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Title: Power, Water, and Peace in the Middle East: A Multi-Scalar Analysis of Power and Hydropolitics in the Jordan and Euphrates-Tigris River Basins

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Aaron T. Wolf

There is a growing awareness that power dynamics play an influential role in influencing patterns of water conflict and cooperation in transboundary river basins. In basins such as the Jordan and Euphrates-Tigris, where power asymmetries are severe and a basin hegemon dominates the scene, hydropolitical analysis tends to focus on the interstate scale of interaction, overlooking the contribution that non-state actors may have on the seemingly intractable water conflicts in these basins. Furthermore, while the ways in which state actors promote and contest hydro-hegemony are well-known, less is understood about how non-state actors may resist, challenge, and even transform hydro-hegemonic arrangements. This dissertation addresses these gaps by achieving three goals, using the Jordan and Euphrates-Tigris basins as case studies. First, it identifies how hydropolitical relations are explained at different scales by analyzing how domestic pressures and broader international relations have influenced patterns of water conflict and cooperation. It does this by presenting a database of transboundary water interactions for each basin and drawing explicit connections between events in broader international relations and domestic pressures, and shifts in patterns of water conflict and cooperation. By including non-state actors in this analysis, this dissertation paints a more holistic picture of how water conflict and cooperation are shaped at different scales. Second, this dissertation analyzes how power dynamics informs patterns of water conflict and cooperation at different scales. It

achieves this goal by presenting a Typology of Actions to Promote and Contest Hydro-Hegemony. Together, these typologies illustrate the myriad ways in which hydro-hegemony is enacted, maintained, and challenged by state and non-state actors alike. Given that the water conflicts in the Jordan and Euphrates-Tigris river basins are often viewed as intractable in the sense that the structural power asymmetries at play may preclude their eventual resolution, this dissertation also identifies opportunities for the development of more equitable transboundary water arrangements in situations of power asymmetry. Transformative actions undertaken by non-state actors such as the creation of new spaces for dialogue and constructing alternative discourses about water challenge the legitimacy of the hegemonic order and open the door to the establishment of potential new arrangements. By achieving these three goals, this dissertations helps draw clearer links between local-level interactions and inter-state relations, helping academics and policymakers deliver more equitable and sustainable water management solutions.

Power, Water, and Peace in the Middle East: A Multi-Scalar Analysis of Power and Hydropolitics in the Jordan and Euphrates-Tigris River Basins

by

Alexandra C. Turgul

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APPROVED:

Major Professor, representing Geography

Dean of the College of Earth, Ocean, and Atmospheric Sciences

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Dean of the Graduate School

I understand that my thesis will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my thesis to any reader upon request.

Alexandra C. Turgul, Author

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LIST OF ABBREVIATIONS

ACLED	Armed Conflict Location and Event Data
BAR	Basins at Risk
CDYP	Climate Diplomacy for Young Professionals
COPDAB	Conflict and Peace Databank
DOP	Declaration of Principles
ET	Euphrates-Tigris
ETIC	Euphrates-Tigris Initiative for Cooperation
ECA	Export Credit Agency
FHH	Framework of Hydro-Hegemony
GAP	Güneydoğu Andalou Projesi
GAP-RDA	GAP-Regional Development Administration
GOLD	General Organisation for Land Development
GWN	Good Water Neighbors
HST	Hegemonic Stability Theory
IDF	Israel Defence Force
IWL	International Water Law
IR	International Relations
ISIS	Islamic State of Iraq and Syria
JSET	Joint Supervision and Enforcement Team
JTC	Joint Technical Committee
JWC	Joint Water Committee
MAC	Mixed Armistice Commission

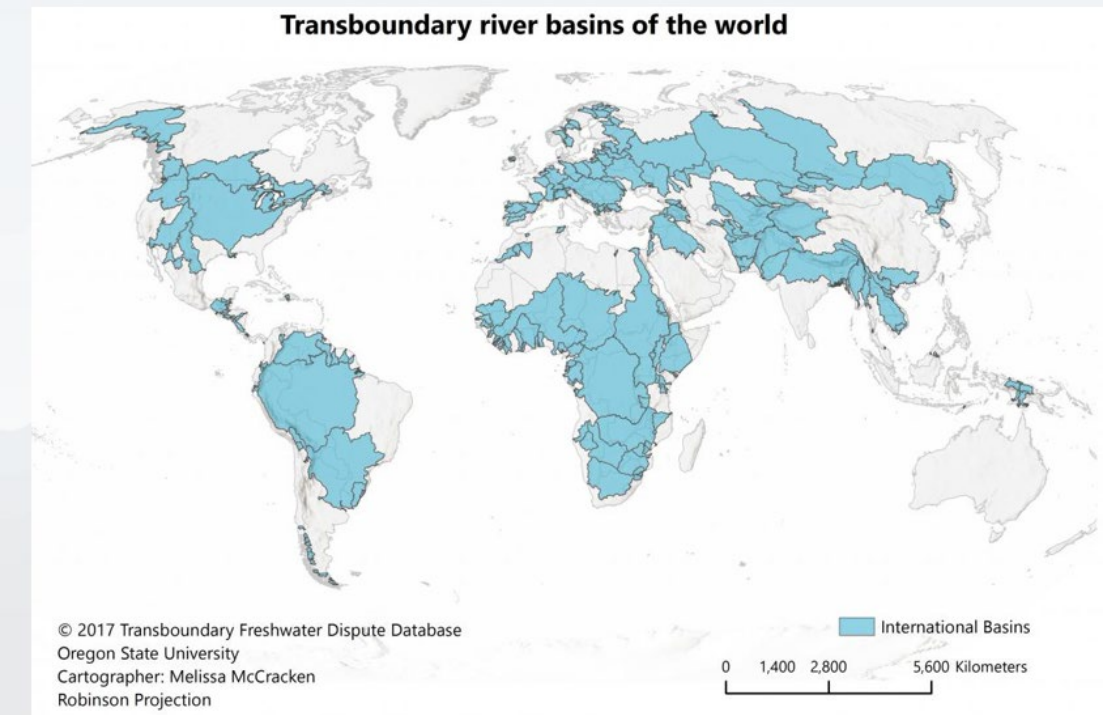
LIST OF ABBREVIATIONS (Continued)

MoU	Memorandum of Understanding
MWGWR	Multilateral Working Group on Water Resources
National Water Carrier	NWC
NGO	Non-governmental organization
PA	Palestinian Authority
PKK	Partiya Karkeren Kurdistane
PLO	Palestine Liberation Organization
PWA	Palestinian Water Authority
SDF	Syrian Democratic Forces
TACHH	Typology of Actions to Contest Hydro-Hegemony
TAPHH	Typology of Actions to Promote Hydro-Hegemony
TVA	Tennessee Valley Authority
RSDSC	Red Sea-Dead Sea Conveyance
WBWD	West Bank Water Department
WCD	World Commission on Dams
WEED	World Economy, Ecology, and Development
WFD	Water Framework Directive
UNTSO	United Nations Truce Supervision Organization
YPG	People's Protection Units

Chapter 1: Introduction

Population growth, increasing domestic, agricultural, and industrial demand, the unequal spatial distribution of water resources, and uncertainty about future water availability due to climate change make managing water a complicated task in the best of times. When water crosses political borders, as it often does, water management and governance become even more complex. Over 52% of the world's land area is covered by surface and groundwaters that transcend political boundaries (IGRAC & UNESCO-IHP, 2015; TFDD, 2025). The world's 313 international river basins (see Figure 1) alone cover 47.1% of the Earth's surface (McCracken & Wolf, 2019) and are host to almost half of the world's population (Bakker & Duncan, 2017).

