of Jordan’s relationships within the region. Although this approach explains the fundamental issue of Jordan’s situation, it does not consider the exacerbating effect that refugee migration has on both Jordan’s water resources and its regional
relations. In other words, the water scarcity that Jordan faces is uniquely “Jordanian” considering the geopolitical and environmental landscape of the region. Thus, this research will be applying this theory to the context of Jordan’s water crisis; taking into consideration the several other factors that threaten Jordan’s environmental security and, in turn, threaten the security of the Middle East.

Third, Lodgaard (1991) presents a more optimistic interpretation of environmental security as “environmental awareness is growing, together with [an] understanding of the interconnectedness of environmental and military security” (p.377). Lodgaard recognizes an intimate relationship between military considerations and the environment as there are mutually reinforcing effects between the two. Taking this into account, Lodgaard argues for not only the protection of the environment but also for the minimization of risks to the environment so as to prevent “violence between states and population groups” (p.379). Additionally, Lodgaard writes, “...security concerns – environmental and military – encourage cooperation in wider frameworks” (p.379), suggesting that environmental security has the potential to integrate states rather than to facilitate conflicts. Therefore, the environment may serve as a basis of agreement rather than a point of contention between Jordan and its neighboring states. This difference between Græger’s and Lodgaard’s approaches will be significant for the future of Jordan’s relationship with its neighbors and the region’s security. Lodgaard’s minimization of risks focused on the direct effects of unsustainable practices by humans such as nuclear war or industrial activities that affect the quality of air. However, the indirect compounding effects of climate change, which have generational effects on the environment, and the strain placed by human migration on the natural resources of nations are more relevant to Jordan. Nevertheless, Lodgaard presents the potential of water resources in facilitating peace within the Middle East.
Although these conceptualizations of the link between the environment and national security are useful in the understanding of international relations, Græger weighs the dangers of the “securitization” of the environment with the dangers of its “desecuritization”. On the topic of securitization, Græger writes,

Some warn against a 'securitization' of environmental problems because this represents a militarization of our thinking about the relationship between humanity and the environment…Securitization of the environment invites a state-centred thinking about security, with the ability to withdraw from or respond to environmental problems depending heavily on the character of the state in question. (p. 111)

The facilitation of the state-centered approach towards the environment by environmental security theory is problematic for the protection of natural resources as the environment would be seen as a tool for foreign policy objectives. The use of the environment as a political tool will only promote further destruction and non-cooperation as the environment will be seen as a zero-sum game rather than a loss for all sides. Contrarily, the securitization of the environment, Græger writes, “acknowledges the need for a political leadership to ensure the security of its citizens above and beyond their military security” (p.111). Environmental security theory has the ability to force leaders into recognizing the significance of the nation’s environment for the nation’s security and, by extension, for the health and safety of its inhabitants. As a result, environmental security could have positive effects on the relationship between nations and their environment. These positive effects could eventually materialize in the emergence of a national environmentally protective culture, promoting cooperation between neighboring states and a protection of their environments. Thus, environmental security has the potential to facilitate both cooperation and destruction based on the approach toward the environment by the leaders of nations.
Securitization

The term “securitization” in international relations refers to the transformation of traditionally non-security concerns (NSCs) to matters of national security which encourages urgent action to combat the concern and ensure the protection of one’s security. Traditional security concerns include military procedures and economic dangers. However, since the 1980s, political scientists and politicians have expanded the scope of securitization to incorporate several other aspects of social life including environmental security. Therefore, the process of securitization is a subjective process in which traditionally NSCs are securitized based on the perception and interests of leaders within the field. In this process, rhetoric is the most powerful tool in constructing the public perception of the threat as Waever (1998) writes, “...such a threat would be defined as existential and a challenge to sovereignty, the state would not be limited in what it could or might do. Under these circumstances, a problem would become a security issue whenever so defined by the power holders” (Ch. 3). The rhetoric used by decision-makers to facilitate the securitization of NSCs is known as a speech act in which simply invoking security on these matters transforms the reality of the danger posed by NSCs. For instance, Eroukhmanoff (2018) provides an example of the securitization of the Muslim religion and identity after the rise of Islamophobic speech acts following the 9/11 attack. This example presents the significance of speech acts on securitization as they have the ability to not only shape lives but also determine realities.

