The Impact of Power on Water Rights:
A Study of the Jordan and Tigris-Euphrates Basins

by

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Abstract

In water-scarce riparian regions, states utilize geographic and structural power to maximize their access to water. In the Jordan River Basin, which includes Lebanon, Syria, Jordan, Israel, and the Palestinian territories, and the Tigris-Euphrates River Basin, which includes Turkey, Syria, and Iraq, certain states cannot access enough water to have their human right to water fulfilled. This Capstone seeks to ascertain how state power can affect the fulfillment of water rights by conducting a dual case state of the Jordan and Tigris-Euphrates Basins. This dual case study is rooted in the realist tradition of international relations literature and contemporary water rights research. The data explores the actors' historical use of economic, political, and military "instruments of power" in attempts to maximize their access to water. This paper determines that the riparian state with the greatest ability to utilize "instruments of power" is able to control water allocation, and thus determines the fulfillment of water rights throughout the basin.

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Research Agenda

This Capstone researches the impact that power relations between riparian states have on the human right to water in the Middle East. The question guiding this research is: what is the role of power in these interstate water relationships and how does this power impact human rights? In this case, power is determined firstly by a states' location on the river basin and secondly by the economic, political, and military power the state otherwise possesses. In order to answer this research question, I conduct two regional case studies in the region: the Jordan River Basin, which includes Lebanon, Syria, Jordan, Israel, and the Palestinian territories; and the Tigris-Euphrates River Basin, which includes Turkey, Syria, and Iraq. These two major rivers have ongoing disputes over usage. I thoroughly examine how each state uses 'instruments of power' and what effect those actions have on the fulfillment of the human right to water.

I am exploring this topic because water is such a vital and limited resource in the Middle East. There have been many studies on the sharing of inter-state water systems in international relations, and the overwhelming majority of the time, cooperation is the norm.[1] This particular conflict is difficult to resolve because of the complexity Middle Eastern politics. The terms 'dispute' and 'conflict' mean that certain states disagree over how the water is currently treated and allocated. I am not referring to a military conflict otherwise stated. For example, the Jordan River Basin has an inequitable distribution of quality water. The Israeli-Palestinian conflict and the Arab-Israeli conflict further complicate the situation, making the water-based 'dispute' more difficult to resolve. Along the Tigris-Euphrates Basin, Turkey's control of the headwaters and its

[1] Alexander Carius, Geoffrey D. Dabelko, Annika Kramer, and Aaron T. Wolf, "Managing Water Conflict and Cooperation," in *The Struggle for Water: Increasing Demands on a Vital Resource*, ed. Aaron Fishbone (New York: International Debate Education Association, 2007): 151-176; Gordon D. Frederick, *Freshwater Resources and Interstate Cooperation: Strategies to Mitigate an Environmental Risk* (Albany: SUNY Press, 2008).

dam building projects has led to disproportionate use of these waters. This 'conflict' is complicated by the Iraq War, which has further weakened Iraq, the lower riparian.

In these cases, state power plays an important role in the distribution of international river resources. A more powerful state can obtain more water, and uneven distribution of scarce water resources could mean that one or more states is partially or completely denied its human right to water. A more powerful state will often use the international river for industry or agriculture. Without proper regulation and water treatment, this can pollute the water, and lower the water quality for the downstream riparians. Polluted or unsafe water is a denial of water rights.

This paper utilizes two areas of scholarship – power relations and human rights – to draw conclusions about the relationship between power in inter-state relationships and human rights. State power relations are an important aspect of classical realism in international relations.[2] My study fits into this literature because I will be searching for how states, within the context of water, use power for riparian benefit. To explore how states employ their power in these types of situations, I will be searching specifically for use of the 'instruments of power' that I enumerate in my research design.

Human rights literature is the theoretical background detailing what rights individuals should be guaranteed as citizens of their country.[3] Water is a basic right, but is not legally assured internationally. There is a substantial body of literature available on what the human right to water is.[4] This literature relates to access to water and the quality of the water. My

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[2] W. David, Clinton, *The Realist Tradition and Contemporary International Relations* (Baton Rogue: Louisiana State University Press, 2007).

[3] Julie A. Mertus, and Maia Carter Hallward, "The Human Rights Dimensions of War in Iraq: A Framework for Peace Studies" in *Human Rights and Conflict: Exploring the Links Between Rights, Law, and Peacebuilding,* ed. Julie A. Mertus (Washington D.C.: United States Institute of Peace, 2006): 310.

[4] Konuralp Pamukcu, "The Right to Water: An Assessment," *Contemporary Politics* 2, no. 2-3 (June-September 2005): 157-167.

project will fit into this literature because I will be looking for access to quality of water, and how this distribution varies among states.

Both of these areas of scholarship have been studied extensively. I have not been able to find research that directly links them together, but they can be combined to create an umbrella theory under which Middle Eastern water scholarship can be understood. In this paper, I will attempt to determine what instruments of power are used by riparian states in the Middle East, and how manifestations of state power affect human rights.

Literature Review

There is an extensive body of literature studying water scarcity and water-based conflicts. These works address various important aspects of field, including theories of power relations, functional studies, legal works, quantitative analyses, and case studies. Influences are drawn from a variety of disciplines, including human rights, law, and environmental studies. My research focuses specifically on how state use of 'instruments of power' impacts the human right to water. Therefore, this literature review primarily focuses on the literature of power relations, particularly within the theoretical framework of realism, and human rights literature.

Specifically, this literature review seeks to demonstrate that the broad theoretical areas of power relations and human rights provide an overarching "umbrella" theory. All the water scholarship that I review here is relevant to both riparian power relations and water rights because one cannot be understood without addressing the other. This framework suggests that states are interested solely in their power, and use 'instruments of power' to their advantage in water situations, which invariably affects human rights. I divide up power relations and human rights literature for organizational purposes.

I begin this literature review with a brief overview of water conflict scholarship. Within this general area, there are many empirical studies of trends in international water cooperation and conflict. For example, Carius, Dabelko, and Wolf, quantitatively analyze international water cooperation, and when that cooperation has turned into conflict. They find that cooperation, rather than conflict, is the most frequent outcome.[5] They also discuss the potential that water has

[5] Carius, et al., "Managing Water Conflict and Cooperation," 151-176.

for being a cooperation-builder, because water negotiations generally have positive results.[6] Gordon agrees that water accords are "overwhelming successful."[7]

These empirical articles conclude that the frightening "water wars" of the 21st century are not as threatening as people imagined. They emphasize that water can further weaken already poor relations, and can be a factor in conflict, but they have not been the sole motivation for a violent conflict since 2500 BC when the city-states of Lagash and Umma fought over the Tigris and Euphrates.[8] They point out that water is an area of contention primarily between locals and the utility manager, be it governmental or private. For my purposes, this data on shared basins provides some necessary background on the nature of this type of conflict. These scholars have played a role in developing this field, as many studies of these situations attempt to determine the riparian states' potential for conflict or cooperation. These quantitative studies downplay the significance of water conflicts in the Middle East. This scholarship contradicts the assumptions of realist scholars, who maintain that interstate cooperation is rare.

My analysis of instruments of power used by states is grounded in the theoretical background of realism, the dominant theory in International Relations. The roots of classical realism lay in the works of such prominent historical scholars as Thucydides, Augustine, Machiavelli, Hobbes, Hume, and Burke.[9] Realism's popularity peaked during the Cold War with the works of Morgenthau and Niebuhr.[10] It has since expanded to include a subset of theories, including neo-realism and structural realism, among others. Most simply, realism maintains that

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[6] Alexander Carius, Geoffrey D. Dabelko, and Aaron T. Wolf, "Water, Conflict, and Cooperation," in *The Struggle for Water: Increasing Demands on a Vital Resource*, ed. Aaron Fishbone (New York: International Debate Education Association, 2007): 177-186.
[7] Gordon, *Freshwater Resource and Interstate Cooperation: Strategies to Mitigate an Environmental Risk*, 49.
[8] Carius, et al., "Managing Water and Conflict and Cooperation," 157.
[9] W. David Clinton, *The Realist Tradition and Contemporary International Relations* (Baton Rogue: Louisiana State University Press, 2007), vii.
[10] Ibid., vi.

states behave in an anarchic world system, and that they constantly seek to ensure their own survival. That standing, the state in the realist system considers the advancement and maintenance of power to be the only means of survival. This constant struggle for absolute power in a zero-sum world indicates that conflict, not cooperation, is the norm.[11] In contrast to realism is liberalism, a theory that similarly maintains that states behave in anarchic system. Liberal scholars, however, prefer to think that cooperation is a better means for promoting self-interest. Although I do not work within a liberal framework, many authors such as Sosland, work operationally within this theory.

Historically and internationally it appears that water is an exception to the realist rule, as evidenced by the findings of Carius, Dabelko, and Wolf. Water relations are marked by high cooperation and have been the direct cause of only one war - in 2500 BC. These findings suggest that one should study interstate water issues through the lens of liberalism. However, the Jordan River and the Tigris-Euphrates Rivers are examples of river basins marked by low cooperation. Because they diverge from the cooperative norm, they can be analyzed and understood through the lens of classical realism.

One source in particular will be immensely useful for applying realist power concepts. Lowi's book *Water and Power* is central to my analysis of power relations. This book examines the role that power plays in solving resource-based conflict, particularly in the Jordan Basin. She discusses the role of power within two predominant international relations theories, realism and liberalism.[12] Realist perceptions of state behavior would suggest that states are highly unlikely to cooperate with one another over a vital resource, although historically they have cooperated over international water basins. She argues that cooperative agreements exist only when national

[11] Miriam R. Lowi, *Water and Power: The Politics of a Scarce Resource in the Jordan River Basin,*14.
[12] Ibid.

security issues exist or when the arrangements have been forced by a hegemonic power.[13] Understanding that the regional hegemon plays a large role in riparian conflict is extremely important because this is heavily incorporated into this paper's overarching framework, which is detailed later.

Daoudy also addresses how realist theories can be used to analyze the role of power in riparian conflicts. He examines the role of structural power and asymmetric power in the Tigris-Euphrates Basin, and determines that bargaining power can be used by the weaker riparians to alter the dynamics. Daoudy defines structural power as the economic and military power held by the riparian states,[14] and his definitions will be very valuable as I determine the use of instruments of power. The use of structural power, as defined by Daoudy (as well as political power) and geographical power in water conflicts is specifically what I seek to understand. Other realist scholars elaborate on structural power,[15] the role of power in negotiations,[16] and negotiations in the framework of hydropolitics.[17] The additional theories I mention here, such as negotiation theories, are not central to my analysis but are useful references when I come across negotiation is used as an instrument of power.

Although I am focusing my research on realism, many International Relations theories have been applied to interstate water conflict, and they are important to understand when reviewing the literature. Gordon provides a very good overview of the various types of these

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[13] Ibid., 10.
[14] Marwa Daoudy, "Asymmetric Power: Negotiating Water in the Euphrates and Tigris," *International Negotiation* 14 (2009): 361-391.
[15] Fredrick W. Frey, "The Political Context of Conflict and Cooperation over International Water Basins," *Water International* 18, no. 1 (1993): 55-61.
[16] James Sebenius and David Lax, *The Manager as Negotiator: Bargaining for Cooperation and Competitive Gain* (New York: The Free Press, 1986).
[17] S. Dinar, "Negotiations and International Relations: A Framework for Hydropolitics," *International Negotiation* 5, no. 2 (2000): 375–407.

theories,[18] such as geopolitical theory, which "evaluates the spatial relationship between bordering states"[19] and negotiation theory, which hypothesizes that "successful conflict resolution correlates to the number of disputing parties."[20] These two theories are important because they play a role in realist dialogue, which addresses the competitive nature of state relationships and considers conflict resolution to be uncommon and usually not in the state's best interest. Other scholars[21] use these theories in their analyses of water and power.

When studying water and power, one is also required to study water access and the human right to water. The right to water is important because it allows people to lead their lives, and rights are the "building blocks of dignity, those tools that allow one to decide what the meaning of one's life will be."[22] The case for the right to water is especially strong because the human need for water is self-evident.[23] It also a priority to discuss the human right to water because human rights "are only maintained by constant renewal in action and speech."[24]

The modern concept of human rights was encoded in its current form in 1948 when the United Nations drafted the Universal Declaration of Human Rights.[25] Understanding this framework is pivotal for my research. The human rights framework's purpose is to "organize…three fundamental principles—the equality principle, the human dignity principle and the moral worth principle—and more specific widely held values into a structure of legally

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[18] Gordon, 21.
[19] Ibid., 31.
[20] Ibid., 33.
[21] S. Dinar, "Negotiations and International Relations: A Framework for Hydropolitics," 375–407; Fredrick W. Frey, "The Political Context of Conflict and Cooperation over International Water Basins," 55-61.
[22] Alicia Ely Yamin, "Defining Questions: Situating Issues of Power in the Formulation of a Right to Health Under International Law," *Human Rights Quarterly* 18 (1996): 401.
[23] Ivan Manokha, "Foucault's Concept of Power and the Global Discourse on Human Rights," *Global Society* 23, no. 4 (October 2009): 439.
[24] Yamin, "Defining Questions: Situating Issues of Power in the Formulation of a Right to Health Under International Law," 403.
[25] "The Universal Declaration of Human Rights," The United Nations, http://www.un.org/en/documents/udhr/ (accessed November 13, 2009).

enforceable rights."[26] This document included not only the basic civil rights that are necessary to protect political freedoms, but also introduced the social and economic rights that a government is required to provide its citizens. This document included brief mentions of water in regards to proper health and sanitation, but the UDHR is a declaration and not legally enforceable.