Figure 1: International River Basins



Considering these challenges and the essential nature of water, water scarcity or infrastructure development could serve as a significant catalyst for violent conflict and war between nations. The "water wars" literature, which stems from neo-Malthusian perspectives on the relationship between environmental stress and political decision-making, argues that diminishing water resources will directly trigger interstate warfare, particularly in arid regions like the Middle East (e.g. Frey & Naff, 1985; Starr & Stoll, 1988). However, the dire predictions put forth by these scholars—often echoed by the media and policymaking circles (e.g. Ki-Moon, 2007 in UN News, 2008; UNEP, 2007)—have yet to materialize.

Instead, quantitative analyses of water scarcity and conflict have shown no cases where water has served as a direct cause of war between states (Wolf, 2007). In fact, interactions between countries over shared water resources are more often cooperative than conflictual (Wolf et al., 2003; Yoffe et al., 2003).

Nevertheless, the lack of overt violent conflict over water does not mean that water conflicts do not happen. Recent events-based studies on transboundary water interactions have noted a slight increase in non-violent conflict[1] between states while cooperation overall may be decreasing (Karesdotter et al., 2023; Turgul et al., 2023). Water stress or water scarcity are but one factor that can contribute to the development of tensions within or between states and alone are not usually sufficient to lead to violent conflict (Dinar, 2000). Instead, water often becomes intertwined with tensions relating to other issues such as identity, territory, and politics, and distilling the water component is not a straightforward process. Take, for example, the conflict in Darfur, Sudan. Water scarcity is often cited as the primary factor that contributed to the outbreak of violence (UNEP, 2007). However, taking such a neo-Malthusian approach to the conflict overlooks the region's complex religious, ethnic, and religious dynamics and the role of the Sudanese state in perpetuating violence (De Waal, 2007; Selby & Hoffmann, 2014). It is also crucial to consider the role of scale and to differentiate between intrastate and interstate conflicts, as well as between violent conflict and mere tensions or competing interests. Not all conflicts escalate into violence, as illustrated by Yoffe et al.'s (2003) Water Event Intensity Scale, which highlights varying levels of conflict, from mild verbal disagreements to formal declarations of war. Likewise, conflicts of differing intensities can arise at various scales, from local village disputes to full-scale interstate warfare. As this dissertation and other studies indicate (e.g. Wolf et al., 2003), water may contribute to the development of competing interests and tensions between stakeholders at different scales, but outright interstate violence over water remains the exception rather than the rule.

To what extent do shared waters contribute to conflict and cooperation between states if violent interstate conflict over water resources is rare? A vast body of literature has explored the factors that may contribute to conflict in transboundary river basins, seeking to establish causal links between conflict and various physical, political, economic, and institutional elements. These include water

[1] The terms "dispute" and "conflict" are often used interchangeably, but they refer to very distinct things. A dispute is a short-term disagreement over something that can be resolved without addressing the broader conflict. For example, a dispute may arise over the water quality in a certain stream reach, and this dispute is resolved independently of the broader conflict. A conflict is an enduring disagreement over interests or goals regarding transboundary waters that are perceived as incompatible (McCracken et al., 2025).

scarcity (Dinar, 2009; Gleditsch & Hamner, 2001; Tir & Stinnett, 2012), hydrological variability such as flood risks (Arnell et al., 2013; Kundzewicz et al., 2008), the presence of non-water-related armed conflicts (Gleditsch et al., 2006), upstream-downstream dynamics (Bernauer, 1997; Munia et al., 2016), broader political and economic relations between states (Bernauer & Bohmelt, 2014; De Bruin et al., 2023), and the presence or design of treaties and institutions (De Stefano et al., 2017; Mitchell & Zawahri, 2015). Other scholars have instead attempted to assess the extent of cooperation over transboundary water resources and what factors contribute to such cooperation, including the role of institutional capacity in conflict prevention and cooperation (Hearns et al., 2014; Mitchell & Zawahri, 2015; Schmeier, 2013; Wolf, Stahl et al., 2003; Wolf, Yoffe et al., 2003). Their findings suggest that the content of basin treaties, institutional frameworks, and positive diplomatic relations play a crucial role in preventing or mitigating water-related conflicts over the long term. Another stream of research explores how shared waters may induce cooperation in regards to other issues due to the mutual dependencies created by transboundary water networks and, in some instances, may even promote more peaceful relations (Conca & Dabelko, 2002; 2001; Conca et al., 2005; Ide & Detges, 2018).

Cooperation over water, whether in the form of international treaties or collaborative institutions, has not lived up to such optimistic expectations, particularly in the Middle East. Despite the existence of numerous water management agreements (see Appendix 1) in the Jordan and Tigris-Euphrates basins, political relationships between the riparian countries remain volatile and both basins have recently seen violent conflict. As a result, it is clear that international agreements do not necessarily represent the “pinnacle of cooperation” as has been argued in the environmental security literature (Zeitoun & Mirumachi, 2008). An increasing number of scholars have demonstrated that institutionalized cooperation at the inter-state level often resembles tokenisms or occurs in the context of significant power asymmetries (Zeitoun, 2008; Selby, 2013). Arrangements made under circumstances of inequitable power distributions and those that result in unequal gain cannot truly be considered cooperative. For example, the formation of the Joint Water Committee (JWC) between Israel and the Palestinian Authority exemplifies how formalized agreements made between states are often more coercive than they are cooperative, acting as forms of domination disguised as cooperation (Selby, 2003, p.118).

Conventional approaches to hydropolitical analysis privilege the state as the central unit of analysis and overlook the multi-scalar of transboundary water interactions. Furthermore, binary framings of conflict and cooperation overlook how these phenomena can coexist within and between

scales. States are not homogenous entities; they are composed of various groups that each have their own interests and perceptions regarding water. Examining water relations at the civil society level is especially important in regions like the Middle East and Africa, where states are often divided along ethnic, religious, or tribal lines. The importance of studying non-state water relations is becoming more recognized within the literature (e.g. Funder et al, 2010; Ravnborg et al., 2012; Tubi & Feitelson, 2016; Reynolds, 2017). Research on the links between water, conflict and cooperation can be bolstered by focusing on the sub-national context. Cooperation can occur between non-governmental organizations (NGO's), epistemic communities, and other members of civil society even as conflict prevails at the interstate scale, as I will demonstrate in this dissertation. Moreover, power is not exclusive to the political elite but is produced and reproduced by social interactions that occur within and across scales. A multi-scalar understanding of how power dynamics play out in the context of transboundary water conflict and cooperation is under-developed despite recognition that power has significant influence on hydropolitical outcomes and non-state actors are involved in conflict and cooperation.

This dissertation will seek to answer the question of how power dynamics are manifested within transboundary water governance at different scales. This chapter presents an introduction to the research covered in this dissertation. It begins with an overview of different approaches to hydropolitical analysis and their strengths and limitations. Then, it presents critical hydropolitics as an emerging field of study that informs this dissertation and discusses why a multi-scalar approach is needed. The chapter closes by outlining the research questions and the methodologies that will be used to answer each.