In the context of Jordan, the securitization of the environment would naturally develop from the bottom up as the public pressure placed on the government for the inadequacies of its infrastructure and water resources will facilitate the emergence of a stronger stance on the state of the environment. Instead of political scientists and politicians being the ones promoting the securitization
of the environment, the securitization process will be facilitated by ordinary Jordanian citizens and refugees as these populations are most vulnerable to the water crisis. As mentioned earlier, refugees can serve as a political catalyst by directly pressuring the government through demonstrations or indirectly by straining the state’s natural resources. Thus, the relationship between Jordanians and refugees can be seen as both a mutually beneficial relationship (refugees receive refuge while Jordanians receive support in their advocacy) and an adversarial one as many Jordanians blame refugees for the water crisis. This adversarial relationship could potentially weaken their attempts to pressure the government into ensuring the security of water resources throughout the country.

However, the significance of water and its scarcity has already led to the securitization of water resources within the region. Taking this into consideration, the role of decision-makers is further elevated as the potential that speech acts have in facilitating peace or war is multiplied within security dilemmas such as this one.

In order to understand the position Jordan is in with the securitization of the environment, the concept of security dilemmas must first be understood. According to Jervis (1978), security dilemmas exist when “many of the means by which a state tries to increase its security decrease the security of others” (p.169). Essentially, attempts made by states to bolster their national security in turn make other states feel less secure and threatened. As a result of the securitization of the environment, Jordan faces a security dilemma with its neighboring states in which attempts made by Jordan to secure water resources from the Jordan River would threaten the security of Israel. This presents another danger of the securitization of the environment as it not only turns the environment into a political tool but also threatens the relationship of neighboring states. To avoid the transformation of the security dilemma into a military confrontation between the two, both sides must recognize that cooperation is mutually beneficial and is more favorable than defection. However, the leadership of
both sides holds immense distrust for each other which further promotes the security dilemma and may facilitate the use of force in the near future.

**Methodology and Ethical Considerations**

The main objective of this research is to determine the extent to which refugee migration causes Jordan’s water crisis. In order to investigate this topic, primary sources such as interviews of Jordanian political scientists, professors, and researchers were utilized to obtain different perspectives of Jordanians in various fields. The researcher interviewed six participants and all interviewees were asked the same questions related to the topic (see Appendix A) and the differences in the answers provided will be taken into consideration. The data gathered from the interviewees will be discussed in the discussion section of the research. The positionality of the interviewees is a significant factor to consider as there may be conflicting personal or political interests between political scientists, professors, and researchers. Therefore, secondary sources will also be used to corroborate the information gathered from interviews. The secondary sources have been gathered from political science journals, research institutes, news sites, and governmental and intergovernmental agencies. The cross-referencing of information from primary and secondary sources will allow a more accurate and comprehensive understanding of the topic. However, due to the researcher’s limited time in Jordan, the research will more heavily rely on secondary sources. Nevertheless, the research will utilize a mix of primary sources (interviews and statistics) and secondary sources (research and already existing literature).

The independent variable of this research, refugees, is defined by the United Nations High Commissioner for Refugees (UNHCR) as “...persons who are outside their country of origin for reasons of feared persecution, conflict, generalized violence, or other circumstances that have
seriously disturbed public order and, as a result, require international protection”. However, this official definition excludes Syrians who migrated to Jordan prior to the intensification of the Syrian Civil War. Although using this definition of refugees excludes a significant amount of Syrian migrants, this research will still take into account the population growth Jordan experienced as a result of these pre-war migrations. By doing so, the research will not exclude a significant number of Syrian migrants from the data so as to be as accurate as possible in determining the role of refugees in Jordan’s water supply.

Furthermore, in order to determine the extent to which refugee migration causes the water crisis, Jordan’s supply and allocation of water will be investigated in cubic meters. This quantitative approach will allow the researcher to understand the effects that population growth has on Jordan’s water supply after several waves of refugee migration. However, simply investigating the change in Jordan’s water supply in cubic meters over time would not isolate refugees as the main reason for this change as this change is also facilitated by other geopolitical factors. Therefore, qualitative data such as cultural differences between the refugees’ and Jordanians’ relationships with water will also be taken into consideration. By doing so, the research will specifically focus on the role of refugees in the depletion of Jordan’s water supply. Further, by isolating the role of refugees in the water crisis, the researcher will be able to contrast the effects refugees have on the water supply to the effects of other factors such as Jordan’s poor infrastructure and the relationship between Jordan and its neighboring countries. For instance, the distribution of water within a region may be affected by the diversion of water resources by neighboring states and as a result, Jordan’s water supply is continually diminished every year. These factors will be considered relative to each other so as to understand the extent to which each plays a leading role in Jordan’s water crisis.
In order for this research to remain ethical in its approach, some considerations need to be made. Informed consent forms have been provided to each and all of the interviewees so as to make the participants aware of the rights and responsibilities of their participation (see Appendix B). Additionally, the interviewees’ identities will remain confidential if they decide to remain anonymous. Further, the locations of the interviews have been determined based on the convenience and comfortability of the participants, and no video or audio recordings have been made so as to allow the interviewees to speak as freely as possible. These ethical guidelines will allow the researcher to protect not only the interviewees but also the integrity of the research.