There has been no subsequent legally binding document to specifically protect the right to water. However, this right is included in The Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) and the Convention on the Right of the Child (CRC) to ensure these groups have equitable and healthy access to this resource. Human rights scholars generally maintain that the right to water was considered so basic that it was not considered necessary to create international legal statutes to protect it.[27] Nelson, in his chapter in Clifford Bob's book, enumerates the legal background supporting water rights. He also details the rise of water access and quality grievances in India in the 1990's and Bolivia in 2000. Because of these events, the right to water became increasingly recognized.[28] The human right to water was formally recognized by the UN Committee on Economic, Social and Cultural Rights in General Comment 15 in November 2002.[29] This General Comment asserted that water had been previously overlooked because of the human rights framers' "inability to imagine a world in which water access would be contested."[30] The General Comment also pointed out that water is necessary for the implementation of other rights, especially proper health.

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[26] Mertus and Hallward, "The Human Rights Dimensions of War in Iraq: A Framework for Peace Studies," 310.
[27] "Backgrounder: The Right to Water," International Year of Freshwater 2003, The United Nations, http://www.un.org/events/water/TheRighttoWater.pdf (accessed February 3, 2010).
[28] Paul J. Nelson, "Local Claims, International Standards and the Human Right to Water," in *The International Struggle for Human Rights,* ed. Clifford Bob (Philadelphia: The University of Pennsylvania Press, 2009), 130.
[29] Ibid.
[30] Ibid., 132.

Pamucku further places the right to water in a human rights context, and highlights governments' legal responsibility to ensure that each citizen's water rights are fulfilled.[31] Bob, in his introduction, similarly emphasizes that governments must provide citizens their rights. The right to water, although not as legally established as some other human rights, has little opposition. The primary debate within water rights scholarship is whether or not to privatize water sources, which I am not addressing. There are a number of pieces intend to aid lawmakers and activists in defining adequate access and adequate water quality. This type of data is frequently incorporated in the literature on water and human rights, and is in pieces such as the recent Amnesty International publication on Palestine, Hoekstra and Chapagain's book, and Allan's articles.

I have not found literature that directly links power relations and human rights in the context of water. I do, however, have several articles that link human rights to various other types of power. For example, I have found an article discussing the role of power in international health issues[32] and a Foucauldian discourse analysis of human rights and power.[33] These pieces, and others like it,[34] are helpful in understanding how power (or lack thereof) affects an individual's access to water. I have not found sources that discuss how geographic advantage and asymmetric power affect the human right to water. This is a gap in the literature, and my research will seek to connect the realist actions of states with international rivers to the subsequent human rights violations.

I have an extensive body of literature on the Jordan River and the Tigris-Euphrates Rivers that will help me illustrate how state power impacts human rights. This literature varies in

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[31] Pamukcu, "The Right to Water: An Assessment," 157-167.
[32] Yamin, 398-438.
[33] Manokha, "Focault's Concept of Power and the Global Discourse of Human Rights," 429-452.
[34] Joseph K. Young, "State Capacity, Democracy, and the Violation of Personal Integrity Rights," *Journal of Human Rights* 8, no. 4 (October-December 2009): 283-300.

nature, as some are descriptive histories and others seek to prove a certain hypothesis about water conflicts. Rouyer provides an explanatory overview of the history and actions of the actors. Trondalen argues that cooperation is possible, and details the current state of the conflict and possible solutions. Sosland also provides historical background, but uses this as the means to support his thesis that there is "great value to third party efforts that facilitate water cooperation and mitigate violent conflict related to water scarcity"[35] within the context of the liberal tradition. All of these sources have one thing in common – cooperation; lack thereof, or potential for – is the basis of the discussion.

A similar pattern appears with the case study literature for the Tigris-Euphrates basin. Freeman's piece is an overview of the situation and an explanation of why cooperation is unlikely to happen in the near future. Stauffer's article is a similar overview, and Trondalen provides recommendations for the Tigris-Euphrates Basin. Kibaroglu's historical background supports his research on the role of scientific epistemic communities. Dauody's analysis of the Tigris-Euphrates conflict includes a review of relevant theories.

These scholarly works greatly contribute to explaining how realist state behavior can lead to violations of the human right to water. State power, as it is understood in realist theory, is capable of having a large effect on human rights. In the case of a scarce water resource, unless division of the water is nearly equitable, one party is likely to have an inadequate supply of water. A low supply of water is a violation of water rights because a minimum of 100 liters per person per day is needed for basic hydration, sanitation, cleaning, and cooking needs.[36] In addition, a state needs enough water to fuel its agricultural and industrial sectors. Poor water

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[35] Jeffrey K. Sosland, *Cooperating Rivals: The Riparian Politics of the Jordan River Basin* (Albany: State University of New York Press, 2007), 9.
[36] Peter H. Gleick, "Basic Water Requirements for Human Activity: Meeting Basic Needs," *Water International* 21 (1996): 87.

quality can be another large problem resulting from asymmetric state power, because poor quality water can have detrimental affects on agriculture, industry and health.

An inadequate supply of quality water is a denial of a basic human right. In the case of riparian conflict, it is likely that how well human rights are met will vary based on the power of that individual state. The state with the most riparian power (the hydro-hegemon) is likely to create the rules by which the basin plays. The hydro-hegemon "produces behaviour that is in conformity with the dominant standard of normality of acceptability."[37] By creating regional standards, the hydro-hegemon is also capable of coercing or forcing the less powerful riparians to accept situations they would not otherwise.

The ability of the hydro-hegemon to do this varies by its riparian position. If the hydro-hegemon is the upstream riparian, then they have complete control over how much water flows downstream, and what quality of this water is. Therefore, the most advantageous position for a hydro-hegemon is upstream. This position allows the state to use however much water it chooses, and any pollution from industrial or agricultural practices will flow to the downstream riparians. These upstream hydro-hegemons also have the option of damming portions of the river for storage or hydropower, which would further deplete the downstream supply.

A downstream hydro-hegemon has almost as much power as an upstream hegemon. Because they set the terms of engagement and have the structural power to enforce their claims, they are able to receive the quantity of water that they choose, at the quality that they insist on. As a regional hegemonic power, they can also more easily call for international assistance if they feel that they are not receiving their proper share of water. However, because the water has to flow through at least one other state before reaching the hegemon, the total attainable amount is lower than if they were the state at the top of the river. They are also unlikely to stop the

[37] Manokha, 430.

upstream riparian from minor industry or agriculture, so the water will not be as pristine as at its source. But, as the regional power, they have the ability to limit these effects and maximize, within reason, their access to quality water.

Meanwhile, the rest of the states in this shared basin will be left with less water. Depending on the situation, they may not have enough water to sustain basic health and sanitation practices. In other situations, they may have enough to meet minimal standards for sanitation and health, and perhaps be able to grow a substantial amount of food; but they will have less water than the hegemon, and will not be able to use water to fuel their economies to the same extent. Therefore, this is not necessarily a "haves" versus "have-nots" situation: the extent that human rights are met will fall on a spectrum. Some states will have more water than they need; some will have enough but not enough to substantially grow economically or demographically; and some will not have enough to meet their population's needs.

As one can easily see, there is a strong relationship between human rights and water. By writing about the topics of realism, the human right to water, and Middle Eastern riparian politics, I am entering the scholarly discussion of these topics. In particular, I believe that I am adding to the existing scholarship by combining the study of state power with the human right to water to create a framework for studying the right to water.

Research Design

For my research, I conduct qualitative research in the form of two case studies. The first case study addresses the effects of water politics on the Jordan River basin, which includes Lebanon, Syria, Jordan, Israel, and the West Bank. The second case study addresses the effects of water politics on the nations along the Tigris and Euphrates River basin, which includes Turkey, Syria, and Iraq. As I detail below, I use these historical geopolitical case studies to determine the uses of state power in inter-state water issues. I will then try to determine whether or not power discrepancies between states lead to human rights violations in the weaker states.

I hypothesize that the nature of international water relationships in the Middle East is determined by states' use of 'instruments of power,' and that their usage leads to human rights violations and inequities. I will generally define 'water relationships' as how states interact with one another regarding this scarce resource. For example, do they have treaties allocating the water, or do they each take as much water as possible? An important aspect of the relationship is the resulting access to quality water, and whether or not this access is equitable.

My operational definition of the term 'instruments of power' is twofold. First, I am referring to the hydropolitical power that states have because their status as an upstream riparian. Secondly, I am referring to the economic, political, and military power that states have regardless of the river system. I intend to identify but not thoroughly explain these structural[38] instruments of power.

When discussing 'human rights' in this paper, I am referring only to human rights as they pertain to water. This is related to 'water relationships,' as I will be looking for adequately sustainable quantities of safe, quality water. I will determine if the access is equitable across

[38] Daoudy, "Assymetric Power: Negotiating Water in the Euphrates and Tigris," 361-391.

state lines. In this case, equity means access to roughly the same amount of water (per capita) and water of roughly the same quality.

As mentioned, my sample includes the basins of the Jordan River and the Tigris and Euphrates Rivers. I detail the modern history of their riparian relations and highlight key events in order to provide the necessary political context. While doing this, I point out what instruments of power are used in these events to prepare for the upcoming analysis of power relations.

I begin reviewing the Jordan River sample in 1948 when the state of Israel was established. This case is more complicated than other water-sharing conflicts because of the historical tensions between Israel and its neighbors and between Israel and the Palestinian territories. The Jordan River is rather small, and the demand for water has surpassed the water supply.[39] Therefore, it is very important to study its history and determine what role power has played in the relations thus far, because cooperation is necessary for equitably sharing this river.

I begin reviewing the Tigris-Euphrates River sample in 1919 when the modern state of Turkey was established and while Syria and Iraq were still French and British mandates. These historic rivers were once an extremely viable river system but modern politics has changed the quality and quantity of the river flow. This particular river conflict is marked by low conflict and low cooperation.

Through these histories, I enumerate the important economic, political, and military instruments of power. The economic instruments of power I look for include: the role of the strongest economic power; strength of trading partnerships; dominance of certain trading markets; and sanctions or threat of sanctions. The political instruments of power I look for include: role of the regional or riparian hegemon; engaging or withdrawing from river

[39] J. A. Allan, "Hydro-Peace in the Middle East: Why no Water Wars? A Case Study of the Jordan River Basin," *SAIS Review* 22, no. 2 (Summer–Fall 2002): 255-272.

negotations; offering diplomatic talks or threatening to withdraw from them; beginning, ending, or altering, diplomatic relations, or threatening to do so; the use of treaties; engaging or threatening to engage with an external power about the river; and appealing globally for sympathy or assistance. The military instruments of power I will look for include: the role of the superior military power; increasing, or threatening to increase quantity or diversify weapons; troop movement; threat of any sort of military action; military strikes; and military occupation.

Once I identify the instruments of power, I analyze the role of these instruments of power within a realist framework. I attempt to determine if they compete over the resource in order to maximize their power expected to behave or if they are likely to cooperate, as states overwhelming do when sharing river resources. At this point in my analysis, I am guided by Lowi's work *Water and Power.* Through an extensive historical analysis and the utilization of realism, she determines that cooperative agreements only exist when national security is threatened or a hegemonic power forces cooperation. My analysis differs from hers because I will be using my enumerated instruments of power.

The use of instruments of power has an effect beyond the governments involved. These realist actions have tangible impacts on the citizens who are reliant on these water sources. I then attempt to determine how these actions have affected the supply of quality water to these states. I am guided by human rights scholarship. I have sources that detail how much water is used,[40] and I compare the access and quality of the water up and down the river basin to determine if there is a difference in states' fulfillment of the human right to water.

The first way I determine if the right to water is being met is by searching for data that includes information on per capita water access. The World Health Organization states that

[40] Alwyn R. Rouyer, *Turning Water Into Politics: The Water Issue in the Palestinian-Israeli Conflict* (New York: St. Martin's Press, 2000), 19.

water, at a minimum "must suffice to meet basic human needs in terms of drinking, bathing, cleaning, cooking and sanitation….The minimum quality of household water is dependent on its specific use; drinking water must be safe for consumption, whereas lower standards may be set for water for sanitation."[41] A minimum recommendation of water use per capita is contested, but generally 100 liters per capita per day is the minimum in water-scarce regions. If one includes more advanced cooking and bathing practices, up to at least 200 liters per person per day are required.[42] The recommendations vary based on many factors, including toilet and bath access (whether or public or private), need for washing, availability of sanitation, presence of livestock, and climate.