Approaches to Hydropolitical Analysis

At its core, this dissertation is an exercise in hydropolitical analysis. The word "hydropolitics" is often used without defining its meaning, lending confusion as to what is meant by "hydropolitical analysis" and depriving the word of meaning. Disaggregating the term into its two independent words *hydro* and *politics*, an intuitive reading of the term would define "hydropolitics" as the politics of water. Indeed, Waterbury (1979), who first coined the term in his study on hydropolitics in the Nile Valley, defined hydropolitics as the study of inter-state politics surrounding the management of shared water resources. Two decades later, Elhance (1997) added a little more substance to this rather vague definition by defining hydropolitics as the "systematic study of interstate conflict and cooperation over transboundary water resources," (p.218). However, such an interpretation is still vague and defines hydropolitics as something that occurs only between states, only over transboundary water resources,

and is only concerned with conflict and cooperation. Unsatisfied with this narrow interpretation, several scholars have attempted to broaden the scope and application of the term over the last twenty or so years, as evidenced in the table below.

Table 1. Definitions of hydropolitics.

Citation	Definition
Waterbury (1979)	The study of inter-state politics surrounding the management of shared water resources.
Elhance (1997, p.218)	"Systematic study of interstate conflict and cooperation over transboundary water resources."
Meissner (2000)	"Systematic investigation with respect to the interaction between states, non-state actors and a host of other participants, like individuals within and outside the state, regarding the authoritative allocation and/or use of international and national water resources."
Trottier (1999, p.3)	"Investigation of water conflicts in order to uncover the tensions among competing interests, as well as the types of political, imaginary and symbolic relations which the issue of water mobilizes,"
Mollinga (2001, p.734)	"inter-state political processes concerning the allocation and use of water flowing through international rivers and aquifers." Also includes considerations of the politics of water policy and the politics of everyday water use.
Turton & Henwood (2002, p.17)	"Systematic study of the authoritative allocation of values with respect to water in society."
Meissner (2005)	"Transnational interaction, through norm creation and utilization, between a plethora of nonstate and state actors, varying from individuals to collectivities, regarding the authoritative allocation and use of, and perception towards domestic and international water resources."
Meissner (2015)	"Hydropolitics is a continuation of actor interaction or governance when state interactions have ceased in a river basin."

Thinking about hydropolitics has since moved away from a narrow understanding that views it as playing out solely within the confines of the state apparatus to acknowledging that domestic, national, and transnational stakeholders are all involved in water management. Furthermore, hydropolitics goes beyond dichotomous framings of conflict and cooperation to encompass the many ways in which stakeholders interact over water. However, with the exception of Mollinga's (2001) acknowledgement that social relations of power influence everyday water use practices, most interpretations of hydropolitics overlook the role of power in shaping interactions. With these considerations in mind, I define hydropolitics as the systematic analysis of how interactions over water resources that take place between state and non-state stakeholders at the local, national, international, and transnational scales are constituted, negotiated, reproduced, and transformed by social relations of power. This definition recognizes the inherently multi-scalar nature of interactions over water and that such interactions are shaped by social relations of power and play out in ways that move beyond binary framings of conflict and cooperation.

Considering that this dissertation is an exercise in hydropolitical analysis, a brief examination of the main ontological approaches to hydropolitics is merited. Hydropolitical analysis has traditionally been rooted in rationalist approaches to international relations (IR) theory – that is, realism and neo-liberal institutionalism. These approaches emphasize that states are rational actors who will act to advance their self-interest. As the following sections will demonstrate, realist approaches to hydropolitical analysis emphasize pathways to conflict while neo-liberal institutionalism tends to highlight why states engage in cooperation. These rational approaches to explaining to state behavior dominated analysis throughout the 1980's and 1990's, but the emphasis they place on the objective nature of reality was challenged by the emergence of reflectivist, or critical, approaches to hydropolitical analysis that maintain reality is socially constructed. Given that my approach to hydropolitical analysis aligns more with reflectivist ontologies, I will also briefly analyze what a constructivist and critical approach to hydropolitics entail.

While the approaches to hydropolitics that I discuss in the following sections are rooted in IR theory, their use remains common (if implicit) in research by geographers on transboundary water conflict and cooperation. As Furlong (2006) noted, the use of these theories can help bring about an understanding of hydropolitical dynamics but their use tends to result in a binary framing of conflict and cooperation, the reduction of conflict to something that occurs between state actors, and the portrayal of ecological degradation as an apolitical process. These limitations are largely due to the state-centric

nature of rationalist IR approaches that dominated the field until the arrival of constructivism in the 1980's (du Plessis, 1990; Jacobs, 2010). By bringing a geographical lens to bear on hydropolitical analysis through the framework developed in Chapter 2, I can produce a more holistic analysis of hydropolitical dynamics.

Realist Perspectives

Realist approaches to international relations, and to hydropolitical analysis, highlight the struggle for power between self-interested states operating in an anarchic world order. Prioritizing their own national security, states are motivated by distrust and take action to increase their own power capabilities and undermine those of other states to maintain a balance of power (Dinar, 2000; Waltz, 1979). State behavior is thus a reflection of power and capabilities and power relations are one of the main determinants of conflictive or cooperative outcomes (Lowi, 1993). Because states are concerned that cooperation may enable other states to achieve relatively greater gains, cooperation is difficult, and conflict and competition prevail. Cooperation, when it does occur, reflects the balance of power or the result of a distribution of gains that maintains pre-cooperation distributions of capabilities (Grieco, 1990).

What implications does a realist perspective on state behavior have for hydropolitical analysis? First, preoccupations with state security and uncertainties about the intentions of other states drive leaders to prioritize high political issues such as security and military matters over issues considered to be low politics, such as water (Keohane & Nye, 1989). Second is that the centrality of power in determining outcomes and the strategic nature of water resources conceptualized by the water wars discourse emphasizes "hydrological determinism," (Neubert & Scheumann, 2003, p.15). In other words, conflict is more likely when a downstream state is both the more powerful and more dependent on a given body of water than an upstream state. However, such a simplistic approach to explaining water conflict does not explain why cooperation is initiated by more powerful downstream countries such as Egypt in the Nile basin on numerous occasions.

Other explanations such as Hegemonic Stability Theory (HST) might provide a more satisfying explanation of state behavior as it relates to transboundary water resources. Under HST, cooperation begins when a dominant state is willing and able to maintain cooperation. For Lowi (1993) and other realists, cooperation is least likely to occur when there is an upstream basin hegemon. The lack of a basin-wide agreement in the Euphrates-Tigris river basin exemplifies this observation, where upstream

Turkey is often portrayed as the more powerful relative to downstream Syria and Iraq and has little incentive to engage in cooperation, especially at the basin level. Alternatively, cooperation is most likely in the presence of a hegemonic downstream country with a critical dependence on the water resource in dispute (Lowi, 1993). In this type of relationship, the downstream riparian is likely to impose or push for a cooperative arrangement with upstream countries, as demonstrated by Egypt's hydropolitics with neighboring Sudan in the Nile basin. However, HST, and realist approaches to hydropolitics more broadly, fail to adequately explain the nature of water conflict and cooperation in basins such as these. If cooperation is not likely to happen in the ET basin due to Turkey's upstream position and being the most powerful riparian, what explains the high levels of bilateral cooperation that took place between Turkey and Syria and Turkey and Iraq in the 2000's and again in the last few years between Turkey and Iraq? As this dissertation will demonstrate, realist approaches to hydropolitics promote extreme outcomes in a reality where interstate conflicts have become less common and ignore the leverage that can be used by less powerful riparians. Furthermore, realist perspectives assume a narrow understanding of power that is constrained to its material dimensions and overlook how the discursive dimensions of power can play a defining role in shaping hydropolitical outcomes.