The Geopolitics of Jordan’s Water Resources

In order to understand Jordan’s water crisis, one must first understand the water sources available to Jordan. According to the Ministry of Water and Irrigation (MWI) (2015), “Jordan consists of 15 surface water basins and 12 groundwater basins”. The surface water resources include lakes such as the Sea of Galilee and rivers such as the Jordan River while groundwater resources include aquifers such as the Disi aquifer near the Jordan-Saudi border. These two types of water resources make up about 86% of Jordan’s water resources as surface water accounts for 27% and groundwater for the other 59%. Additionally, 40% of total water resources available to Jordan are shared with neighboring countries such as Israel, Syria, Iraq, and Saudi Arabia. This presents the first complication with Jordan’s water resources as Jordan faces a classic tragedy of the commons scenario with its resources. The tragedy of the commons refers to a social phenomenon in which people or states are incentivized to act according to their own interests with public resources regardless of the harm presented to all other individuals or states. In this case, states with access to Jordan’s water resources are incentivized to either divert or deplete these resources for their own interests rather than
to share the resources with its neighbors. Further, Jordan is a downstream state to all shared surface water resources such as the Jordan River (which begins in Lebanon and flows downstream to Israel and Jordan) and the Yarmouk River (which begins in Syria and flows downstream to Jordan).

The other water resources available to Jordan, rainfall and groundwater, also present some of Jordan’s hardships with water resources. According to Khashman (2013), “80% of the country receives less than 100 mm of precipitation annually” while “92.5% of the received rainfall is lost due to evaporation” (p. 14). As a result of low rainfall, Jordan’s dams only hold 21% of their total capacity of 280 million cubic meters of water. The minimal rainfall available to Jordan leads to the over-reliance of groundwater and surface water resources. However, due to the shared nature of surface water resources, Jordan heavily relies on groundwater resources for a majority of its water supply. Jordan consists of two main groundwater aquifers: the Disi aquifer in the south and the Basaltic aquifer in the northeast. The over-reliance of these aquifers have depleted Jordan’s groundwater supply as aquifers throughout Jordan have become almost completed empty due to the pumping of large quantities of groundwater at a quicker pace than could be renewed. The best example of this is the Azraq basin which was one of the largest basins in Jordan in the 1980s but has largely dried out as a result of over-extraction. In 2005, the extraction rate of groundwater was almost double the safe rate (Khashman 2013) and refugee migrations since then have only exacerbated the over-extraction of water as Baylouny and Klingseis (2018) found that around 1500 illegal wells were created by 2014. Baylouny and Klingseis highlight the positive and negative consequences of these illegal wells, writing,

Illegal wells provide water to the refugees and citizens who are the most vulnerable to water shortages, but they have several negative consequences. Private wells further degrade groundwater quality, as they overdraw from the aquifers and increase the salinity and
pollution of the remaining supply. Pumping costs increase, since over-pumping leads to declining water tables. (p.106)

In addition to local over-extraction of groundwater, both Syria and Saudi Arabia have overexploited the aquifers on their respective borders. The extraction of groundwater from the Disi aquifer in the south has resulted in disputes between Jordan and Saudi Arabia as Saudi Arabia has exploited large quantities of water from the aquifer without negotiations or consulting Jordan. As a result, Jordan has began the implementation of its Disi Mega Project which will attempt to extract 100 million cubic meters (MCM) per year without consulting Saudi Arabia. However, perhaps due to this noncooperative mood shared by Saudi Arabia and Jordan, Al-Tabini (2022) writes, “The Disi aquifer is considered the last conventional water resource available but is expected to be depleted by the end of the century…” (p. 4895). The depletion of one of Jordan’s most significant water resources presents the significance of negotiations and consultations among the states within the region.