For countries where official data on per capita access is lacking, I use anecdotal reports of scarcity issues, or use data describing the amount of water available and its known level of pollution to draw conclusions. One can also draw conclusions from how the nation chooses to allocate its water supply. For example, if a large percentage of the nation's water is allocated to agriculture, but people still have inadequate access to water, the implication is that the agriculture system is inefficient or over-valued. This type information will help me determine how exactly state power has effected human rights in each individual nation. This means of analysis is particularly useful for demonstrating the level of access inequity between states.

All of the data for my Capstone is derived from the available literature. I collected book and articles from peer-reviewed academic from the American University Library and the Washington Research Library Consortium. I found most of my articles through databases such as JSTOR, International Bibliography of the Social Sciences (IBSS), Index Islamicus, and

[41] Margaret Vidar and Mohamed Ali Mekouar, "Water, Health, and Human Rights," Water Sanitation, and Health, the World Health Organization, http://www.who.int/water_sanitation_health/humanrights/en/ (accessed January 26, 2010).
[42] Gleick, "Basic Water Requirements for Human Activity: Meeting Basic Needs," 87.

Academic Search Premier (EBSCO). Many of these full-text articles have been available online at the library, others were ordered through the Inter-Library Loan. When I address extremely contemporary issues, I use reputable news sources such as the *BBC News*, the *New York Times*, and the *Washington Post*, which are accessible through their websites and LexisNexis. I also use publications by think tanks or the United Nations.

These books and articles are grounded in a variety of disciplines, such as international history and Middle Eastern geopolitics,[43] international relations theory,[44] particularly realism,[45] and human rights theory.[46] Firstly, there is a large body of work available that examines international water conflict quantitatively. I have found a number of books detailing the history of the riparian relations of the Jordan River Basin and the Tigris-Euphrates Basin. There is an extensive body of work about realism,[47] and will be the basis for my analysis of how power was used in each of these cases.

The research design and process itself does not contain any foreseeable ethical issues, as I am not interacting or working with human subjects. This paper is not a normative study of values and human rights, but these issues are inherent in any discussion of human rights and water.

The following case studies look at these dynamics at play in real life situations by examining how state power effects the human right to water in scarce river basins. I determine that the hegemonic power determines how the conflict is settled, and that this will result in water rights violations.

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[43] Aysegul Kibaroglu, "The Role of Epistemic Communities in Offering New Cooperation Frameworks in the Euphrates-Tigris System," *Journal of International Affairs* 61, no. 2 (2008): 183-198.
[44] Gordon.
[45] Lowi, *Water and Power: The Politics of a Scarce Resource in the Jordan River Basin.*
[46] Pamukcu, 157-167.
[47] Lowi, *Water and Power: The Politics of a Scarce Resource in the Jordan River Basin.*

Case Study: The Jordan River Basin

The Jordan River is an extremely scarce water resource in a very arid region. The Jordan River runs through the Jordan Valley, which is fifteen to twenty-five kilometers wide[48] and includes Upper Jordan, the Huleh Valley, Lake Tiberias, the Bet Shean Valley, the Lower Jordan Valley, and the Dead Sea. Several rivers contribute to the Upper Jordan River, including the Hasbani, which originates in Lebanon and has a flow of 130 million cubic meters a year (mcmy); the Banias, which originates in the Golan Heights and has a flow 120 mcmy; and the Dan, which originates in Israel and has a flow of 250 mcmy. Two rivers contribute to the Lower Jordan River: the Yarmouk, which originates on the Syrian-Jordanian border and has a flow of 400 mcmy; and the Zarqa River, which originates in Jordan and has a flow 63 mcmy. The Jordan River gains 200 mcmy from rainfall, and another 140 mcmy from runoff above Lake Tiberias.[49]

These small rivers are the primary water supply for a large number of people; too many in fact, to sustainably use the rivers. Fifteen billion cubic meters of freshwater is needed to support the populations on the Jordan Basin, but there are only 3 billion cubic meters of freshwater available.[50] Lebanon and Syria have many other water sources, and are not ecologically dependent on this river basin. However, they are often included as riparians, especially in negotiations. Jordan has several wadis and aquifers, but it is an arid water-scarce country. Israel and Palestine have two large aquifers, the Coastal aquifer and the Mountain Aquifer, which is divided into the eastern, western and northern basins.[51]

The riparian relationship began on very rough ground. After a year-long civil war between Jewish immigrants and native Palestinians, Israel was established as the Jewish national

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[48] Rouyer, 18.
[49] Ibid.
[50] Allan, "Hydro-Peace in the Middle East: Why No Water Wars? A Case Study of the Jordan River Basin," 260.
[51] Ibid., 22.

homeland by the United Nations in 1948. Palestinians lived either as refugees within Israel or in the surrounding Arab states, who felt threatened by the creation of Israel. Similarly, Israel felt threatened by its hostile Arab neighbors. This culminated in an armed conflict in 1948 between Israel and several Arab states, including Egypt, Jordan, Syria, Lebanon, Iraq, and Saudi Arabia. After this war, Israel took 50% more land than allotted by the UN and two UN bodies were established in the region as observers: the UN Truce Supervision Organization (UNTSO) and the Mixed Armistice Commissions (MAC).[52] In 1949, the UN Relief and Works Agency (UNRWA) was created to provide services for the Palestinian refugees.

Cooperation over the Jordan River and its tributaries seemed highly unlikely, especially because of two early controversial Israeli development plans for the northern basin. The first was Israel's 1951 plan to drain the Lake Huleh swamps from north of Lake Tiberias,[53] which resulted in six days of violent conflict with Syria in February 1951 in the demilitarized zone (DMZ).[54] A UN Security Council Resolution was necessary to stop the conflict. Israel later resumed the project when it was relocated to avoid affecting Arab lands.[55] The second Israeli plan was to divert the Jordan River through a canal near the Bnot Ya'acov Bridge in 1953.[56] Because of these two schemes, the United States decided to mediate a peaceful resolution between Israel and its Arab neighbors. "Because of its hegemonic position in the international system, and its role in the creation of Israel, the United States believed it had a responsibility to try to relieve the tensions of the 'Palestinian Problem.'"[57] The U.S. encouraged the UNRWA's research towards a water-sharing plan for the riparians.

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[52] Lowi, *Water and Power: The Politics of a Scarce Resource in the Jordan River Basin,* 80.
[53] Ibid.
[54] Sosland, "Cooperating Rivals: The Riparian Politics of the Jordan River Basin," 31.
[55] Lowi, *Water and Power: The Politics of a Scarce Resource in the Jordan River Basin,* 80.
[56] Ibid.
[57] Ibid., 81.

With the help of the Tennessee Valley Authority, the Main (Unified) Plan was officially submitted to the UNRWA and the U.S. in August 1953. This plan included three primary elements. First, diversion canals would be constructed along the Hasbani, Dan and Banias rivers to irrigate the upper Jordan basin. Second, Lake Tiberias would be used as a storage reservoir for the flood flows of the Jordan and Yarmouk Rivers. Third, canals would be constructed along the east and west sides of the lower Jordan to irrigate the lower Jordan Valley.[58] This plan did not include the Litani River, and the proposed Maqarin Dam would be used for hydropower instead of irrigation. The Main Plan became the basis for the subsequent negotiations over the division of the Jordan Basin.

The negotiations were set to begin in Beirut on October 22, 1953. However, things would get off to a rough start. First, Israel attacked the Jordanian villages of Qibya, Budros, and Shuqba.[59] Then, on September 2, Israel began constructing the southbound water canal near the Bnot Ya'acov Bridge, despite Syria's objections. The UNTSO ordered Israel to stop until there was a sharing agreement, but Israel did not halt the project until Secretary of State John Foster Dulles temporarily suspended $26 million of promised aid for Israel on October 20. On October 16th, Eric Johnston, Chairman of the TCA's Advisory Board for International Development was appointed the special ambassador to create a regional development plan for the Jordan River. The Arab states were skeptical of the negotiations because Johnston was considered pro-Zionist and because they were resentful of the "use of economic aid as bait with which to secure a basin-wide agreement."[60] At this time, Israel's opinions of the attempted negotiations were divided.

Regardless of these difficulties, Johnston arrived in Beirut October 22 and spent the next month shuttling between riparian capital cities. The states took the winter to formulate their

[58] Ibid., 83.
[59] Ibid., 86.
[60] Ibid.,, 87.

counterproposals and Round Two began in June 1954 in Cairo. Johnston found cooperation with the Arab delegation to be relatively easy, as they agreed on many main points. Israel agreed to disregard the Litani, but would not agree to Johnston's proposed allocations. Israel also did not want Tiberias to be used for Yarmouk storage because this river was Jordan's primary source. Despite these difficulties, Johnston described the possibility of reaching a joint development agreement for the region as hopeful.[61]

Meanwhile, soil and hydrological tests determined that Johnston could offer Israel more water than previously thought, and he offered them 446 mcmy, 95% of what they requested. The Third Round of negotiations beginning January 27, 1955. Johnston's plan also called for Lake Tiberias as international storage, separate Yarmouk storage, and international supervision. Israel rejected this plan.[62] They wanted more water, no international supervision, all of the Jordan and some of the Yarmouk. Jordan would not accept a plan without international supervision, and wanted more storage on the Yarmouk than justifiable because they worried about sharing storage in Lake Tiberias. Lebanon did not want to cooperate towards the beginning of Round Three, but Johnston managed to create the Gardinier Plan by the end of the negotiations.[63] The plan could not be implemented without Arab League approval, and there were popular demonstrations in Arab capital cities against cooperating with Israel.[64]

Round Four began on August 25, 1955. Just before this round began, Dulles announced that the U.S. would compensate Arab refugees, underwrite some expenses for regional water development, and guarantee political boundaries to replace armistice lines. Dulles' plan only alienated the Arab parties, and they "denounced Dulles' proposals as an attempt to legitimize a

[61] Sosland, 35.
[62] Lowi, 93.
[63] Ibid., 96.
[64] Ibid., 100.

situation which they did not accept."[65] Jordan was willing to compromise if the dam at Maqarin would be built to allow for greater future capacity, if there was more water from the Upper Jordan for Jordan stored in Tiberias, and if there were more specific guarantees about enforcement. The plan faced stern objections in Egypt, Syria, and Lebanon.[66]

The Arab League met in October, and did not reject the plan outright, but deferred it to a Technical Committee. The Arab League reconvened in 1956 and could come to a decision about the Johnston Plan. In the meantime, Egypt finalized the Czech arms deal in the summer of 1955,[67] and David Ben-Gurion became Israel's Prime Minister in the 1956. As a response to the Czech arms deal, the U.S. decided in July to withdraw finances for Egypt's Aswan High Dam, which provoked the Suez Crisis.[68]

These political actions interrupted the U.S.'s attempt at negotiating a development plan for the region. The U.S. could have divided the basin in a simpler way; but they tried to force the region to share the basin in order to promote peace and cooperation. The Arab states thought that the U.S. was interested in working with them only to block Soviet expansion and to force them to accept Israel. Also, Lebanon and Syria had the greatest power as upstream riparians and were able to sabotage the negotiations.

Although the plan did not work out, the Johnston Plan became the basis for water allocation in the region. There were two versions of the plan that had been agreed on: Israel's and Jordan's separate draft memorandums of understanding. Israel receives 40 mcmy from the Jordan River in the Israeli version, and 25 mcmy in the Jordanian version. Jordan, in its version, receives 45 mcm more fresh water (as opposed to saline water) from Lake Tiberias than in the

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[65] Ibid., 101.
[66] Ibid.
[67] Sosland, 48.
[68] Lowi, 104.

Israeli version. The Jordanian version does not mention an Israeli diversion project, but the Israeli version includes a diversion structure near Bnot Ya'acov. International supervision was never resolved.[69] Regardless of these variations, both Israel and Jordan generally adhered to Johnston allocations. U.S. officials considered this a Johnston-style approach, and they sought to ensure that this approach would remain the norm through negotiations and financial incentives. The U.S. negotiated separately with each country, and in 1958 and 1959, respectively, the U.S. agreed to help finance Jordan's East Ghor Canal and Israel's National Water Carrier.[70]

Riparian relations became problematic in the 1960's. The Arab states began to worry about Israel's growing demographic, economic, industrial and military strength, which would increase once Israel could divert water to the Negev Desert through the National Water Carrier. In January 1961, Israel announced that it would boost its funds for the National Water Carrier so that Stage I could be completed by 1964. In January 1964, the Arab League decided to allocate $17.5 million to divert the Hasbani and the Banias over the course of 18 months. They also decided to create a joint Arab army to defend the diversion projects against Israel, and allocated $42 million to reinforce Jordan, Lebanon and Syria.[71] In May of 1964, Israel began testing the carrier. The Arab League decided to begin the diversion scheme at the end of September and decided to consider aggression against one Arab country as aggression against all Arab countries. Interestingly, the Arab states were not as unified as it may seem. Syria wanted to initiate an armed conflict with Israel right away, and Nasser wanted to increase his hegemonic power by installing Egyptian led joint armies in Lebanon, Syria, and Jordan. These plans were rejected.