Liberal Approaches to Hydropolitics

In contrast to realism, liberal perspectives emphasize factors that lead to cooperation and explain the absence of conflict. For example, liberal approaches to hydropolitics tend to view water as an economic commodity and credit the absence of large-scale violent conflict over water in the water-scarce Middle East to the virtual water trade[2] (Allan, 2002). As in realism, liberalism takes the rationality of state actors as a given. Unlike realism, however, liberal approaches to international relations contend that state relations are not determined exclusively by relations of power and that states will cooperate if they have mutual interests and stand to benefit from such cooperation (Keohane, 1982). Furthermore, states are composed of different social groups whose views inform state preferences in the international arena. Neoliberal institutionalism in particular is a common theory utilized, at least implicitly, in the hydropolitical literature (e.g. Jägerskog, 2003; Wolf, 1998). For the neoliberal institutionalist, the biggest obstacle to cooperation is the compliance problem. In a world where there is

[2] Virtual water refers to the water used to produce goods and services, including the "hidden" water embedded in imported agricultural products (Allan, 2002). The large quantities of water embedded in food imported by water-scarce countries in the Middle East and other regions allows them to "save" water that would have otherwise gone towards agriculture for use in other areas. From a liberal point of view, tensions over water are abated as the global market provides a much cheaper alternative to going to war over water.

no overarching power that can enforce state behavior, the development of trust is difficult and compliance is not guaranteed (Axelrod, 1984). International regimes reduce these uncertainties by establishing rules, codifying expectations, providing information, and punishing misconduct. Once a system is in place to monitor behavior and enforce compliance, the transaction costs associated with engaging in cooperation are greatly reduced and cooperation is more likely to continue.

The establishment of institutions between states that share water resources is quite common. These institutions, which include treaties and river basin organizations, lower the strategic uncertainty associated with entering into cooperation and help coordinate, monitor, and enforce the behavior of riparians. Institutions can also offer information, lower transaction costs, enhance the credibility of commitments, create coordination focal points, and, overall, support the functioning of reciprocity (Keohane & Martin, 1995). Once cooperation is institutionalized, it tends to be longer lasting. Functionalists even contend that cooperation over water resources can foster the development of greater understanding and dialogue that leads to cooperation over higher-order political issues such as security (e.g. Dolatyar & Gray, 2000; Sosland, 2007). Thus, water cooperation may be a productive pathway to regional integration and even peace, at least from a functionalist point of view. While liberal approaches to hydropolitics avoid the geographical and power determinism that characterize the realist approach, the emphasis placed on institutions as the rational way of resolving the compliance problem would suggest that international water regimes are the norm. However, about one-third of international basins still lack a formal agreement and just over 100 of the 313 transboundary basins have a river basin organization (TFDD, 2025). Therefore, institutionalized cooperation over water resources does not seem to be the norm, and liberal approaches to international relations are not, by themselves, a satisfying explanation of hydropolitical outcomes.

Constructivist Approaches to Hydropolitics

Having briefly surveyed the two dominant, rational approaches to hydropolitical analysis, it is clear that both narratives fall short of providing convincing explanations regarding water conflict and cooperation. The challenge with the realist and liberal approaches to hydropolitics is that they promote an overly rigid discourse that claims states will engage in either conflict or cooperation over scarce water resources that are perceived as either strategic resources or as economic goods (Julien, 2012). The rationality underpinning these approaches is problematic because of its dependency on some sort of determinism (whether geographical, economic or power-based) to explain state behavior. This rigidity

all but ensures that water-related outcomes will be viewed as either conflict or cooperation. However, given that empirically, water-related interactions have proven to simultaneously possess some degree of conflict and cooperation (e.g. Zeitoun & Mirumachi, 2008), a more context-sensitive approach that leans away from considering states as single units with a common interest is needed.

The anti-deterministic nature of constructivist approaches and the emphasis on human agency give it great potential as an alternative approach to hydropolitics. Constructivist thought in international relations is grounded in theories and approaches from the field of sociology (Finnemore & Wendt, 2024). Constructivists emphasize the socially constructed nature of reality and reject that any aspect of reality is a given, arguing that "material resources can only acquire meaning for human action through the structure of shared knowledge in which they are embedded," (Wendt, 1995, p.73). State interests are not a given, as they are in realist and liberal approaches. Instead, state interests and identities are mutually reinforcing social constructions driven by repeated interactions within a certain political and historical context (Wendt, 1999). These identities and interests are also informed by norms that are internalized and institutionalized by decision makes to dictate what is acceptable behavior. Furthermore, constructivists take a more multi-dimensional approach to power than do adherents to the rationalist theories discussed previously. Constructivist approaches to international politics conceive of power in both its material (e.g. military and economic capabilities) and discursive (e.g. the ability to influence another's behavior) forms (Barnett & Duvall, 2005). This more holistic grasp of power is fundamental to the research conducted as part of this dissertation, a goal of which is to analyze how power is exercised by various stakeholders and how it impacts patterns of water conflict and cooperation.

Within the hydropolitical literature, constructivism has been used to explain how water scarcity is a relative term that is better understood as constructed knowledge rather than objective reality (Allan, 2002). As Trottier (2008) notes, "water is short only when social actors have decided it is so for a variety of reasons" (p.198). Constructivism offers a framework that rejects water's status or actors' rationality as givens and embraces the simultaneity of conflict and cooperation. This concept is particularly important to my dissertation, as I will demonstrate that conflict and cooperation often occur at the same time within and across scales. A constructivist approach is also appropriate for this dissertation because of the emphasis placed on how the broader context influences the formation of interests and identities which in turn influence how states interact. As I will demonstrate by answering my first research question, hydropolitical relations are explained by pressures emanating from within

states and by the broader political context. Constructivist approaches to hydropolitical analysis move away from viewing water as a purely physical phenomenon (which can be objectively measured) to something that occurs within a broader social, political, and economic context.

Constructivism is an approach to understanding politics but it is not itself a substantial theory that can explain hydropolitical outcomes. Instead, constructivism represents more of a metaphysical stance about how reality can be interpreted (Adler, 2005). Therefore, a more substantial theory such as the Copenhagen School's securitization theory must be used to demonstrate what a constructivist approach to hydropolitics looks like. Securitization theory itself is underpinned by both realism and constructivism as security is not an objective condition but is formed through social processes (Williams, 2003). An issue such as water is considered to be non-politicized - meaning it is not dealt with by the state and not a part of public policy debate – politicized – it has been placed on the national policy agenda and requires government attention – securitized – meaning it is framed as an existential threat and extraordinary measures may be taken – or violized – dealing with the securitized issue necessitates the use of violence (Buzan et al., 1998; Neumann, 1998). How states view water and interact with each other over it is a social process that is largely conditioned by their broader political relations. Indeed, prior studies such as those conducted by Yoffe et al. (2003) and Haftendorn (2000), as well as the present dissertation, offer empirical evidence that positive trends in political relations generally correspond to water cooperation while political tensions or hostilities generally are associated with water conflict. This general rule of thumb is illustrated by trends in hydropolitical interaction between Turkey and Syria, which remained overwhelmingly conflictive until 1998 when a new era of political rapprochement catalyzed by cooperation over security issues led to a flurry of water-related cooperation that lasted until the outbreak of the Syrian civil war in 2011. Prior to 1998, the securitization of water by Turkey perpetuated an extended pattern of water conflict, but once political reproachment was reached, water was de-securitized and a more productive pattern of interactions over water began.