Although cooperation is in the interest of all states within the region, states within the region have remained uncooperative at the expense of Jordan’s water security. For instance, the 1987 bilateral agreement between Syria and Jordan on the use of the Yarmouk River allowed Syria to build 25 dams on the river. However, Turkish Review (2014) found that Syria built 42 dams on the Yarmouk, clearly violating the agreement and, consequently, reducing the flow of water in the Al Wehdeh Dam. Of the total storage capacity of the Al Wehdeh Dam (110 MCM), less than a quarter (25 MCM) of the Dam’s capacity has been filled (MWI 2015). This has resulted in a significant reduction of Jordan’s water supply as the Yarmouk accounts for 40% of Jordan’s surface water resources. Syria’s actions towards Jordan’s water supply is directly relevant to Græger’s approach toward environmental security as Syria’s violations of the Yarmouk agreement endangers Jordan’s environmental security and further threatens the relationship between Jordan and Syria.
In addition to Saudi Arabia and Syria’s noncooperative attitudes toward water resources, Israel has also remained noncooperative in Jordan’s attempts to secure water resources. Israel’s diversion of the Jordan River and its tributaries along with the construction of the National Water Carrier in 1953 has resulted in the decline of the river’s historic flow from 1.3 million cubic meters to just 70,000 cubic meters by 2008 (Fanack 2022, Gromberg 2008). The overexploitation of the Jordan River and Dead Sea has led to the joint proposal of the creation of the Red Sea-Dead Sea Conveyance, or the Red Dead Canal. The project proposes the creation of a pipeline to facilitate the transfer of water from the Red Sea near the Gulf of Aqaba to the Dead Sea. Desalination plants would be created to desalinate some water from the Red Sea to provide drinkable water for Jordan, Israel, and Palestine with the remaining quantity of water earmarked for the Dead Sea. The project encourages cooperation and peace between Israel and Jordan while also providing water for both nations which displays the potential of peace through water throughout the region. However, due to logistical and environmental concerns the Red Dead Canal has not come to fruition. As a result, Jordan’s available water supplies have continued to be overexploited and depleted without any methods of recharging the groundwater or surface water. As reported by the MWI (2017), of the 12
aquifers available to Jordan, all 12 have been depleted beyond their recharge volumes. The following graphic from the MWI illustrates the depletion of water in various regions throughout the country:

As seen in the graphic, the overwhelming majority of Jordan’s population is extracting groundwater at an unsustainable rate as the abstraction rate is far higher than the safe yield volume. Additionally, basins such as the Disi basin are nonrenewable which further exacerbates the issue of unsustainable rates of abstraction. An important note to make with the graphic is that of the regions that overexploit its water resources, regions with higher concentrations of refugees (Azraq and Zarqa) have higher imbalances between the safe yield and the abstraction rate. This detail will be further discussed in the next section of the paper.

The last significant issue regarding Jordan’s water supply is Jordan’s poor water infrastructure. According to Mercy Corps, a non-governmental humanitarian organization, “Nationwide, Jordan’s leaky pipes lose an estimated 7.6 billion liters a year — enough to satisfy the needs of 2.6 million people, roughly the population of Chicago” (Mercy Corps, 2014). The water lost due to Jordan’s poor infrastructure is almost twice the quantity needed for the refugee population in Jordan. Therefore, there should be an emphasis on improving the quality of Jordan’s infrastructure to increase Jordan’s national water supply. The significance of Jordan’s infrastructure has been a point of emphasis by USAID’s collaboration with Jordan’s Ministry of Water and Irrigation for the creation of the Aqaba-Amman water transfer infrastructure (Red Dead Canal). Unfortunately, as mentioned
earlier, the logistics of funding the project and the bureaucratic process of approving it has proved to be too difficult for the project to commence.

The Effects of Refugees on Jordan’s Water Supply

Jordan hosts the second highest per capita population of refugees with the official number, according to the UNHCR, being over 760,000 with the majority of them being from Syria. However, according to estimates provided by Jordan, the real number of refugees, both officially registered and unregistered refugees, soars over 1.4 million. Prior to the Arab Spring and its consequences, Jordan’s population, as estimated by the World Bank, was around 7.2 million in 2010. Currently, Jordan’s population is around 11 million, a 52% increase from its 2010 population in just over a decade. However, the influx of refugees over the past decade as a result of the Syrian Civil War isn’t the only significant wave of refugees in Jordan’s history. In 1946, the per capita share of water was 3600 m$^3$/year (Jordan Times, 2022). Since then, successive waves of refugee migrations (Palestinian refugees in 1948 and 1967, Lebanese refugees in the 1970s, and Iraqi refugees in the 1990s and 2000s) have severely reduced the per capita water share as an increase in Jordan’s population has led to an increase in the overexploitation of water resources. The current per capita water share, as reported by the Jordan Times, is just 90 m$^3$/year. According to the United Nations Department of Economic and Social Affairs (UNDESA), “An area is experiencing water stress when annual water supplies drop below 1,700 m3 per person. When annual water supplies drop below 1,000 m3 per person, the population faces water scarcity, and below 500 cubic metres ‘absolute scarcity’”. Jordan’s per capita water share of 90 m$^3$/year is far below what the UNDESA recognizes to be absolute scarcity.
The decrease in Jordan’s per capita water share can be explained by the increase in Jordan’s water demand as a result of the increase in its population. For instance, in Jordan’s northern governorates (Azraq and Zarqa), the water demand experienced a 40% increase due to its high concentration of refugees (Breulmann et al., 2021, p.10. Further, 84% of Syrian refugees live in urban areas, meaning refugees add to the water demands of already densely populated areas (UNHCR, 2019). Additionally, Jordan’s water demand will almost double by 2045 as a direct affect of the refugee population in Jordan (Breulmann et al., 2021, p. 25). Breulmann also finds that, If all Syrian refugees were to leave by the year 2025 (S2) wastewater generation will be massively reduced up to the year 2045 by about 33% in the Irbid Governorate and by about 66% in the Mafraq Governorate; the water demand will be reduced by about 33% in the Irbid Governorate and by about 65% in the Mafraq Governorate. (p. 27)