Although the other Arab states rejected an immediate military confrontation, Syria found itself in military exchanges with Israel six weeks after the headwater diversion began in late

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[69] Sosland, 53.
[70] Ibid, 70.
[71] Lowi, *Water and Power: The Politics of a Scarce Resource in the Jordan River Basin*, 123.

September. Both blamed each other for the confrontation. The border clashes continued through the first half of 1965, and Israel began buying arms.[72] Because Syria is not dependent on this water supply, it seemed far more willing to resort to conflict than cooperate. In February of 1966, Saleh Jahid took over Syria. He was more strongly anti-Israeli than his predecessor, and skirmishes in the DMZ increased as he attempted to provoke Israel into military conflict.[73]

In addition, the Arab states were frustrated with Nasser for his inaction on this situation. He ordered the UN out of the Sinai Peninsula in May 1967 and ordered Egyptian troops to enter the Peninsula, which Israeli PM Eshkol considered an act of aggression. Jordan and Syria armed, and Iraq moved in troops through Jordan. Israel struck first, on June 5, 1967, starting the Six-Day War. Because of this conflict, Israel significantly increased its total area by capturing the Gaza Strip and Sinai Peninsula from Egypt, the West Bank from Jordan, and the Golan Heights from Syria. This war solidified Israel's hegemonic dominance in the region.

There were many causes of the Six-Day War, including the ongoing political and military conflict, Palestinian issues, and adjustment of the regional balance of power. "Water scarcity was, however, an important immediate cause of the 1967 War"[74] because it decreased regional stability. Israel took action against the diversion projects in Lebanon and Syria because the U.S. did not give Israel the assurances it needed on the water issue. They were also worried as Arab states, particularly Egypt, acquired weapons from the USSR. Egypt, Syria, and Jordan, felt insecure because of Israel's increasing demographic and military dominance.

Syria and Lebanon lost a great deal of their relevance in the Jordan River Basin because Israel gained control of the Banias's headwaters in the Golan Heights. In 1982, Israel gained control of the Hasbani by invading southern Lebanon. Although Syria and Lebanon were still

[72] Ibid., 145.
[73] Sosland, 88.
[74] Ibid., 90.

riparians, their influence and available power plays became extremely limited. Syria, Lebanon, and Egypt were politically, economically, and militarily weakened by the war, and sabotaging Israel's water security was no longer a high priority.[75] Jordan lost its richest agricultural area, the West bank. Its population had tripled since 1948 because of increasing numbers of Palestinian refugees, and Jordan was overburdened. By taking the Golan Heights, Israel now controlled 20% of the northern bank of the Yarmouk, as opposed to 10% before the war. They also had the increased security of controlling the Banias's headwaters.

Shortly thereafter, Israel and Jordan faced Palestinian uprisings within their borders. In 1968 and 1969, Israel suppressed Fatah's violent uprising in the West Bank and Gaza Strip, but Fatah relocated to the East Bank. Between 1968 and 1970, Israel attacked the East Ghor Canal eight times in pursuit of the *fedayeen*. These attacks threatened Jordan's cash crops and put the lives of Jordanians at risk. Israel then agreed to no longer attack within Jordan's borders if Jordan would stop the PLO on its own. King Hussein was successful in doing so, and the PLO was forced to flee southern Lebanon. Syria sided with the Palestinian refugees, and a violent conflict nearly ensued near the Jordanian-Syrian border, but Israel supported Jordan, and the conflict ended before it began.[76] Also, in 1973, the Yom Kippur War was fought, and Egypt regained control of the Sinai Peninsula, but not of the Gaza Strip.

In the early 1970's, Israel was under the control of the Labor Party, which did not intend on building any Jewish settlements in the West Bank. By 1977, there were only about 5,000 Jews living in a few agricultural cooperative kibbutzim and moshavim.[77] Israel determined water allocations for the Palestinians living in the West Bank. Palestinian agriculture relied mainly on

[75] Lowi, *Water and Power: The Politics of a Scarce Resource in the Jordan River Basin, 149.*
[76] Sosland, 100.
[77] Ibid., 140.

rain, and although they were settled on top of two of the aquifers, they only were allowed between 80 and 100 mcm per year, 75-95% of which was allocated for agriculture.[78]

Jordan's poor economic situation in the 1970's required it to address water issues. The newly established Jordan Valley Authority (JVA) created a development plan, which included the Talal Dam on the Zarqa River (completed in 1977), and a 19 km extension of the East Ghor Canal (completed in 1978).[79] Jordan was utilizing less than two-thirds of its annual water potential because it did not capture the Yarmouk's winter water.[80] To solve this problem, the JVA wanted to build a dam at Maqarin. This project would require cooperation between Jordan; Israel, who had doubled its Yarmouk usage; and Syria, who was building small dams on the Yarmouk and its tributaries.[81] To begin the Maqarin Dam project, the U.S. Agency for International Development (USAID) lent $14 million for design costs. Although Likud took over the Israeli Knesset in 1977, it was still hopeful that they would agree to the creation of the dam, and Jordan secured enough international financers, including the U.S. Congress. However, Syria did not decide how much water they wanted to retain, and Israel would not settle for less than 40 mcm for prospective irrigation plans, as opposed to the 25mcm that the U.S. proposed as a compromise. In retaliation, Jordan informed Israel that they would not support Jewish settlement in the West Bank. Then, Jordanian-Syrian relations soured when Jordan chose to side with Iraq in the Iran-Iraq War, and al-Assad accused Jordan of aiding the Muslim Brotherhood uprising in Syria. By 1980, the plans were postponed indefinitely.[82]

With the Likud takeover in 1977, the situation worsened for Palestinians on the West Bank, because Likud encouraged Jewish settlement and allowed settlers nearly three times more

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[78] Ibid., 146.
[79] Ibid., 100.
[80] Lowi, *Water and Power: The Politics of a Scarce Resource in the Jordan River Basin,* 177.
[81] Sosland, 101.
[82] Ibid., 108.

water per capita than Palestinians.[83] Also, Israel frequently did not approve Palestinian plans for wells. In the early 1980's, Israel was also utilizing 25% of the Yarmouk River, when the Johnston Plan only allocated them 5%. Israel and Jordan had also been meeting regularly to discuss the Yarmouk allocation, which continued until the 1994 peace treaty. Israeli-Jordanian cooperation was tested several times at the Yarmouk's Point 121, where a sandbar appeared as a result of not properly maintaining the river. On several occasions, troops assembled on both sides of the river. Israeli Prime Minister Peres and Jordan's King Hussein became involved in 1985 because they saw this as an opportunity to promote peace, and Yarmouk was successfully dredged at Point 121 in October 1985. In 1988, under new JVA head Bani Hani and Eli Rosenthal from Israel, they "devised an authoritative river cleaning plan and an effective gauging system."[84]

In the late 1980's, Jordan and Syria began negotiating for a possible dam at Unity to catch the Yarmouk's winter flow. The negotiations went well at first, but Syria wanted Jordan to make a number of concessions and when JVA head Haddadin resigned in protest the negotiations stalled.[85] From 1988 to 1991 a drought plagued the Jordan Valley. Lake Tiberias's reserves hit an all-time low, and Israel's coastal aquifer was not adequately replenished. Israel was forced to reduce farmer's water allocations to 68% in 1989.[86]

In the early 1990's Jordan and the PLO were politically weakened because they had not supported the U.S.-lead coalition against Iraq's invasion of Kuwait. The United States thought that this was an opportunity to promote the peace process. On November 1, 1991 Israel, Syria, Lebanon, Jordan, and the Palestinians met in Madrid. This was the first time that Palestinians

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[83] Ibid., 155.
[84] Ibid., 129.
[85] Ibid., 133.
[86] Lowi, *Water and Power: The Politics of a Scarce Resource in the Jordan River Basin,* 153.

had been represented in a regional peace attempt. On November 3, the first public and direct diplomatic talks began between Israel and its neighbors.[87] Negotiations proceeded quickly when Labor took control of the Knesset in 1992.[88] On September 9, 1993, PLO leader Yasser Arafat recognized Israel's right to exist.

Four days later, the declaration of principles was signed that would pave the way for the Oslo Accords. Phase I (Oslo I) was signed on May 4, 1994, and responsibilities and power were transferred from Israel to the Palestinian Authority. Oslo II was never successfully completed, and one of the contributing reasons was water. The Palestinian Authority wanted complete water rights. Israel would not concede to that because, according to the Johnston Plan, West Bank Palestinians would then be entitled to 150 mcmy, portions of the Yarmouk, storage and fishing in Lake Tiberias, access to the Mediterranean and Dead Sea, as well as control of the underground aquifers.[89] The issue was postponed for final status talks. They created a joint management plan for water and sewage that estimated Palestine's water need as 70-80 mcmy. 28 mcmy would be for domestic use, and 5 mcmy would be sent to Gaza. The remaining 42-52 mcmy was allocated for industrial and agricultural purposes, and would come primarily from the Eastern Aquifer.[90]

The Palestinian-Israeli Joint Water Committee (JWC) was created to oversee technical issues. Between 1994 and 1998, over half of the U.S.'s aid to Palestine was allocated to work on water issues. However, the Israeli government had veto power within the JWC, and it was difficult for Palestinians to obtain drilling permits, especially when the Netanyahu-led Likud

[87] Sosland, 160.
[88] Ibid., 162.
[89] Ibid., 166.
[90] Ibid., 167.

party took over the Knesset in 1996. In total, Israel denied the JWC permits for 130 water development projects.[91]

During this time, Israel and Jordan solidified their official relationship when they signed their peace treaty on October 26, 1994.[92] With slight adjustments, the water allocations mimicked those in the U.S.-Arab Memorandum of Understanding from the Johnston Plan. In order for Jordan to receive what had been declared in the treaty, they need to build two small dams, a desalination plant, and a transmission system. Until that desalination plant can be built, Israel is pumping 20 mcm for a five-month period each year from Lake Tiberias to the King Abdullah (East Ghor) Canal, and an additional 10 mcm in winter. But as of 1996, Jordan was only receiving 30 mcm of the total promised 50 mcm from Israel. In 1997, after Jordan threatened to cut ties, Israel began giving Jordan 55 to 60 mcmy until they could complete the desalination plant.[93] During the drought of 1999, Israel considered cutting its allocation to Jordan, although Jordan was suffering from scarcity issues and poor quality water in Amman. King Abdullah II did not back down, and Jordan received their allocation.[94] In the early 2000's, it seemed like King Abdullah II and Syrian President Bashar al-Assad would agree on specifications for the Unity Dam, but the negotiations did not work out. Jordan also wants to create a $1 billion pipeline that would transport Red Sea water to the shrinking Dead Sea. This pipeline would serve as a source of hydropower as well as attract tourists to the Sea. However, there are not yet enough funds to start this project.[95]

Israel negotiated directly with Syria from 1994-1996 but took a hiatus during Netanyahu's rule. Talks resumed in 1999 with the help of U.S. President Clinton, but quickly

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[91] Ibid., 171.
[92] Ibid., 173.
[93] Ibid., 177.
[94] Ibid., 181.
[95] Ibid., 182.

broke down again. Syria wanted the Golan Heights returned before they would negotiate anything; and Israel wanted normalization of relations and perhaps a return to the 1923 borders, but not a return to the pre-1967 borders.[96] If Israel gives up the Golan Heights, they could lose up 200 mcmy. Syria's population grew rapidly over the previous several decades, and Turkey's damming of the Euphrates River left them without enough water, which required them to develop the Yarmouk basin. Eventually negotiations ended because Turkey would not provide Syria with more water, even when offered more U.S. aid. Syria and Israel's negotiations ended.[97] Lebanon and Israel had more than a dozen fruitless talks between 1991 and 1994, which have been halted indefinitely.[98]

Analysis: The Use of Power

Riparian relations on the Jordan River Basin have been marked by conflict. The riparian states strongly distrusted one another, but were forced to attempt to work together because they all shared a relatively scarce resource. However, merely sharing the resource did not make cooperation easy, in fact, sides were not willing "to engage in any activity that could help the adversary become stronger."[99] The riparians were only willing to cooperate when they had considerable security issues at risk, or were forced by a hegemonic power. This becomes evident when one examines the economic, political, and military instruments of power.

Economic instruments of power were the least-common instrument because trading partnerships were limited. Israel did not engage in any sort of economic activity with its neighbors, and trading relationships among the Arab states were limited and were never

[96] Ibid., 186.
[97] Ibid., 188.
[98] Ibid., 191.
[99] Lowi, *Water and Power: The Politics of a Scarce Water Resource,* 192.

threatened. The most important instrument was Israel's economic dominance in the region. The Arab states were unwilling to accept any action that could increase Israel's economic power. They were vehemently opposed to the National Water Carrier, which increased Israel's industrial power by supplying the Negev Desert with water from the Jordan River. The U.S. used economic instruments of power, particularly economic aid, to persuade the states to negotiate. This technique worked most notably in 1953, when the U.S. suspended $26 million of intended aid to Israel when they did not stop building a diversionary canal from Bnot Ya'acov. Israel quickly cancelled the project in order to regain their access to aid.