Critical Hydropolitics

The approaches to hydropolitical analysis discussed above – realist, liberal, and constructivist – each offer a different way of interpreting patterns of water conflict and cooperation. However, relying on international relations theories as they are implicitly theorized in the hydropolitical literature can be problematic because they suggest that hydropolitics is something that only happens between states.

Recall that my interpretation of hydropolitics emphasizes the multi-scalar nature of transboundary water interactions. The state-centered focus of conventional approaches rooted in international relations obscures the discursive processes through which transboundary river basins are engineered into spatially fixed entities and the interactions occurring between stakeholders at different scales within a basin (Sneddon & Fox, 2006). Furthermore, conventional approaches to hydropolitics (with the exception of constructivism) underplay the discursive aspects of power dynamics that underpin hydropolitical relations. The Framework of Hydro-Hegemony (FHH), which is one of the conceptual frameworks that underpins this dissertation, is rooted in a critical approach to hydropolitics that centers relations of material and discursive power as a prime determinant of control over water resources. A critical hydropolitics encourages the analyst to undertake an examination of the discursive means through which social relations of power are manifested and codified in joint management institutions and everyday interactions. Second, it helps the analyst unpack the myriad social-ecological processes that take place within the fixed scale of the transboundary river basin and how these processes also challenge conventional wisdom that sees the transboundary river basin as a fixed, objective scale. Finally, a critical hydropolitics sheds light on river basins as hydro-social territories that are continuously produced and reproduced by human-environment interactions that occur at multiple political, ecological, economic, and cultural scales, from the household to the global (Sneddon & Fox, 2006).

Drawing heavily on a critical approach to hydropolitics, this dissertation directly responds to two limitations in the existing literature. The first is that there is need for analysis that captures the multi-scalar aspect of transboundary water interactions. Students of international relations have long recognized that the domestic sphere has an important influence on international outcomes, and vice-versa (Fearon, 1998; Gourevitch, 1978; Putnam, 1988). Parallel acknowledgement about the connection of this relationship to water politics has been made in a small, but growing, body of work (Warner, 2008; Warner, 2012; Menga, 2016b; Warner & Zawahri, 2012). Using the Jordan and Euphrates-Tigris river basins as case studies, this dissertation contributes to this work by demonstrating how domestic pressures and the broader political context affect hydropolitical outcomes. The second shortcoming this dissertation responds to is the lack of understanding of how non-state actors, subnational and transnational institutions, and domestic constituencies can influence states' conflict and cooperation over transboundary water resources. By identifying which stakeholders are involved in transboundary water interactions and the mechanisms through which these stakeholders exert material and discursive power capabilities, this dissertation highlights the agency of non-state actors in informing hydropolitical outcomes and analyses the processes through which power dynamics unfold at multiple scales. In doing

so, this research provides empirical evidence of how patterns of water conflict and cooperation are informed by power relations that play out within and across transboundary river basins.

Qualitative Research in Geography

As I mentioned previously, this dissertation applies a geographical critique to IR-based approaches to hydropolitical analysis. At its core, geography is the study of human-environment relations. Both quantitative and qualitative methods have been used throughout the history of the discipline. The former tends to be concerned with uncovering relationships that exist between two or more variables while the latter is useful for explaining human behavior and understanding how people experience a certain phenomenon (Ravitch & Carl, 2020). My research is firmly rooted in the qualitative tradition as its primary purpose is to explain human behavior in the context of transboundary water conflict and cooperation. Although it was originally concerned more with description than with analysis or explanation, geography's value as a qualitative, descriptive field of inquiry was underappreciated and rejected during the Quantitative Revolution of the 1950's and 1960's. Dissatisfied with geography's apparent inability to fit neatly alongside other "hard" sciences, positivists and post-positivists sought to develop new epistemological philosophies that highlighted geography's "scientific" nature and ability to produce laws and theories (e.g. Bunge, 1962; Harvey, 1969). This is not to say, however, that qualitative approaches in geography are without merit. Indeed, the emergence of humanistic geography in the 1970's as a critique of the sharply positivist turn the field took during the Quantitative Revolution made a convincing case for putting humans back at the center of geographical thought (Creswell, 2012). While I do not claim to be a humanist geographer, instead viewing myself as ascribing more to critical geography's concerns with power and with unveiling the processes that produce inequalities, humanists played an important role in showing that qualitative methods still had a central place in geographical inquiry. Drawing on qualitative methods such as participant observation and interviewing, humanists advanced an in-depth understanding of people's connection to place and how humans and the environment continuously shape one another (Relph, 1976; Tuan, 1974).

Social science research, including that in geography, is generally guided by one or more research paradigms, or epistemologies. These paradigms, summarized in Table 2, are ways of viewing the world or acquiring knowledge, and can be seen as forming a framework to guide one's understanding of reality (Kuhn, 1962).

Table 2: Summary of social science research paradigms.

Paradigm	Explanation
Positivism	True knowledge is based on observable reality; every rationally justifiable assertion can be scientifically verified
Interpretivism	Research emphasis is on the human experience; reality is shaped by one's social and historical perspective; one's interpretation of their social role motivates actions
Social constructionism	Truth is subjective and socially constructed through people's interactions and interpretations of their interactions; research focus is on how the social context informs perceptions of reality
Critical paradigm	Social science is not truly objective or value free; research emphasis is on power and social inequality
Postmodernism	No objective, knowable truth; the search for a knowable truth is influenced by one's own perception

My research falls somewhere in between a social constructionist and a critical approach. I move beyond positivism's focus on generating objective research and acknowledge the socially constructed nature of knowledge and truth. On the one hand, my research rests on the assumption that social interactions color people's perceptions of reality and that knowledge is derived "from larger social discourses, which can vary across time and place, and which often represent and reinforce dominant belief systems," (Allen, 2005, p.35). For example, I demonstrate that different groups construct different discourses about water to further their own interests or protest against inequitable arrangements imposed on them by the political elite. These discourses about water and how it should be developed shape how stakeholders interact over water resources and inform patterns of conflict and cooperation. On the other hand, my research focus on uncovering how asymmetrical distributions of power impact transboundary water interactions shares the critical paradigm's concern with unveiling power dynamics and structural inequalities with an eye towards enacting social change (DeCarlo, 2018). This critical approach to the study of transboundary water interactions has been undertaken most prominently by

scholars associated with the London Water Resources Group to demonstrate the simultaneous nature of conflict and cooperation and the role of power in informing these processes (e.g. Mirumachi, 2015; Zeitoun & Warner, 2006; Zeitoun & Mirumachi, 2008). Research based on these approaches typically draws on qualitative methods to gather a nuanced understanding of how social interactions play out; thus, as described later in this chapter, my own research draws heavily on qualitative methodologies.