The significant decrease of wastewater generation and the overall water demand in two of the most water scarce regions in the country shows the overall stress that refugees have placed on Jordan’s water supply. These grim statistics present the significance of the effects of population growth and, more specifically, refugee migration on Jordan’s water resources.

In addition to the immense population growth Jordan experienced through successive waves of refugees, the cultural differences between Jordanians and Syrians with relation to their perception of water is a significant factor in the exacerbation of the water crisis. The water-rich nature of Syria cultivated a society foreign to water conservation habits as Hussein et al. (2020) writes,

Interviews showed that whereas Jordanians have rationed water since the 1980s, refugees from comparatively water-rich Syria lack the basic habits of water saving and conservation. Jordanian families wash clothes and do dishes, quickly shower, and store enough to get
through the week. Refugees arriving in Jordan do not always quickly adjust, and many lack basic habits of conservation. (p. 9)

Despite this cultural difference and the burden that refugees place on Jordan’s water supply, 92% of Jordanians have remained sympathetic towards refugees and 76% believe that the government’s refugee policy has been positive (UNHCR, NAMA, 2022). The public’s support of refugees and the government’s approach suggests that Jordan’s refugee policy will not radically change in the near future. However, Jordan’s current situation is not sustainable for its water supply as seen with the imbalance between the abstraction rates and safe yield volumes throughout the country. In addition to this imbalance, according to the Former Minister of Water and Irrigation Hazem Nasser, the Disi Water Conveyance, of which provides water from the Disi Aquifer to the Greater Amman Region since 2013, has been overexploited by the redistribution of that water to the Zaatari refugee camp. Furthermore, Nasser highlighted the significance of Jordan’s refugee population on its water supply saying, “We live within a chronic water problem. And we are now at the edge of moving from a chronic water problem into a water crisis. The element that will trigger this movement is the number of Syrian refugees” (Al Jazeera, 2013). The massive influx of refugees following the outbreak of the Syrian Civil War overwhelmed the MWI’s Disi Water Conveyance project “which were replaced by “emergency plans” formulated every summer” (Hussein et al., 2020, p. 9).

**Discussion of Data**

The issue of Jordan’s water crisis lies within the supply and demand of water. On the supply side of Jordan’s water crisis, Jordan has experienced a significant decrease in the supply of both groundwater and surface water. As mentioned previously, this is due to the diversion of the Jordan River and its tributaries by Israel, the creation of dams along the Yarmouk River by Syria, Jordan’s poor water infrastructure, and the overexploitation of these resources by all parties. On the demand
side of the crisis, Jordan has experienced a massive increase in its population from just 538,000 in 1946 (Francis, 2015, p. 16) to around 11 million in 2021 as a result of both natural growth and refugee migrations. Consequently, Jordan’s per capita water share fell far below the absolute water scarcity line determined by the United Nations.