The political instruments of power most commonly used in the Jordan River Basin were diplomacy, occupation, ideology, and third-party assistance. The first instrument of power, diplomacy, is intentionally broad because many different forms of diplomacy were utilized, depending on the situation. Secret talks were an extremely common practice, particularly between Jordan and Israel between 1967 and 1994. They occurred because Jordan and Israel had disputes over water that had to be resolved, or else military action could ensue. Another instrument of power utilized was the Madrid Conference and the resulting changes in regional dynamics. All of the states involved in the Madrid Conference had political reasons to appear like they were cooperating. The Palestinians, once formally recognized Israel needed international assistance to foster peace with Israel. The resulting bilateral and multilateral talks were also instruments of power, but they were generally unsuccessful, with Jordan and Israel's peace treaty standing as an exception.

Israel's role as occupier of the West Bank and Gaza Strip gave it power over the water rights of Palestinians. Once Israel gained control of the West Bank in 1967, it was guaranteed more water under the Johnston Plan allocations, and Israel did indeed increase its annual water

intake. Israel also severely limited Palestine's share, and Israeli settlers, per capita, received nearly three times more water. Israel also denied Palestinians permits for water projects under the JWC, severely limiting its economic and political development.

Ideology played an interesting role as a political instrument of power because it provided states with justification for their behavior. For example, Syria and Lebanon believed that Israel did not have a right to exist, and therefore did not have the right to be a riparian. This ideology also justified Lebanon and Syria's diversion attempts. Israel's belief that they are entitled to the entire Holy Land enabled them, under the Likud Party, to establish settlements in the occupied territories and limit the rights of the Palestinians in the area.

Third party actors also had instruments of political power in the region. The Arab League attempted to sabotage the Johnston Plan, and Egypt's hegemonic aspirations in the 1960's affected riparian relations. However, the United States was the region's primary third-party actor. The United States as a third-party player utilized many different methods in attempt to foster increased cooperation. Most often, it supported or attempted to begin secret talks and other forms of diplomatic engagement. Its attempts were not always trusted, particularly when it was working on the Johnston Plan. The U.S. used financial support as a bargaining chip to promote water cooperation, especially by providing aid for water projects.

In riparian conflict, military conflicts and skirmishes are uncommon. In the Jordan River Basin, however, riparian factors played a role in a major regional war, and lead to several skirmishes, and many threats and fears of military action. Riparian tensions in the 1960's were among the many contributing factors to the 1967 War. In 1970, Jordan drove out the *fedayeen*, with Israel's assistance, to protect its water security. When discussions occurred at Point 121 in the 1970's and 1980's, tensions frequently escalated, and troops were ordered to either side of

the river on four separate occasions. Also, water was not a cause of the al-Aqsa Intifada in 2000, this conflict was a power struggle, and one of the power asymmetries was water control.

All of these commonly used instruments of power indicate that all the riparian parties were inclined to cooperate only when their water or national security was at risk, or when they could make considerable gains. The initial attempts at cooperation surrounding the Johnston Plan happened because Israel had water to gain from the talks, and because Jordan was in a position of great need. They failed because the two upper riparian countries did not need to cooperate over the water resource, and because the Arab League, independent of the water source, did not want to strengthen Israel in any way. Further attempts at negotiating the Jordan Basin allocation after 1967 were necessary: Jordan needed the Maqarin Dam because it could gain one-third of its total water allocation; and King Abdullah II would not back down in 1999 because they needed all the water allocated in the Israeli-Jordanian Peace Treaty.

Cooperation was historically difficult for these riparian states because of the long-standing animosity between Israel and its Arab neighbors. However, these examples of cooperation among the states are used as evidence to support the functionalist argument that water cooperation can be used as a catalyst to promote greater peace in the region. On the contrary, that appears to be untrue. When the states chose to cooperate over water, they cooperate only on water. It is important to note that the Israeli-Jordanian peace treaty was a result of many factors in Israeli-Jordanian relations, and was not the result of cooperation at Point 121. In fact, water was one of the most trying issues at the negotiations. On this note, Lowi makes an interesting point that "states that are adversaries in the 'high politics' of war and diplomacy do not allow extensive collaboration in the sphere of 'low politics,' centered around

economic and welfare issues…thus it is hard to escape the conclusion that prior agreements to cooperate, or at least a predisposition to cooperation, must precede regime formation."[100]

It is also important to note that riparian position played a large role in communication over the water. Firstly, for communication to exist, the upper riparian cannot be regional hegemon. In this case, the regional hegemon was Israel, and they began as a complete downstream riparian strongly dependent on the flow of the Jordan. Negotiations would not have been possible if they were not so powerful, or if they did not have the support of the United States. The upstream riparians were the weaker regional powers, so they could not easily avoid the negotiation process. In fact, they were only able to attempt sabotage before the 1967 war injured their economies too greatly for them to continue. If riparian position were switched, and Israel were the upstream riparian, it would chose not to cooperate over the water resources. It would only do so if they were coerced by a greater hegemon, such as the United States. Therefore, the upper riparian position is a position of power, although not as great as the position of the regional hegemon.

The Impact of Power on the Current Human Rights Situation

Israel, as the hydro-hegemon, has acquired almost all the water it desires, and has been able to grow, expand agriculture and industry, and strengthen its economy. Jordan is in serious risk of suffering from inadequate water supplies very soon in the future. Syria also has water issues, but mostly as a result of the decreased flow of the Euphrates River, which is discussed in depth in the Tigris-Euphrates case study. Lebanon's status as a riparian is limited, and has many independent sources of water. The Palestinians have the worst water situation of all, with most

[100] Ibid.,, 197.

Palestinians not having access to enough quality water and their agricultural sector and other industries are nearly non-existent.

Israel's growth has been due to its quantity of water. In addition to its Jordan and Yarmouk water, it also has the Eastern, Northeastern, Western, and Coastal Aquifers, which are well re-charged annually with 679-734 mcmy rainfall.[101] Israel has a well-developed economy with an estimated GDP per capita of $28,400.[102] Israelis average 300 liters of water daily per capita,[103] and 100% of Israelis have access to adequate drinking water and sanitation.[104] Israel has enough water to sustain its industrialized economy, but Israel's water security may be in jeopardy in the future, as their population is growing at a rate of 1.6%.[105] Israel is developing various technologies to reclaim sewage, increase rainwater collection, and replenish aquifers to prevent desalinization. They also have small-scale desalinization projects for industry, and they occasionally limit allocations to agriculture.[106]

Although Israel will face water shortages in the future, the other primary and non-hegemonic actors on the basin are facing human rights situations now. Jordan has a much lower standard of water health than Israel. The average Jordanian uses only 90 liters of water a day, lower than the minimum standards of 100-200 liters per capita per day. In 1995, "Jordan consumed 983 mcm of water…of which 183 mcm were pumped from ground water over and

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[101] "Troubled Waters – Palestinians Denied Fair Access to Water," (London: Amnesty International Publications, 2009), 8.
[102] "The World Factbook – Israel," The World Factbook Central Intelligence Agency, 2010, https://www.cia.gov/library/publications/the-world-factbook/geos/is.html (accessed January 27, 2010).
[103] "Troubled Waters – Palestinians Denied Fair Access to Water," 3.
[104] "Core Health Indicators: Israel," The World Health Organization, 2009, http://apps.who.int/whosis/database/core/core_select_process.cfm?countries=isr&indicators=PopAccessImprovedWaterUrban&indicators=PopAccessImprovedWaterRural&indicators=PopAccessImprovedSanitationUrban&indicators=PopAccessImprovedSanitationRural (accessed January 30, 2010).
[105] "The World Factbook – Israel."
[106] Lowi, *Water and Power: The Politics of a Scarce Resource in the Jordan River Basin,* 151.

above the levels of sustainable yield."[107] Also, because the Maqarin Dam has still not been built, Jordan has not had the opportunity to catch the Yarmouk's winter flows.

Ninety-seven percent of Jordanians have access to piped water,[108] and increasing numbers of individuals each year are connected to the sewer system. The Jordanian government has a strong water bureaucracy, which has improved the access of citizens to sanitation. However, the population is having difficulty accessing enough water. This will continue, because the groundwater has been over-extracted, and lowering the water table increases salinity. In fact, 50% of Jordan's spring water is polluted by salt. They currently use 160% of their groundwater's capacity,[109] and they will be in a water deficit of 360 mcmy by 2020.[110]

Jordan's human rights situation is partially caused by the fact that Jordan is an extremely arid country with few water resources beyond the Jordan River. Also, Jordan is the most downstream riparian on the Jordan River, and is subject to Syria's disinterest in the Maqarin Dam and Israel's upstream use of the river. Although the Jordanian government has done an adequate job of ensuring its citizen's rights to water, the problem of water pollution and scarcity will continue to worsen as Jordan's population continues to grow, currently at a rate of 2.18%.[111]

The actor with the most warer rights violations is Palestine. Israel utilizes its power as an occupying power to effectively limit the ability of Palestinians to obtain quality drinking water. As mentioned previously, the Palestinian Water Authority (PWA) needs to obtain permission from the Joint Water Committee (JWC) to undertake any water related construction, including

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[107] "Jordan: Environment and Water," The Hashemite Kingdom of Jordan Embassy in Washington D.C., http://www.jordanembassyus.org/new/jib/factsheets/environment.shtml (accessed January 29, 2010).
[108] Karen Assaf, et al., "Water as a Human Right: The Understanding of Water in the Arab Countries of the Middle East – A Four Country Analysis," *Global Issue Papers* 11 (September 2004): 19.
[109] Assaf, "Water as a Human Right: The Understanding of Water in the Arab Countries in the Middle East – A Four Country Analysis," 69.
[110] Ibid., 72.
[111] "The World Factbook – Jordan," The World Factbook, Central Intelligence Agency, 2010. https://www.cia.gov/library/publications/the-world-factbook/geos/jo.html (Accessed January 30, 2010).

developing water resources, building sewage stations, or even fixing underground pipes.[112] Israel frequently vetoes these projects: in fact, a sewage treatment plant that was approved of in 1997 has yet to begin construction. The Israeli Water Authority (IWA) claims to have approved 70 wells but refuses to release a list of these projects.[113]

The Israeli army has been known to destroy cisterns, remove water tanks, and destroy agricultural facilities. Also, the separation wall between the West Bank and Israel limits Palestinian access to the Western Aquifer and the accompanying rich land.[114] Although the West Bank is seated on top of portions of the Western, Northeastern, and Eastern Aquifers, Palestinians have limited access to this water. In the Gaza Strip, the Coastal Aquifer is so depleted and polluted that 95% is undrinkable,[115] and the PWA currently is not allowed to transfer water to the Gaza Strip.[116] Because of Israel's power over the Palestinian leadership, Palestinian water infrastructure has begun to crumble. The average Palestinian receives an average of 70 liters per day (some individuals low as 20 liters), and 180,000-200,000 Palestinians do not have access to running water.[117] In fact, the 450,000 Israeli settlers living in the West Bank have more total water than access than all 2.3 million Palestinians.[118]

The standard of living in Palestine is evidently too low for the present and for long-term sustainability. Every aspect of its access to water is severely inadequate and far below that of a decent standard of living. The asymmetry of power between the Palestinians and its hegemonic occupier, Israel, has created a situation in which Palestinians cannot create meaningful lives beyond that of basic daily survival.

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[112] "Troubled Waters – Palestinians Denied Fair Access to Water," 28.
[113] Ibid., 30.
[114] Ibid., 47.
[115] Ibid., 3.
[116] Ibid., 12.
[117] Ibid., 3.
[118] Ibid., 4.

Evidently, state power has an effect on human rights in the Jordan River Basin. Israel is not the upstream riparian, but it has the greatest amount of structural power in the basin, and has thus solidified its role as the riparian hegemon. As the regional hegemon, they are able to determine the water supply for everyone else in the basin, and have significantly more water resources. Israelis enjoy a high standard of living, while the Jordanians and especially the Palestinians suffer with poor access to water.

Israel is able to determine this relationship because it is the most powerful state in the region. Jordan and the Palestinian territories lack the structural power they need to challenge Israel. Israel, however, is not an upstream riparian and therefore can gain from negotiation. This is why negotiations were so prominent – because Israel could gain. Although they are downstream, they still have greater power than the upstream riparians.

However, the populations along the Jordan River are growing far beyond the capacity of the water resources. In the future, every actor's, even Israel's, human rights may be at stake. Further negotiations, and research into other water technologies, will be very important for this region in the future, or else more water shortages and saline pollution will be prominent.