Research Questions

The two challenges described earlier – the state-centric nature of hydropolitical analyses and the need to understand how different stakeholders inform patterns of conflict and cooperation - are at the heart of the problem this dissertation seeks to address. Recognizing that transboundary water interactions play out at multiple scales in transboundary river basins and that the nature of these interactions are influenced by power dynamics, the following research questions and associated objectives will guide this research:

Table 3: Research questions and associated objectives.

Overarching question: How are power dynamics manifested within transboundary water interactions across different scales?	
Research Question	**Objectives**
Sub-question 1: How are hydropolitical relations in the Jordan and Euphrates-Tigris river basins explained by interactions between actors at different scales?	*Research Objective 1:* Create a dataset of transboundary water interactions that have occurred in each basin. Determine how domestic factors such as political pressures and discourses about water and broader international relations have influenced patterns of water conflict and cooperation.
Sub-question 2: How does the interplay of power between actors explain patterns of conflict and cooperation at different scales in the Jordan and Euphrates-Tigris river basins?	*Research Objective 2:* Create a typology of actions stakeholders at different scales use to promote and contest hydro-hegemony. Analyze the extent to which the interplay between power and scale explains patterns in transboundary water conflict and cooperation.
Sub-question 3: How can transboundary water arrangements in the Jordan and Euphrates-Tigris river basins be transformed to promote more equitable arrangements?	*Research objective 3:* Identify transformative mechanisms of counter-hegemony that are used in each basin. Identify challenges that non-hegemons face in transforming hydro-hegemonic arrangements.

The first goal of this dissertation is to understand how hydropolitical relations are explained at different scales. The second goal of this dissertation is to understand how power dynamics inform patterns of water conflict and cooperation at different scales and identify specific mechanisms through which power is exercised. The third goal of this research is to identify opportunities for the development of more equitable transboundary water arrangements in situations of power asymmetry. In doing so, clearer links between local-level interactions and inter-state relations can be drawn, helping academics and policymakers deliver more equitable and sustainable water management solutions. An understanding of the reciprocal relationship between power dynamics and transboundary water cooperation as it occurs across different scales of management can also assist water managers, development workers, and local communities with identifying more effective ways of challenging the status quo and enacting lasting change.

Research Methods

This research is guided by a research paradigm that draws on elements of both social constructionism and critical theory to answer the overarching research question: How are power dynamics manifested within transboundary water interactions across different scales? I have created three sub-questions to answer this broader question:

1. How are hydropolitical relations in the Jordan and Euphrates-Tigris river basins explained by interactions between actors at different scales?
2. How does the interplay of power between actors explain patterns of conflict and cooperation at different scales in the Jordan and Euphrates-Tigris river basins?
3. How can transboundary water arrangements in the Jordan and Euphrates-Tigris river basins be transformed to promote more equitable arrangements?

My research design is guided by a case study approach to acquire an in-depth understanding of the complex dynamics between power dynamics and transboundary water interactions. Case study research designs are a popular choice amongst human geographers, particularly so amongst critical geographers who have interrogated the multi-scalar nature of water governance to flesh out the connections between power dynamics, changing political economies, and the re-scaling of water governance (e.g. Budds & Hinojosa, 2012; Norman 2012; Perreault, 2005). In case study research, the case under investigation may be unique but it is by no means a singular phenomenon (Castree, 2005). In other words, the specific context of a case might be unique but the general issue under investigation can be

found in diverse settings. In this dissertation the specific phenomena under investigation – the multi-scalar nature of the interactions between power dynamics and hydropolitical outcomes in situations of extreme power asymmetry – is something that occurs in transboundary river basins around the world. The particular case studies I have chosen are the Jordan and Euphrates-Tigris river basins due to the degree of power asymmetry that exists in both basins and the rich literature on interstate hydropolitics and comparatively underdeveloped literature on the multi-scalar nature of hydropolitical interactions in these basins.[3] A case study approach facilitates the development of detailed information about a specific phenomenon, which can lead to the generation of new hypotheses and knowledge about how certain processes or relationships unfold (George & Bennett, 2005). However, the small sample size inherent in a case study approach can limit the generalizability of findings and increase the potential for researcher bias to influence the interpretation of data. Nonetheless, as Flyvbjerg (2006) convincingly argues, formal generalization is not the only source of progress and case studies are important in the overall process of knowledge accumulation and scientific development. A case study approach was therefore deemed appropriate for this dissertation because of its potential to generate novel insights and the success with which the approach has been applied by other critical geographers studying the multi-scalar nature of water governance.

To answer such varied questions, I divided my methodology into a two-pronged approach that involved two different data collection and analysis processes. One component involved collecting and analyzing event data about water-related events in the Jordan and Euphrates-Tigris basins and the other component involved collecting and analyzing data from interviews with various stakeholders from across the two basins. The following sub-sections provide details about each methodology.

Events Data

To answer sub-question 1 - How are hydropolitical relations in the Jordan and Euphrates-Tigris river basins explained by interactions between actors at different scales? – I constructed a dataset of water-related events for both basins. To do so, I followed the methodology developed by Shira Yoffe and other researchers at Oregon State University as part of the Basins at Risk (BAR) project, which sought to conduct a global-scale analysis of relationship between water resources and conflict.[4] The BAR project compiled a global dataset of water events, defined as "instances of conflict and cooperation that occur

[3] Further justification for why these cases were chosen is provided in Chapters 5a and 5b.
[4] For a detailed overview of the BAR project methodology, see chapter two of Yoffe's (2001) doctoral dissertation. See also Yoffe et al. (2003) and Wolf et al. (2003) for an overview of findings from the project.

within an international river basin, that involve the nations riparian to that basin, and that concern freshwater as a scarce or consumable resource (e.g., water quality, water quantity) or as a quantity to be managed (e.g., flooding or flood control, managing water levels for navigational purposes)," (Yoffe & Larson, 2001, p.8-9). For the purposes of my dissertation, I defined water events in the same manner but extended the scope of my analysis to include events that involved non-state actors and third-party countries (those not part of the basin). The time period covered by my database is 1948-2023. Many of the entries in my database from 2008 and prior are sourced from the International Freshwater Events Database, which documents over 6400 historical water relations from 1948 to 2008 (TFDD, 2025), while the entries from 2009 onwards were sourced using the search method described below.

Prior to outlining the search methodology I used to collect events data, a brief clarification of key terms is needed. Throughout this dissertation, I refer to water events and water interactions. These are two distinct components. A water event refers to the overall incident described in the data source. It is singular regardless of the number of actors involved. For example, a water event could take place between a single country-pair (dyad) or could occur between numerous state and non-state actors such as NGOs. Each event is composed of one or more interactions. If only two actors were involved in the incident, then the event and the interaction are equivalent. Otherwise, the event is disaggregated into interactions composed of a pair of actors (actor dyad) involved in the event. Each row in the database comprises a single interaction, and if more than two actors were involved, then the event will be associated with multiple rows. For example, an event that involved three different actors would have three associated rows to represent all possible actor-dyad combinations (see the sample entry below). Each event in the database is associated with a unique event ID and each interaction is also associated with a unique interaction ID to help distinguish between the two.