Although all of these factors are mutually reinforcing in causing and exacerbating the water crisis, the supply side of the crisis is more significant than the demand. This is due to the fact that regardless of Jordan’s refugee crisis, the supply of water has become increasingly limited over time prior to the arrival of refugees due to the water policies of Jordan’s neighboring countries. The region’s overexploitation of shared water resources coupled with the noncompliance of neighboring countries has depleted the shared water supply within the region which accounts for 40% of Jordan’s total water supply. On this topic, the Director of the Badia Research Program Dr. Odeh Almeshan emphasized the significance of the noncooperative nature of Syria’s government on Jordan’s water supply as it has essentially gridlocked Jordan’s regional water policy. Consequently, Dr. Meshan emphasized, the international community holds a significant role in placing pressure on Syria to incentivize cooperation with Jordan. All other participants that were interviewed also individually stressed Dr. Meshan’s point regarding Syria’s noncompliance and the role of the international community. However, the participants slightly differed on their opinions about the role of the international community in Jordan’s water crisis. While Dr. Meshan and University of Jordan Professor Dr. Bader Almadi stressed the importance of the international community in pressuring Syria to cooperate with Jordan, political scientist Dr. Al-Tabini and a researcher that preferred to remain anonymous stressed the importance of international aid for the creation of the Red Dead Canal. The creation of the Red Dead Canal, however, is an effect of Syria’s overexploitation of shared water resources and will require Jordan to cooperate with an uncooperative Israeli
government. Therefore, Syria’s noncooperative attitude towards water resources within the region has proved to be a more difficult obstacle than refugees for Jordan.

Furthermore, according to the Head of the University of Jordan’s Political Science Department Dr. Mohamed Al-Khraisha and Professor Ayman Al Barasneh, Jordan’s water resources currently meets the demand of only 3 million people of Jordan’s 11 million population. Taking this into account, the refugee population isn’t the main source of Jordan’s water crisis as the supply of water already falls far under the demand. In addition, the 1946 per capita water share, 3600 m³/year, would still be considered water stressed by the current metric used by the United Nations which means refugees did not cause the water crisis but exacerbated the situation. Dr. Khraisha and Dr Barasneh also mentioned an aspect to this crisis that was not considered in the data of this research but is especially significant for Jordan’s infrastructure and water supply. According to Dr. Al Khraisha and Dr. Al Barasneh, water theft is among the most important issues when considering infrastructural developments and the loss of water resources as farmers intentionally sabotage water pipes to obtain free irrigation. As a result, farmers use two to five times more water than needed. This is reflected in the large share of water that the agricultural sector takes as over 50% of Jordan’s water is used for the agricultural sector while producing very little to Jordan’s GDP (MWI, 2015, p. 10). However, the majority of water theft “involves the price gouging of stolen fresh water, with thieves selling the commodity at inflated prices to people suffering from water disruptions often perpetrated by the said water thieves…authorities have terminated around 70,927 illegal fixtures on water mains” (Jordan Times, 2022). The intentional sabotage of Jordan’s infrastructure for personal gain has resulted in Jordan being able to meet only ⅔ of what Dr. Al Barasneh called “real water needs”. Water theft has resulted in the increase of this deficit between supply and water as it has increased
non-revenue water (water that is pumped but is lost before reaching the customer) to 50% of Jordan’s total extracted water (USAID, 2019).

Taking these factors into account, refugees are not the main drivers of the water crisis and are responsible for only a certain extent of the situation as population growth will inevitably strain an already limited supply of water. Nevertheless, refugees do present a significant threat to the future of Jordan’s water supply as the demand for water will nearly double by 2045 if all Syrian refugees remain in Jordan (Breulmann, 2021, p. 20). Although this is the case, the overwhelming majority of the Jordanian population sympathize with the refugees as seen in the UNHCR joint report with NAMA. The participants of this research elaborated on this sympathetic attitude as all interviewees emphasized the connection between Arabs and their neighbors. According to the interviewees, the Arabs within the region consider their countries borders to be artificial and only remnants of colonial powers. Furthermore, several families live across borders with relatives in different countries as a result of imposed borders and of marriage between different nationalities. For these reasons, Arabs view themselves to be of the same family regardless of the country and consequently, sympathize with refugees to a greater extent than other non-Arab countries. This “brotherhood” among Arabs, however, will prove to be a challenge for Jordan in not only its water supply but also its geopolitical relations.

The final significant consideration to be made on Jordan’s water crisis is Jordan’s relations with Israel with regard to the Red Dead Canal. Despite the 1994 peace treaty between the two countries, Jordan currently has a weak relationship with Israel due to the successive right wing Israeli administrations since the agreement. In addition, the majority of the Jordanian public hold anti-Israeli sentiments as almost a third of the Jordanian population is of Palestinian descent. This is due to the influx of Palestinian refugees following the 1948 and 1967 wars in which Israel was the aggressor
and captured large swaths of land across the region. The “brotherly” connections Jordanians have with Arabs within the region led Jordan to accept many Palestinian refugees in the past and many Syrian refugees in the present. Consequently, Jordan’s public harbors anti-Israeli sentiments not only due to the refugees displaced by Israel but also as a function of the brotherhood among Arabs.