Case Study: The Tigris and Euphrates Basin

The primary states in the Tigris-Euphrates Basin are Turkey, Syria and Iraq. Both of the rivers originate in southeastern Turkey, where 75% of the basin's total water is contributed.[119] The Euphrates River has an annual flow 32 billion cubic meters (bcm), 90% of which is contributed by Turkey's Murat and Karasu Rivers. The remaining 10% is contributed by Syria[120] through the Khabur and the Balikh Rivers.[121] The Tigris River has a flow of 52 bcm per year, approximately 40% of which originates in Turkey. The remaining water is contributed by Iraq (51%)[122] through several sources, most notably the Uzaym;[123] and Iran (9%)[124] through the Lesser Zab and Diyala.[125] The Tigris and Euphrates Rivers combine as the Shatt al-Arab for the last 200 km of their flow to the Persian Gulf.

The Tigris-Euphrates Basin constitutes 28.5% of Turkey's surface water supply, 65% of Syria's surface water supply, and 100% of Iraq's surface water supply.[126] Turkey is the only country in the basin with enough rainfall to avoid excessive irrigation for agriculture. Currently, Syria is utilizing 93% of its available water sources and is facing a water deficit.[127] Iraq is utilizing 97.99% of its annual water supply.[128] Iraq used to receive 81.2 bcmy from the two rivers, but now the quantity of water reaching Iraq ranges between 44 to 77 bcmy.[129]

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[119] Kevin Freeman, "The Political Context of Conflict and Cooperation over International Water Basins," *Water International* 18, no. 1 (Autumn 2001): 130.
[120] Kibaroglu, "The Role of Epistemic Communities in Offering New Cooperation Frameworks in the Euphrates-Tigris System," 185.
[121] Jon Martin Trondalen, *Water and Peace for the People: Possible Solutions to Water Disputes in the Middle East* (Paris: United Nations Educational, Scientific, and Cultural Organization, 2008).
[122] Kibaroglu, 185.
[123] Freeman, "The Political Context of Conflict and Cooperation over International Water Basins," 130.
[124] Kibaroglu, 185.
[125] Freeman, 130.
[126] Kibaroglu, 186.
[127] Neda A. Zawahri, "Stabilizing Iraq's Water Supply: What the Euphrates and Tigris Rivers Can Learn from the Indus," *Third World Quarterly* 27, no. 6 (2006): 1045.
[128] Zawahri, "Stabilizing Iraq's Water Supply: What the Euphrates and Tigris Rivers Can Learn from the Indus," 1045.
[129] Ibid.

The early modern riparian history of the Tigris-Euphrates Basin was not very eventful. Turkey became an independent state after World War I, but in 1920 Syria was still under French Mandate and Iraq was under British mandate. During the colonial period, Turkey and British Iraq signed the 1923 Treaty of Lausanne, which stipulated that Turkey consult with Iraq before undertaking any hydrological works. Turkey and French Syria signed the 1930 Treaty of Aleppo, which briefly referred to Syria's riparian right to the Tigris.[130] Iraq gained its independence in 1932,[131] and Syria gained its independence in 1946.[132] Once independence was granted, Turkey renewed its promise to consult Iraq before beginning any development projects on the Tigris and Euphrates in the 1946 Ankara Treaty of Friendship and Good Neighborliness.[133] There were no major river development projects from the 1920's through the early 1950's. The states began conducting national test to determine the river's potential resources for development,[134] and the first few hydrological projects began in the 1950's. Iraq built the Samarra and Euphrates Dams in 1954 and 1956.

In 1963, Syria was taken over by the Ba'ath Party. In 1966, the original Ba'ath leaders, "the old guard" were ousted, and a new version of Ba'athism took over. Then in 1968, the Ba'ath Party, in the "old guard" form, took control of Iraq. This threatened the fledgling government in Syria, because they were fighting an "old guard" uprising within their borders. Many riparian events of the late 1960's through 1970's were defined as a struggle for ideological dominance between Syria and Iraq.

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[130] Natasha Beschorner. "Water and Instability in the Middle East," *Adelphi Paper 273* (Winter 1992-1993): 39.
[131] "The World Factbook – Iraq," The World Factbook, Central Intelligence Agency, 2010, https://www.cia.gov/library/publications/the-world-factbook/geos/iz.html (accessed February 11, 2010).
[132] The World Factbook – Syria," The World Factbook, Central Intelligence Agency, 2010, https://www.cia.gov/library/publications/the-world-factbook/geos/sy.html (accessed February 11, 2010).
[133] Beschorner, "Water and Instability in the Middle East," 39.
[134] Kibaroglu, 185.

The Ba'ath Party in Syria took a great interest in the potential water supply available from the Euphrates River, and instituted the Euphrates Valley Project. This project was intended to irrigate 640,000 hectares, provide urban and industrial hydropower, and prevent flooding.[135] Meanwhile, in the 1960's, Turkey began developing the Lower Euphrates Project, which was intended to be a series of dams for hydropower and expansion of irrigated agriculture in its southeastern region.

The first set of talks over the Tigris Euphrates-Basin occurred in 1965 between the three major riparians over proposed Euphrates' dams, specifically the Tabqa Dam in Syria and Keban Dam in Turkey.[136] The talks came to a standstill because Turkey would make a tripartite agreement only if there was an "inclusive agreement on the distribution of the waters of all the rivers common to it and Syria."[137] Syria and Turkey share the Orontes River, which runs through the Hatay Province. France gave this province to Turkey on Syria's behalf during World War II. Syria would not relinquish its claim on this province, and therefore could not commit to an agreement including all the rivers.[138]

In 1966, Iraq and Syria conducted the next round of talks regarding the appropriate allocation of the Euphrates. Iraq insisted that the established usage continue because of its historically strong agricultural sector; but Syria disagreed, saying "potential needs had to be weighed against acquired rights."[139] They held annual meetings for the next three years. Syria and Iraq eventually decided that Iraq should receive 58% of the Euphrates water received at the Syrian border, but this agreement was never formalized.[140]

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[135] Ibid., 186.
[136] Ibid.
[137] Lowi, *Water and Power: The Politics of a Scarce Resource in the Jordan River Basin,* 57.
[138] Ibid.
[139] Ibid.
[140] Ibid.

The water situation escalated in the next decade as the dams proposed in the 1960's became operational. Turkey's dam at Keban became operational in 1973, and Syria's Euphrates High Dam at Tabqa became operational in 1974. Iraq was immediately worried about losing its share of water, and Iraq and Syria agreed that Iraq should be entitled to 200 mcm from Tabqa. In 1975, Syria began utilizing the dam to fill Lake Assad, which deprived Iraq of some of its promised 200 mcm. Syria argued that it only received half of its normal flow from Turkey. Iraq asked the Arab League to mediate the conflict, but their attempts were unsuccessful. In April and May 1975 Saudi Arabia and Egyptian President Anwar Sadat tried to mediate the conflict, but they failed as well.[141] By June, tensions were so high that both Iraq and Syria had amassed troops along the border. A last-minute Saudi proposal prevented military conflict. They proposed that Iraq and Syria share water on a basis proportional to how much water Syria receives from Turkey. In this case as well, nothing was officially signed.[142]

In 1977, Turkey's Lower Euphrates Project was expanded and became Güneydogu Anadolu Projesi, the Southeastern Anatolia Development Project (GAP).[143] This plan aimed to develop all the land and water resources in southeastern Turkey to accelerate regional social and economic development.[144] This project included 21 large dams, 19 hydropower plants, and the irrigation of 1.7 million hectares of land.[145] The project, once completed, is expected to consume 52% of the Euphrates and 14.1% of the Tigris.[146] As it is behind schedule, it will not be completed until 2020.[147]

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[141] Ibid., 58.
[142] Ibid.
[143] Kibaroglu, 186.
[144] Freeman, 133.
[145] Kibaroglu, 186.
[146] Zawhari, 1044.
[147] George R. Hofmann, "Dam the Euphrates and the Tigris…and Everyone Downstream," (Master's Thesis, The George Washington University, 2004), 29.

In 1980, the three states all agreed to make a Joint Technical Committee (JTC). In 1984, Turkey proposed hydrological, meteorological, social fertility, engineering, and economic testing to determine the most economically efficient way of dividing the rivers. Syria and Iraq agreed to hydrological tests, but not to the other proposed tests because Turkey's soil is the most fertile, and as the most economically and agriculturally efficient area, they would be granted a larger allocation.[148] Also in 1984, Iraq and Turkey agreed on a minimum Euphrates flow of 500 cubic meters per second, but Syria did participate in these negotiations. Syria and Turkey began negotiating in 1986. Some sources indicate that Turkey also guaranteed Syria 500 cubic meters per second, but if so, then this agreement makes no reference to an agreement with Iraq.[149]

Syria conducted subversive actions against Turkey in the 1980's – most importantly, they allowed Kurdish and Armenian rebels attacking GAP projects to headquarter in Syria.[150] Turkey and Iraq, at this time, saw eye-to-eye on the Kurdish issue, and Turkey was permitted to attack the Kurdistan Worker's Party (PKK) on Iraqi soil. Although Syria's sponsorship of the PKK was not taken lightly, Turkey decided that it would separate the water issue from this terrorism issue, and when the Joint Technical Committee (JTC) met in 1987, Turkey and Syria signed the Protocol of Economic Cooperation. This document included specifications about water, but they were not sustainable, and overuse and quality degradation continued.[151] This protocol required that Turkey provide Syria with 500 cubic meters per second of the Euphrates.[152] Iraq was frustrated that it was not included in the 1987 protocol, and no longer allowed Turkish pursuit of

[148] Zawhari, 1047.
[149] Lowi, *Water and Power: The Politics of a Scarce Resouce in the Jordan River Basin*, 59.
[150] Zawhari, 1049.
[151] Kibaroglu, 187.
[152] Zawhari, 1049.

the PKK in Iraq. When Iraq suppressed its Kurdish uprising in February 1988, 60,000 Kurds fled to Turkey, further deteriorating their relationship.[153]

In 1990, Turkey literally turned off the tap from January 13 to February 13 in order to fill the Ataturk Dam Reservoir.[154] Immediately following this action, at the 1990 meeting of the JTC, Iraq and Syria officially agreed that 58% of the Euphrates water that Syria receives would be provided to Iraq.[155] In the 1990's, Syria continued to allow the Kurdish rebel group (the PKK) to attack southeastern Turkey from Syrian soil. By October 1998, Turkey had reached their breaking point with Syria's lack of cooperation. Turkey stated publicly that they wanted Syria to stop supporting terrorists immediately, which was understood as a threat of military intervention. Syria ousted PKK leader Abdullah Öcalan, and on October 20 Syria and Turkey signed the Adana Accord. The relationship between these two states improved from the late 1990's through the early 2000's.

During the drought of 1999-2001, Turkey did not release the promised 500 m3/sec, except when they needed to create hydropower. In 2001, GAP's Regional Development Administration (GAP RDA) signed a joint agreement with Syria's General Organization for Land Development (GOLD). They began to meet, and worked on the region's sustainability through "joint rural development and environmental protection projects, joint training programs, and expert and technology exchanges and study missions."[156] In 2003 and 2004, Turkey and Syria began to cooperate over health and agriculture, and in 2004 signed a bilateral free-trade agreement. The water section of this free-trade agreement discussed waterborne diseases and soil and water conservation in agriculture. In 2004, Syrian President Bashar al-Assad visited

[153] Beschorner, 38.
[154] Ibid., 41.
[155] Kibaroglu, 188.
[156] Ibid.

Ankara, the first trip of its kind in fifty-eight years.[157] It is also important to note that Turkey's GAP project came under fire from various environmental groups, beginning in the 2000's, and this has limited Turkey's ability to secure international sources of funding for the remaining projects.[158]

Because of the Iran-Iraq War, Iraq's water infrastructure began to deteriorate in the 1980's, particularly regarding quality and quantity of water. The water flow path altered, the soil eroded, and irrigated land became saline, which has decreased the productivity of agriculture. Since the U.S. invasion of Iraq in 2003, water has been considered a priority of the reconstruction efforts. The U.S. has several bureaucratic institutions working in Iraq, such as the State Department, the Army Corps of Engineers, U.S. Agency for International Development, the Bureau of Oceans, Environmental, and Scientific Affairs (OES), as well as other research and education institutions. These U.S. organizations, as well as Iraq's Ministry of Water Resources, have changed Iraq's water resources management. Their main objective is to create a database with information about water supply and quality and to create comprehensive basin-level management.[159]

In order to implement any sort of domestic water projects, Iraq needs accurate data about the flow of the Tigris and Euphrates from Turkey and Syria, but Turkey and Syria have not yet shared their data. Also, Iraq lacks a strong central government; therefore, they are currently incapable of participating in some sort of regional cooperation framework regarding the rivers. In addition, from 2007 to 2009, the entire region experienced a drought[160] that affected the amount of water that Turkey releases to Syria and Iraq, further exacerbating pre-existing water

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[157] Hofmann, "Dam the Euphrates and the Tigris…And Everyone Downstream," 30.
[158] Zawhari, 1050.
[159] Kibaroglu, 189.
[160] Natalia Antelava, "Lack of Mid-East Peace Deepens Water Crisis," *BBC News*, October 13, 2009, http://news.bbc.co.uk/2/hi/middle_east/8302161.stm (accessed February 2, 2010).

scarcity and population issues. In discussions in September 2009, Turkey agreed to assist Iraq through this drought with additional water, but this did not lead to any agreements on long-term water sharing.[161]

Analysis: Use of Power

This conflict is clearly marked by low conflict and low cooperation. Cooperation has been so low that there have been no inclusive agreements over exactly how the water is to be shared. The 1987 agreements have not been precisely enforced. Unilateral actions and projects have degraded the entire basin and reduced its domestic and agricultural usefulness. Far fewer instruments of power were utilized than in the Jordan River case. Due to low cooperation and low conflict, interactions were far less frequent, and most water development issues remained domestic. Regardless, there are several important instruments of power that characterized this international conflict.