Figure 2: Screenshot of sample entry from my events database.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	Interaction ID	Event ID	Date	CCODE1	CCODE2	Dyad_Coc	Country Name	Country Name	Non-State Actors	Non-State Ac	Location	Country/Entity List	# of Entitie	Actor Scale	Scale of Impact	Issue Area	BAR Scale	Event Summary	
21	20	20	1965	IRQ	SYR	IRQ_SYR	Iraq	Syria	No		ET basin	Iraq, Syria, Turk	3	National-Nati	Basin	Infrastructur	2	First tripartite negotiation	
22	21	20	1965	IRQ	TUR	IRQ_TUR	Iraq	Turkey	No		ET basin	Iraq, Syria, Turk	3	National-Nati	Basin	Infrastructur	2	First tripartite negotiation	
23	22	20	1965	SYR	TUR	SYR_TUR	Syria	Turkey	No		ET basin	Iraq, Syria, Turk	3	National-Nati	Basin	Infrastructur	2	First tripartite negotiation	

Data collection. Events data was sourced from LexisNexis Academic[5], a search engine that contains more than 17,000 news, business, and legal sources. Following the protocol developed for the BAR project and used to update the International Freshwater Events Database, I used news articles

[5] Nexis Uni | Academic Research Tool for Universities & Libraries

contained in the database as my sources of events data. I searched for water-related news articles in the Jordan and Euphrates-Tigris river basins between 2009 and 2023 using the following search terms:

Terms: ((HLEAD(**water** OR river* OR lake OR dam OR stream OR tributary OR diversion OR irrigation OR pollution OR water quality OR flood! OR drought! OR channel OR canal OR hydroelect! OR reservoir *OR groundwater OR aquifer OR drought OR recharge OR "water table" OR "bore hole")*

AND HLEAD(treaty OR agree! OR negotiat! OR resolution OR commission OR secretariat OR joint management OR basin management OR peace OR accord OR "peace accord" OR settle! OR *cooperat!* OR *collaborat!* OR disput! OR conflict! OR disagree! OR sanction! OR war OR troops OR "letter of protest" OR hostility OR "shots fired" OR boycott OR protest! *OR appeal OR intent OR reject OR threat! OR force OR coerce OR assault OR fight OR demand OR disapprove OR diploma! OR statement OR memorandum)*

AND HLEAD(Jordan OR CAPS(Dead Sea) OR Sea of Galilee OR Nahr az Zarga OR Wadi al Jaydyb OR Yarmuk OR Yarmouk OR Hasbani)[6]

AND NOT HLEAD(ocean OR navigat! OR nuclear OR "water cannon" OR "light water reactor" OR "mineral water" OR "hold water" OR "cold water" OR "hot water" OR "water canister" OR "water tight" OR " water down" OR "flood of refugees" OR Rivera OR Suez OR Panama OR oil OR drugs OR "three gorges" *OR waterski OR watermelon OR dishwater OR waterproof OR "water resistant" OR "water bath"))*

For each basin, the search generated over 10,000 results.[7] When running the searches, I ensured that the "remove duplicates" switch was on so that I would not get duplicate results. However, I found that each search still returned hundreds of duplicate results; typically, this happened when multiple news outlets reported on the same story and used the same text. In a first run through of the documents, I removed all duplicate entries and removed entries that did not meet the following criteria: 1) the event took place in the Jordan or Euphrates-Tigris river basin[8]; 2) the event was about water as a consumable

[6] I conducted separate searches for each basin. The search terms for both searches were identical, except the basin-specific terms were switched. The basin-specific terms for the Euphrates-Tigris basin were: HLEAD(Shatt al Arab OR Dez OR Dicle OR Euphrates OR Karun OR Kashkan OR Lesser Zab OR Simareh OR Sultansuyu OR Tigris OR Tigris Khabur OR Al'Uzaym OR Aq Su OR Diyala OR Habbaniyah Lake OR Hawr al Awadh OR Hawr al Hammar OR Hawr as sa' diyah OR Hawr as saniyah OR Hawr as Sunwayquyah OR Razzaza Lake OR Sha'ib Hasb OR Tawuq Chay OR Tharthar Lake OR Wadi al Mani OR Wadi al Ubayyid OR Wadi Amij OR Wadi ar Patqah OR Wadi at Tubal OR Wadi Hawran OR Wadi Mulshi OR Wadi 'Ukash OR Zab al Kabir OR Zab assaghir OR Little Zab OR Wadi al Batin OR Wadi al Khurr OR Wadi Arar OR Wadi atTubal OR Wadi Hamir OR Buhayrat al Asad OR Sajur OR Wadi Shatnat as Salmas OR Frat OR Great Zab OR Khabur OR Murat OR Nizip OR Peri OR Tohma)

[7] When a search returns more than 10,000 hits, LexisNexis does not provide the total number of results.

[8] Many results were irrelevant because they were not about the basin in question. For instance, many of the results from the Jordan basin search were either about the Jordan river in Utah or were about a person named Jordan.

resource or as a quantity to be managed; and 3) the news article was in English.[9] After removing duplicates and irrelevant articles, I manually coded the remaining articles according to the protocol described in the next section. Additional articles were retrieved from BBC Monitoring's subscription news service using the same search protocol after I noticed that the Lexis Uni database was missing key events. While there was significant overlap between the results returned by LexisNexis and BBC Monitoring, the latter returned articles not captured by LexisNexis and returned hundreds less irrelevant articles that I had to sort through.

Coding Protocol. I based my coding protocol on that used by the BAR project and the International Freshwater Events Database (see Appendix 2 for my codebook). After removing all duplicates and irrelevant articles, I created an Excel file to house each events dataset. I read through the PDF of each news article and coded it with the following fields:

- Interaction ID - This field provides a unique numerical ID number for each "interaction" or row in the database.
- Event number - This field provides a unique numerical ID number for each "event" and is applied to all the "interactions" (aka rows) that occur within an event.
- Date - This field indicates the date (or closest approximation thereof) of when an event occurred in month/day/year format. In instances where the month and year of the event were known but not the exact date, the first of the month was used as the day. When only the year was known, the date was inputted as 01/01/year.
- CCODE 1 and CCODE 2 - These fields contain the three-letter country codes for the countries involved in an interaction within an event. If the interaction involved a non-state actor that could be associated with a particular state (e.g. a NGO operating out of a given country), then the three-letter country code was used to represent the non-state actor. If the non-state actor could not be associated with a particular state (e.g. ISIS or other transnational armed groups), then the three-letter code OTH was used.
- Dyad_Code - This field is a concatenation of the fields CCODE1 and CCODE2, in that order.

[9] Occasionally LexisNexis would return articles that were not in English. While this does introduce an English-language bias to my data, this data is partly mitigated by the fact that LexisNexis contains news articles that have been translated from their original language into English.