The close ties between Jordanians and refugees presents a threat to the success of the Red Dead Canal as Jordan’s public does not support any agreements with a country they view to be illegitimate. According to a representative of the Boycott, Divestment, and Sanctions movement, in the eyes of activists and the general public, negotiations with Israel, regardless of the content of the agreement, is a form of normalization that would only promote Israel’s abrasive policies towards the Palestinians. Further, the public holds skepticism towards Israel’s regional policies as a result of Israel’s historic aggression towards the Arabs of the region. For these reasons, the public would not support the Red Dead Canal project regardless of the water crisis Jordan faces. However, a participant in this research believes that the necessity of water will triumph over the moral and political skepticisms that Jordanians hold towards negotiating with Israel. In other words, the water crisis will deprive Jordanians of their lifestyle to the point of desperation until they support the Red Dead Canal. For this reason, the participant believes water has the ability to facilitate peace rather than war. The other interviewees expressed similar opinions while unanimously agreeing that water will not be a facilitator of war as war will only further exacerbate the crisis by depleting water resources and dismantling the infrastructure needed to capture and extract water. Therefore, contrary to the projection of the conflict escalating into war, as seen in the conflict between Ethiopia and Egypt, Jordan will most likely remain peaceful with its neighboring states due to a lack of beneficial alternatives. However, to remain peaceful, Jordanian officials will have to approach the situation cautiously as they have to not only meet the demands of the population but also have to be careful
with the rhetoric used when speaking about neighboring countries. This is due to the fact that speech acts have immense influence on security dilemmas and have the potential to facilitate war. Nonetheless, Jordan will have to find an alternative that doesn’t result in war within the region and turmoil within its borders.

**Conclusion**

The theory of environmental security contributes a significant new understanding of international relations when it comes to geopolitics and the relation between a state and its environment. The three theories mentioned earlier (Westing, Græger, and Lodgaard) each have their own contributions and can be applied to Jordan’s water crisis. Westing’s comprehensive human security, of which recognizes the connection between the use of natural resources and the security of countries, can be applied to the unsustainable use of water by Israel, and Syria which has threatened Jordan’s environmental security. Further, Jordan’s high concentration of refugees which contribute to the unsustainable usage of water and the presence of the theft of significant quantities of water are also unsustainable for not only Jordan’s water resources but for its comprehensive human security.

Græger’s interpretation of environmental security, which states that the treatment of the environment has transboundary effects and in turn can threaten the relationship between neighboring countries, can be seen with the deterioration of Jordan’s relationship with Syria and Israel. However, although Jordan’s relationships with both countries have deteriorated due to their noncompliance with the allocation of water resources, war is not a possibility between the three states. Lodgaard’s approach towards environmental security, which believes environmental concerns have the potential to facilitate cooperation, can be seen with the Red Dead Canal project between Israel and Jordan. The failure of the project in materializing, however, is due to the disproportional nature of the water crisis.
as Jordan is burdened with more of its effects than Israel due to Israel’s diversion of the Jordan River’s tributaries. Therefore, cooperation between the two countries will only be successful when both countries feel the effects of the crisis equally. For this to happen, Israel would need to cease its diversion of the River which will most likely not occur due to the lack of incentives to do so.

The noncompliance of neighboring countries coupled with the significant affect refugees have had on Jordan’s water supply will require Jordan to make decisive decisions for the future of not only its water supply but also for the overall security of the state. The securitization process of the environment will continue to intensify as Jordan’s population will experience the exacerbated effects of the water crisis and will, in turn, pressure the government into further securitizing water resources. The securitization of water, however, must be carefully approached as Jordan’s regional water policy has been gridlocked and war, or general aggression, is an implausible method of securing water resources. In addition, Jordan’s refugee policy seems as though it will not change in the near future regardless of overexploitation of water resources as a result of Jordan’s significant population growth. So what are Jordan’s alternatives considering the noncompliance of neighboring states and the unsustainable refugee policy amidst a water crisis? The answer lies within Jordan’s infrastructure and the international community. The first possible solution is cloud seeding to increase rainfall throughout Jordan. However, this method is too expensive for too little of a return as 92.5% of rainfall is lost due to evaporation. The cheaper method is to artificially recharge Jordan’s groundwater supply through the construction of dams and recharging plants in areas that experience flash floods. Nevertheless, the most effective solution to solving Jordan’s water crisis is the international community in the form of providing aid and mediation between Jordan and its neighbors. Without the international community, the water crisis will only intensify and further destabilize Jordan’s security
which will in turn destabilize the entire region as the high concentration of refugees will have no stable host country within the region.