The first instrument of power, of course, is riparian position. Turkey is the primary upstream riparian for both the Tigris and Euphrates Rivers. As the upstream riparian, they have made a few attempts to cooperate (they have not been unwilling to discuss minimum flows, for example), but they are primarily focused on developing southeastern Turkey. Although the GAP project is as of yet unfinished because of increased international criticism, Turkey has, "constructed sufficient dams along the Euphrates to stop the flow for as long as three consecutive years or to submerge its downstream neighbors."[162] Its obvious riparian dominance is strengthened when one considers that Turkey is a relatively water abundant country. The GAP

[161] "Iraq Reaches Water, Energy and Trade Agreements With Turkey," *Turkish Weekly*, September 19, 2009, http://www.turkishweekly.net/news/89217/-iraq-reaches-water-energy-and-trade-agreements-with-turkey.html (accessed February 15, 2010).
[162] Zawhari, 1049.

project is an economic development project that also limits Turkey's dependence on foreign oil.[163] Other instruments of power further indicate Turkey's dominance in this riparian conflict.

The primary political instruments of power include colonialism, negotiations, and the role of external mediators. In the beginning of modern Tigris-Euphrates history, colonialism played an important political role. Iraq remained under British mandate until 1932, Syria remained under French mandate until 1946, and the colonial powers were responsible for creating these states' borders. Most importantly, France ceded the Hatay Province to Turkey in 1939, which complicated the relationship between Syria and Turkey for decades. Negotiations are the second most important instrument of power. These negotiations happened both when there was a distinct need (1970's dam building, for instance), and in attempts to foster technical cooperation (1980's meetings). These negotiations have led to very few frameworks for basin sharing, and the vast majority of them have stalled with no agreements on paper. As mentioned, the status of the Hatay Province made agreement between Turkey and Syria challenging, because Syria refuses to relinquish its claim on this territory. Generally speaking, this conflict has lacked the support of external mediators. The exception to this generalization is the Arab League's failed attempt at solving the water allocation problem between Syria and Iraq in the 1970's, and Saudi Arabia's successful attempt at de-escalating this conflict. After the American invasion of Iraq, the U.S. has become a player in the political situation over the water, although its role through various bureaucratic institutions has not necessarily improved the Iraq's water situation or affected the other riparians.

There were few economic instruments of power that were utilized in this particular conflict. The three countries had very limited trading relationships. Iraq provided oil to Turkey, and they had several joint economic ventures. Although Turkey and Syria had an often-

[163] Hoffman, 20.

contentious relationship, in the 1980's, Turkey exported livestock to Syria, and Syria exported cereal to Turkey.[164] Eventually, Turkey and Syria developed the terms of a free-trade agreement, despite Syria's sponsorship of the PKK and Syria's continuing claims on the Hatay Province. Another economic instrument of power is Turkey's clear economic dominance over the other two countries. The GAP Project has been an extremely expensive venture that has created more economic power for Turkey relative to its riparian neighbors.

This particular conflict contained few military instruments of power. The first was the escalation of the conflict over the Tabqa Dam in 1975, when both Iraq and Syria sent troops to their shared border. This particular military action was a result of the water situation, but was also an attempt by both countries to solidify its status as the legitimate Ba'ath country. Another military instrument of power was that Syria allowed the PKK to headquarter in Syria. For Syria, the PKK acted liked a proxy that could attack strategic hydrological locations in Turkey without Syria being directly militarily responsible. Also, when Turkey called for Syria to expel the PKK, Turkey clandestinely threatened military retaliation if Syria did not comply.

The riparians of the Tigris-Euphrates Basin have had far fewer interactions than the riparians in the Jordan River Basin. There have been, in total, fewer attempts to cooperate, and fewer attempts to use instruments of power to increase riparian power. The complete lack of cooperation over the resource has severely decreased the ecological health of basin, which has been further exasperated by unilateral development plans. These states seek to, according to Zawhari, "construct and impound hydrological infrastructure to accommodate their own needs, without regard for the impact on their riparian neighbor."[165]

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[164] Beschorner, 38.
[165] Zawhari, 1044.

These development projects have been overwhelmingly in favor of Turkey. Turkey has not only the upstream position, but they also had the financial capital and international clout to receive the funding for constructing GAP projects, including the Ataturk Dam. Turkey is able to continue to develop the upstream region as it sees fit, within its financial means because regional cooperation has been so low. Even if Turkey cannot complete the GAP project, it still has enough dams on the Euphrates to stop water flow south for up to three years.[166]

Essentially, the lack of cooperation has favored of the regional hegemon, and will continue to do so. Turkey, as both the regional hegemon and the upper riparian, has very little to benefit from cooperation. Thereby, Turkey will not encourage talks with Syria and Iraq, but for appearance's sake, they may continue to participate in negotiations. As these negotiations have historically limited success, Turkey is unlikely to lose anything by agreeing to meet. It can continue to choose their water supply, because there is very little that the weak Syrian and Iraqi states can do to stop Turkey. It is important to note that Turkey highly values the hydroelectric power they obtain from the rivers, and they are required to release a certain amount of water to create this electricity. That is why Turkey releases more water than anticipated during times of inadequate rain, although less than the promised.

The Tigris-Euphrates case further indicates that the regional hegemon determines the water allocation for the entire basin. Turkey has the environmental advantage of being the upper riparian and it is the region's strongest economic and political power. In this case, it does not have to struggle to obtain their desired quantity of water: it is able to simply take it. The lower riparians are hardly able to make any attempts to gain more riparian power, and this inaction further strengthens Turkey. Therefore, it appears that Turkey will remain the riparian hegemon for a long time to come, because of their structural power and their dominant river position.

[166] Ibid., 1049.

The Impact of Power on the Current Human Rights Situation

In the case of the Tigris and Euphrates Basin, each states' human right to water has been met to various extents. Turkey, who can utilize as much of the basin as it chooses, clearly has an advantage from a human rights standpoint. It is difficult for Syria to achieve the human right to water, and Iraq is suffering greatly from water scarcity and quality issues.

Turkey, as the upstream nation and regional hegemon, has a large advantage over the two riparians. Turkey, aside from controlling these two rivers, has seven other major rivers than run for more than 500 kilometers,[167] an average rainfall of 501 billion cubic meters, and 12 million cubic meters of groundwater available for use each year. Clearly, Turkey has abundant water resources but high soil erosion issues limit agricultural production. Turkey has domestic poverty issues, and more 30% of the poor in Turkey live in eastern or southeastern Anatolia,[168] which is why Turkey is interested in developing the Tigris and Euphrates through GAP. However, this project's agricultural component has not created high-paying jobs. Agriculture accounts for 13% of the nation's economic output but employs 33% of its citizens, meaning poor wages reinforce the low standard of living in the agricultural eastern and southeastern regions. In addition, 7% of Turkey's population does not have regular access to running water.[169]

Syria has limited access to water. Specific data on Syria's water supply is minimal, and Syrian water rights issues are not well reported. However, we do know that Syria uses 93% of its total water supply for agriculture. This high number implies that Syria's agriculture industry is in poor condition. According to Hofmann, the Tigris-Euphrates can only be used to irrigate a maximum of 345,000 hectares, and those irrigation systems are "corroded with salt and

[167] "Turkey Freshwater Profile," The United Nations, (2004), http://www.un.org/esa/agenda21/natlinfo/countr/turkey/Turkey_freshwater.pdf (accessed February 10, 2010): 6.
[168] Ibid, 5.
[169] Ibid.

fertilizers" and half of the water is lost by the time it reaches the crops.[170] Syria only achieves about 30% of their potential cereal products yield due to its poor water management systems.[171] Syria's total renewable water availability is 1,622 cubic meters per capita per year, and is expected to decrease to 1,021 cubic meters per capita per year by 2025, meaning that Syria is experiencing water stress.[172] Only 4% of its available water[173] is used for domestic needs, meaning that per capita water use can be a maximum of 177 liters per day. The actual per capita figure may be lower, as this calculation does not account for water lost to pollution or poor infrastructure. As mentioned earlier, 100-200 liters are needed for basic survival.

Although the data on Syria is limited, it is not receiving enough water per capita for it to remain sustainable. The population of Syria is currently 21.7 million[174] and is expected to reach 35 million by 2050.[175] It already has issues with water shortages in the urban sector, and these will continue unless Syria devotes a larger portion of its total water allocation to domestic use. Given the previously mentioned inefficiency of its agricultural sector, Syria needs to improve its water management system. It cannot use much more water than it is currently – it is using 93% of all of its available water sources. Syria is experiencing a water and electricity deficit because of its high population growth rate.[176]

Syria has water pollution problems that further aggravate its water scarcity issues. In Syria, "near all major settlements groundwater and surface water are polluted by municipal and industrial waste where the concentrations of biochemical oxygen demand (BOD), suspended

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[170] Hofmann, 31.
[171] "Water in a Changing World: The Third United Nations World Water Development Report," The United Nations Educational, Scientific, and Cultural Organization Publishing, 2009, http://www.unesco.org/water/wwap/wwdr/wwdr3/tableofcontents.shtml (accessed February 19, 2009).
[172] Hofmann, 31.
[173] Ibid.
[174] The World Factbook – Syria."
[175] Hofmann, 30.
[176] Zawhari, 1045.

solids (SS) and ammonia exceed Syrian standards, and groundwater in the basin also contains extremely high concentrations of pathogens, nitrates and agrochemicals."[177] Run-off from agriculture contains pesticides and pathogens that enter the groundwater and rivers. In fact, in 1996, there were 900,000 cases of water-borne disease.[178] Ninety-six percent of the urban population and 45% of the rural population has access to public sewage. Sanitation needs to be further improved in rural areas.[179] These pollution issues originating in Turkey and Syria further deplete the quality of the rivers as they run their course southward to Iraq.

Iraq, the original "Cradle of Civilization," has the greatest historical and acquired rights claim to the river, but is now suffering from an inadequate water supply. Part of the problem is damage from the 2003 U.S. invasion and subsequent difficulties maintaining the water system during the post-war reconstruction. Electrical disruption has occurred frequently since the war began, causing temporary shutdowns of water pumps and other systems. There are currently urban water shortages in major Iraqi cities, such as Baghdad and Mosul.[180] Despite relatively low quantities, "2006 access to improved drinking water sources reached 77 percent of the population (88 and 56 percent of urban and rural population respectively)" and "the sanitation coverage was 76 percent (80 and 69 percent respectively)."[181] This is an improvement over the previous government, as Saddam Hussein let the water system fall into ruin.[182]

Iraq currently has access to 3,287 cubic meters per capita each year of renewable water sources, which is roughly 360 liters a per person daily, considering that Iraq uses about 3% of its

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[177] "Syrian Arab Republic," The United Nations' Food and Agriculture Organization, 2008, http://www.fao.org/nr/water/aquastat/countries/syria/index.stm (accessed February 20, 2010).
[178] Ibid.
[179] "Coverage Estimates, Improved Sanitation: Syrian Arab Republic," WHO/UNICEF Joint Monitoring Program for Water Supply and Sanitation, 2008, http://documents.wssinfo.org/resources/documents.html (accessed February 25, 2010).
[180] Trondalen, 181.
[181] "Iraq," The United Nations' Food and Agriculture Organization, 2008, http://www.fao.org/nr/water/aquastat/countries/iraq/index.stm, (accessed February 20, 2010).
[182] Hofmann, 33.

water supply for domestic use.[183] This figure also does not account for water lost to pollution or poor infrastructure. That number is expected to drop to 2,162 cubic meters per capita per year by 2025,[184] lowering daily per capita use to 236 liters per day if the population remains stagnant. However, the population is expected to increase to 60.5 million by 2050, placing their country at risk for long-run water sustainability issues. Iraq has more per capita water flow than Syria because of their right to 58% of the Euphrates as it flows through Syria, and because 51% of the Tigris's tributaries originate in Iraq.[185] This is currently enough water for Iraq to survive on for the time being, but this number is not sustainable. Before extensive development began in the later half of the 20th century, Iraq received 81.2 billion cubic meters per year (bcmy) from the two rivers, but now that number fluctuates between 44 and 77 bcmy. Currently, Iraq is using 97.99% of its available water resources, giving it little room for economic expansion or population growth.[186]

Although scarcity could be a problem in the next few decades, the biggest problem for Iraq at the present time is the quality of the water that it receives. As mentioned, the topsoil in Turkey and Syria is very saline, and that saline topsoil erodes and seeps into the rivers, and carry the salinity southwards to Iraq. Salinity affects the water's agricultural usefulness, drinking water quality. Other pollutants enter the rivers from agriculture and industry. According to Stauffer, "Iraq is destined to lose…about three-quarters of its total flow irrigation-quality water. In addition, it will need to dispose of large volumes of saline and contaminated drainage water in both rivers coming from the GAP operations in Turkey and, secondarily, from Syria's

[183] Ibid., 35.
[184] Ibid.
[185] Kibaroglu, 185.
[186] Zawhari, 1045.

projects."[187] This, and the improved yet inadequate to sanitation has contributed to water-born diseases being a major health problem in Iraq – in 2008, diarrhea was one of the two leading causes of death for Iraqi children.[188]

There are human rights issues in the Tigris-Euphrates Basin that need to be resolved. There are issues both with scarcity – particularly in Syria and Iraq – as well issues with pollution from saline topsoil, pesticides, and other industrial and agricultural run-off. These human rights issues are partially due to the inadequacies of the ruling government, but are also partially the fault of the conflict over the river basin.

In the Tigris-Euphrates River Basin, state power in the riparian conflict has played a large role in the fulfillment of the human right to water. In this case, the riparian hegemon (Turkey) has both structural and riparian advantage over the other states. It has, therefore, been able to create human rights challenges for the downstream riparians.

The GAP Project allows Turkey to take far more water than they could previously. Now it can, by filling up reservoirs, stop the Euphrates flow for three consecutive years; or by releasing the reservoirs, flood Syria and Iraq. Syria is "guaranteed" 500 cubic meters a second from the Euphrates, and they are then in turn required to release 58% of the Euphrates' flow to Iraq. However, Turkey has not kept this promise when experiencing drought or when filling up the Ataturk Dam in 1990. Turkey, in its attempt to improve the quality of life for its citizens in southeastern Anatolia, has created dangerous human rights problems for its downstream neighbors.

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[187] Thomas R. Stauffer. "Turkish, Syrian Water Projects Well on the Way to Squeezing Iraq Dry," *Washington Report on Middle East Affairs* 23 no. 4 (2004): 33.

[188] "On World Water Day, the UN Says Water Central To Recovery of Iraq," The United Nations' Office for the Coordination of Humanitarian Affairs, March 22, 2009, http://ochaonline.un.org/iraq/MediaCentre/PressReleases/WorldWaterDay/tabid/5453/language/en-US?default.aspx (accessed February 21, 2010).

Syria is the middle riparian, giving it the second largest amount of riparian power in the region. Syria, however, does not have enough water to support its growing population and is facing water shortages and is utilizing nearly its entirely annual water supply. To bolster its own economic and hydrological interests, Turkey built the Tabqa Dam and is attempting to expand its irrigated agriculture, which is poorly managed and maintained. Syria loses a great amount of water just in transportation from the Euphrates to the irrigated fields. Iraq then receives its 58% of Syria's 500 cubic meters per second. This has reduced Iraq's Euphrates flow from about 81.2 bcmy before 1975 between 44 to 77 bcmy, and the country is utilizing nearly 98% of its total renewable water annually.[189] Iraq has the longest agricultural history, but that is in jeopardy because of the limited quantity. The quality of the water deteriorates from the headwaters in Turkey, because its topsoil is highly saline. The water then runs through Syria, whose sewage and sanitation management is limited. The rivers are thereby subject to pollution from saline topsoil, pesticides, fertilizers, and other pollutants. Iraq is then left with only one-quarter of total irrigation-quality water.[190]

If the riparian hegemon were lower on the basin, such pollution would not be allowed to occur. However, Turkey is located at the top of the basin, and the negative effects that occur downstream do not matter to Turkey. There are no comprehensive agreements for the basin, and Turkey refuses to classify the Euphrates and Tigris as an international watercourse. If Turkey did, it would be required under the 1997 Convention on the Law of the Non-Navigational Uses of International Courses to mitigate or eliminate harm.[191] It instead views the rivers as a Turkish resource that they can develop as they wish. Syria and Iraq, have no way to contest this as the

[189] Zawhari, 1045.
[190] Stauffer, 33.
[191] Eyal Benvenisti. "Water Conflicts During the Occupation of Iraq," *The American Journal of International Law* 97, no. 4 (2003): 866.

lower and weaker riparians, and will continue to be subject to decreased flows and increasingly poor quality water. These states have limited abilities to improve their domestic sanitation and water management programs, and the human right to water is not fulfilled within their borders. Syria and Iraq are receiving less water than Turkey, facing growing populations, and receiving low-quality water. The present and future human rights situation in the region is bordering on dire.

Conclusion

The riparian actors of the Jordan River and the Tigris-Euphrates Rivers are required to share scarce water resources. According to realist theory, these states are interested in their own personal gain, and are therefore obtain as much water as possible, regardless of the harm this may cause their riparian neighbors. All water scholars do not agree on this theoretical perspective; many argue that liberal or functionalist theories are better suited to describe riparian relationships, as most international watercourses are shared peacefully. But, a different perspective appears when one studies the on-going conflicts over these Middle Eastern rivers. The Jordan River is marked by conflict, and the Tigris-Euphrates Rivers are marked by low cooperation.

In both of these river systems, individual states are only interested in advancing its own access to the river, and utilizes its instruments of power to maximize its access to the river system. The first instrument of power is the geographical power obtained through riparian position. In a system where all states are equal, the state upstream would be the most powerful and thereby able to control how much water all the other states receive.

Riparian power is not just about position on the river, external structural factors are vitally important. Each state used various economic, political, and military instruments of power. In the Jordan River, the most common political instruments of power were diplomacy, the role of third-party players, and ideology. Economic instruments of power included international aid and the regional economic dominance of Israel. Military instruments of power were very frequent in the Jordan River basin and included the Six-Day War and the bombing of diversion projects. Israel was able to successfully dominate the discourse of this river system, although it is not an upstream riparian.

In the Tigris-Euphrates conflict, fewer instruments of power were utilized. Political instruments of power included the limited negotiations and the early role of colonialism. Economic instruments of power included Turkey's economic dominance. Military instruments of power were the role of the PKK in shaping relations and Iraq and Syria's near-conflict in the 1970's. In this case, Turkey had the greatest structural power, and the most advantageous riparian position.

These two cases demonstrate that the realist perspective is applicable to these water conflicts because states are interested in maximizing their power through water access. Specifically, the state that is the regional hegemon (or, the hydro-hegemon), due to its greater power, is capable of determining riparian norms. For the hegemonic state allocating water supply, they are likely to choose more water than they actually need to survive. It will then be able to expand its economy by having more water for agriculture and industry. This hydro-hegemon will determine the riparian allocation, although it would havr a greater advantage as upper riparian.

In the Middle East, the water scarcity can easily lead to human rights deficiencies. As the hydro-hegemon chooses the basin-wide allocations, it is also determining the quality of life for citizens of the other riparian actors. When there is a strong hydro-hegemon in a scarce river basin, the other riparians will not be able to fulfill their citizens' human right to water.

In the case of the Jordan River Basin, Israel is a lower riparian but, as the hydro-hegemon, receives the largest quantity of water. Israel enjoys a high quality of life, which includes 300 liters of water per capita daily and complete access to sanitation. The National Water Carrier enabled Israel to grow into a strong economic and industrial power. Jordanians and Palestinians have lower per capita access than the lowest sustainable minimum of 100 liters

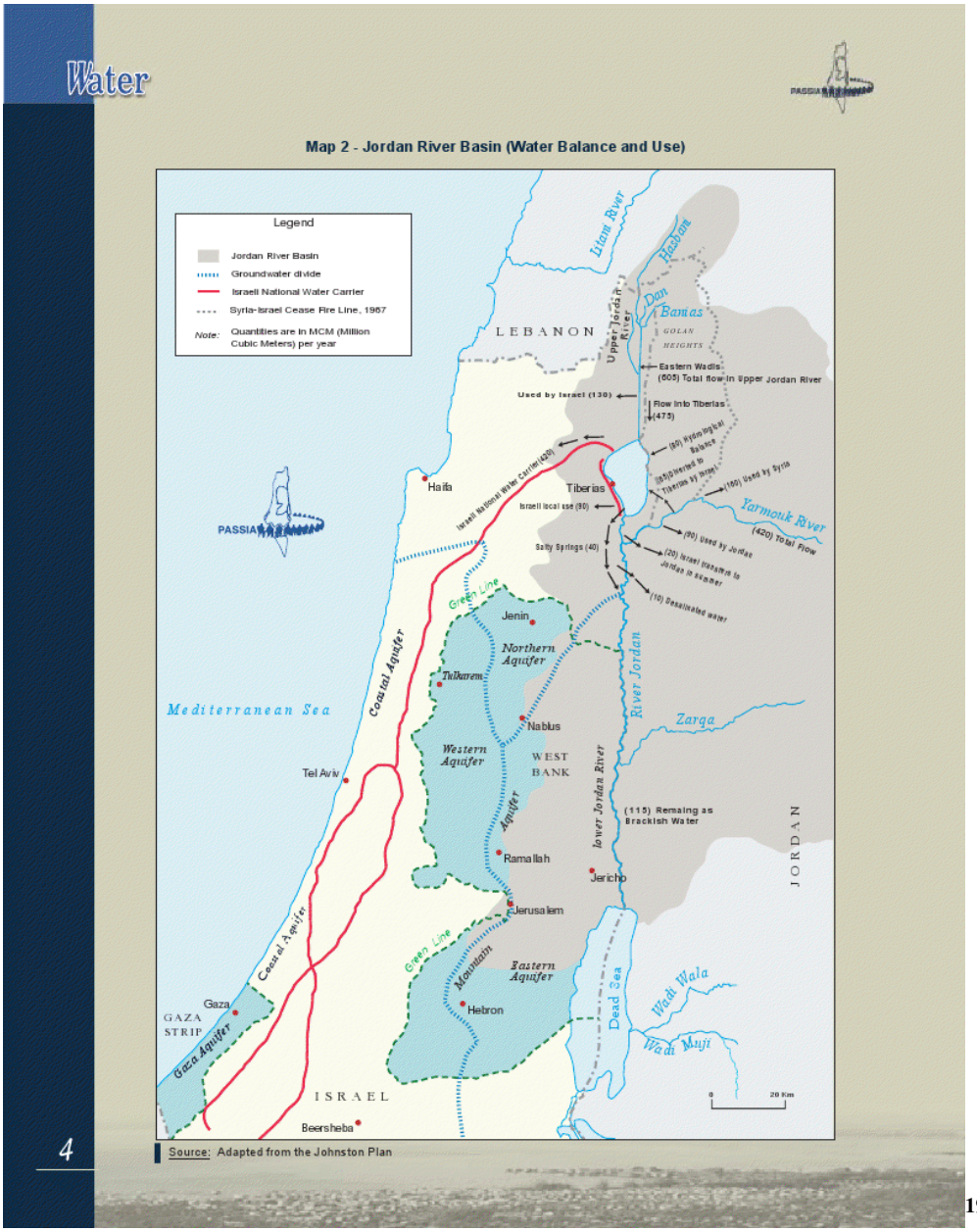
a day. They both also have issues with groundwater pollution. Palestine has deteriorating infrastructure and no control over its own water decisions.

In the case of the Tigris-Euphrates Basin, Turkey is both the upper riparian and the hydro-hegemon, granting them immense regional power. It enjoys greater use of the basin and better fulfillment of its citizens' human rights than Syria and Iraq. Syria's water infrastructure is crumbling, and access to sanitation is very limited in urban areas. Individuals face water shortages, particularly in urban areas. Iraq also has poor water infrastructure, receives half of the amount of water it used to, and the water salinity is greatly increased because of upstream agricultural projects.

Although these examples cannot be generalized outside of the region, hydro-hegemony clearly has a strong effect on the human rights for the actors positioned along the Jordan River and the Tigris-Euphrates Rivers. The state with the greatest structural power and ability to use its instruments of power, the hydro-hegemon, creates and maintains asymmetric state power. This power is strengthened if the hegemon has a strategic riparian location. By using its instruments of power, the hydro-hegemon can provide the human right to water for its citizens but limit these rights for the citizens of its neighboring states. The hydro-hegemons in the Jordan and Tigris-Euphrates River Basins control the fulfillment of the right to water for all the riparian states.

Appendix

Map of the Jordan Basin



[192]

[192] "Map 2 – Jordan River Basin," Palestinian Academic Society for the Study of International Affairs, www.passia.org/publications/bulletins/water-eng/pages/water04.pdf (accessed April 4, 2010).

Map of the Tigris-Euphrates Basin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[193] "Tigris-Euphrates," Encyclopedia Britannica, http://media-2.web.britannica.com/eb-media/50/5950-004-F6CE1260.gif (accessed April 4, 2010).

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