In conclusion, Jordan’s water crisis is a significant component of not only Jordan’s security, but the overall security of the Middle East. The crisis has been one in the making for decades but has been especially problematic since the outbreak of war in Syria. Although refugees from around the region significantly strain Jordan’s water supply and infrastructure, the main source of the issue is the noncooperative attitudes of Israel, Syria, and Saudi Arabia on the allocation of shared water resources. The conflict offers significant insight to the role of water in the relationship between neighboring states as the demand for water is much less the problem than the supply of water. Therefore, future conflicts on water resources will not arise due to the policies of regional actors that cause an increase in the demand but rather that cause a decrease in the supply. Furthermore, the power balance and historical ties between neighboring states will also be significant in determining the probability of war over these resources. In the case of Jordan, war with Israel is not likely due to the power imbalance between the two even though Israel’s historical relationship with Jordan has not been a positive one. On the other hand, war with Syria is not likely due to the historical ties between the two even though Jordan has a power advantage over the weak Syrian state. Regardless of the approach Jordan takes in solving the crisis, however, the future of Jordan’s water crisis provides important lessons in the field of international relations and its intersection with the environment and refugees.
Bibliography


Turkish review. (2014). Benefit sharing, water and cooperation: the Jordanian case.


https://www.usaid.gov/infrastructure/results/jordan/non-revenue-water


https://www.aljazeera.com/features/2013/5/30/refugee-influx-worsens-jordans-water-woes
Appendices

Appendix A: Interview Questions

What are some of the challenges that Jordan faces with water and how is the water crisis distributed throughout the country?

What creates this distribution of the water crisis?

Former Jordanian Minister of Water and Irrigation Hazim el-Nasser as reported by Al Jazeera, ‘We live within a chronic water problem. And we are now at the edge of moving from a chronic water problem into a water crisis. The element that will trigger this movement is the number of Syrian refugees”. How do refugees contribute to this crisis? Is Jordan’s acceptance of refugees a sustainable practice for its water supply?

How has the public reacted to the influx of refugees in relation to the water crisis? How has Jordan attempted to balance the influx of refugees with its water supply?

What is the government’s policy surrounding the water crisis? Has the issue facilitated cooperation with Israel?

How has this crisis affected Jordan’s foreign policy? Has it made Jordan more or less aggressive with regional politics?
Appendix B: Informed Consent Form

Informed Consent Form

School for International Training—Jordan: Geopolitics, International Relations, and The future of the Middle East

1. The purpose of this study is to explore the effects of refugee migration on Jordanian foreign policy in relation with its water scarcity and counterterrorism efforts.

2. Rights Notice

If at any time, you feel that you are at risk or exposed to unreasonable harm, you may terminate and stop the interview. Please take some time to carefully read the statements provided below.

a. Privacy - all information you present in this interview may be recorded and safeguarded. If you do not want the information recorded, you need to let the interviewer know.

b. Anonymity - all names in this study will be kept anonymous unless the participant chooses otherwise.

c. Confidentiality - all names will remain completely confidential and fully protected by the interviewer. By signing below, you give the interviewer full responsibility to uphold this contract and its contents. The interviewer will also sign a copy of this contract and give it to the participant.

3. Instructions:

Please read the following statements carefully and mark your preferences where indicated. Signing below indicates your agreement with all statements and your voluntary participation in the study. Signing below while failing to mark a preference where indicated will be interpreted as an affirmative preference. Please ask the researcher if you have any questions regarding this consent form.

I am aware that this interview is conducted by an independent undergraduate researcher with the goal of producing a descriptive case study on the effects of refugee migration on Jordan’s foreign policy on issues regarding Jordan’s water crisis and counterterrorism policy.

I am aware that the information I provide is for research purposes only. I understand that my responses will be confidential and that my name will not be associated with any results of this study.

I am aware that I have the right to full anonymity upon request, and that upon request the researcher will omit all identifying information from both notes and drafts.

I am aware that I have the right to refuse to answer any question and to terminate my participation at any time, and that the researcher will answer any questions I have about the study.

I am aware of and take full responsibility for any risk, physical, psychological, legal, or social, associated with participation in this study.

I am aware that I will not receive monetary compensation for participation in this study, but a copy of the final study will be made available to me upon request.

I [do / do not] give the researcher permission to use my name and position in the final study.

I [do / do not] give the researcher permission to use my organizational affiliation in the final study.

I [do / do not] give the researcher permission to use data collected in this interview in a later study.

Date: ____________________________  
Participant’s Signature: ____________________________

Participant’s Printed Name: ____________________________  
Researcher’s Signature: ____________________________

Thank you for participating!

Questions, comments, complaints, and requests for the final written study can be directed to:
Dr. Raed Altabini, SIT Jordan Academic Director
Email: raed.altabini@sit.edu