- Country Name 1 and Country Name 2 – The full name of the countries involved in the event. For instances when a non-state actor could not be associated with a particular state, Other was used.
- Non-State Actor - This code identifies if an external actor is involved in the event. This includes non-state actors, such as intergovernmental organizations, indigenous communities, private sector, NGOs, funding agencies, and RBOs that are not affiliated with the basin/country actors involved in the event.
- Non-State Actor's Description – Names the non-state actor involved in the event, if any.
- Location - Location, or best approximation of, of where an event occurred.
- Country/Entity List – Lists the names of **ALL** the countries or entities involved in an event (not just the country pair for that interaction row).
- Number of Countries/Entities - The total number of Countries and/or Entities associated with an event.
- Actor Scale - Denotes the operational level of each actor involved in the interaction. Individual actors are separated by a dash (-). Actor scale was coded as Domestic, National, Interstate, or Transnational.
- Scale of Impact - Refers to the impact scale of the interaction. Impact scale ranges from local, sub-basin, transboundary (extending across two states but not covering entire basin), basin, regional, and global.
- Issue Area - Issue area identifies the main topical, content, and/or sectoral issues addressed by the event. More than one issue area can be listed, separated by commas. This should not be an exhaustive list of all issues addressed but include the main few areas specified. See the codebook in Appendix 2 for a full list of issue areas.
- BAR Scale - A numerical score ranging from –7 to +7, with –7 denoting the most negative events and + 7 denoting the most positive events. See the section below for information on how the BAR scale was developed and how I modified it to fit my study.
- Event Summary - A detailed description of the event.

The BAR Scale. The BAR scale was created for the BAR project to objectively measure the conflict/cooperation intensity of individual interactions. The BAR scale itself was derived from the International Cooperation and Conflict Scale developed by Edward Azar (1993) as part of his Conflict and Peace Databank (COPDAB). The COPDAB scale measures the conflict/cooperation intensity for

individual states and country-dyads interacting with one another on a scale ranging from 1 (representing the most cooperative events) to 15 (representing the most conflictive events). To adapt the BAR scale from COPDAB, the scale rankings were rearranged so that -7 denoted the most conflictive event (formal declaration of war) and +7 denoted the most cooperative event (voluntary unification into one nation), with neutral events centered around 0. Water-specific terms were also added, denoted in italics in the table below:

Table 4. Basins at Risk scale and descriptions. Source: Wolf et al. (2003); Yoffe & Larson (2002)

BAR Scale	COPDAB Scale	Description
-7	15	Formal declaration of war
-6	14	**Extensive War Acts causing deaths, dislocation or high strategic cost**: Use of nuclear weapons; full scale air, naval, or land battles; invasion of territory; occupation of territory; massive bombing of civilian areas; capturing of soldiers in battle; large scale bombing of military installations; chemical or biological warfare.
-5	13	**Small scale military acts:** Limited air, sea, or border skirmishes; border police acts; annexing territory already occupied; seizing material of target country; imposing blockades; assassinating leaders of target country; material support of subversive activities against target country.
-4	12	**Political-military hostile actions:** Inciting riots or rebellions (training or financial aid for rebellions); encouraging guerilla activities against target country; limited and sporadic terrorist actions; kidnapping or torturing foreign citizens or prisoners of war; giving sanctuary to terrorists; breaking diplomatic relations; attacking diplomats or embassies; expelling military advisors; executing alleged spies; nationalizing companies without compensation.
-3	11	**Diplomatic-economic hostile actions:** Increasing troop mobilization; boycotts; imposing economic sanctions; hindering movement on land, waterways, or in the air; embargoing goods; refusing mutual trade rights; closing borders and blocking free communication; manipulating trade or currency to cause economic problems; halting aid; granting sanctuary to opposition leaders; mobilizing hostile demonstrations against target country; refusing to support foreign military allies; recalling ambassador for emergency consultations regarding target country; refusing visas to other nationals or restricting movement in country; expelling or arresting nationals or press; spying on foreign government officials; terminating major agreements. *Unilateral construction of water projects against another*

		country's protests; reducing flow of water to another country, abrogation of a water agreement.
-2	10	**Strong verbal expressions displaying hostility in interaction:** Warning retaliation for acts; making threatening demands and accusations; condemning strongly specific actions or policies; denouncing leaders, system, or ideology; postponing heads of state visits; refusing participation in meetings or summits; leveling strong propaganda attacks; denying support; blocking or vetoing policy or proposals in the UN or other international bodies. *Official interactions only.*
-1	9	**Mild verbal expressions displaying discord in interaction:** Low key objection to policies or behavior; communicating dissatisfaction through third party; failing to reach an agreement; refusing protest note; denying accusations; objecting to explanation of goals, position, etc.; requesting change in policy. *Both unofficial and official, including diplomatic notes of protest.*
0	8	**Neutral or non-significant acts for the inter-nation situation:** Rhetorical policy statements; non-consequential news items; non-governmental visitors; indifference statements; compensating for nationalized enterprises or private property; no comment statements.
1	7	**Minor official exchanges, talks or policy expressions- mild verbal support:** Meeting of high officials; conferring on problems of mutual interest; visit by lower officials for talks; issuing joint communiqués; appointing ambassadors; announcing cease-fires; non-governmental exchanges; proposing talks; public non-governmental support of regime; exchanging prisoners of war; requesting support for policy; stating or explaining policy.
2	6	**Official verbal support of goals, values, or regime:** Official support of policy; raising legation to embassy; reaffirming friendship; asking for help against third party; apologizing for unfavorable actions or statements; allowing entry of press correspondents; thanking or asking for aid; resuming broken diplomatic or other relations.
3	5	**Cultural or scientific agreement or support (non strategic):** Starting diplomatic relations; establishing technological or scientific communication; proposing or offering economic or military aid; recognizing government; visit by head of state; opening borders; conducting or enacting friendship agreements; conducting cultural or academic agreements or exchanges. *Agreements to set up cooperative working groups.*
4	4	**Non-military economic, technological or industrial agreement:** Making economic loans, grants; agreeing to

		economic pacts; giving industrial, cultural, or educational assistance; conducting trade agreements or granting most favored nation status; establishing common transportation or communication networks; selling industrial technological surplus supplies; providing technical expertise; ceasing economic restrictions; repaying debts; selling non-military goods; giving disaster relief. *Legal, cooperative actions between nations that are not treaties; cooperative projects for watershed management, irrigation, poverty-alleviation.*
5	3	**Military economic or strategic support:** Selling nuclear power plants or materials; providing air, naval, or land facilities for bases; giving technical or advisory military assistance; granting military aid; sharing highly advanced technology; intervening with military support at request of government; concluding military agreements; training military personnel; joint programs and plans to initiate and pursue disarmament.
6	2	***International Freshwater Treaty*; Major strategic alliance (regional or international):** Fighting a war jointly; establishing a joint military command or alliance; conducting joint military maneuvers; establishing economic common market; joining or organizing international alliances; establishing joint program to raise the global quality of life.
7	1	**Voluntary unification into one nation:** Merging voluntarily into one nation (state); forming one nation with one legally binding government.

When I initially began coding my events, I observed a few issues with the BAR scale that made it difficult to apply to my study. First, the BAR scale was created to measure the conflict/cooperation intensity of interactions occurring between states. Interactions involving non-state actors were not considered. As a result, there was no way to easily classify interactions that involved non-state actors, such as the hosting of a conference, publication of a report by an NGO, or non-violent protests. Similarly, there was no way to distinguish between interactions that could be perpetuated by either a state or a non-state actor, such as the destruction of property or verbal expressions of disagreement. Therefore, I created a modified BAR scale (Table 5) to distinguish between actions performed by state and non-state actors. These modifications helped flesh out the scalar nuances inherent in transboundary water interactions. As I show in chapters 5a and 5b, interactions often take place simultaneously at multiple scales, creating patterns of conflict and cooperation that look different depending on what types of actors are involved. I also removed the neutral ranking from the BAR scale (denoted by 0) because interactions are never truly neutral; even rhetorical policy statements or non-governmental

visitors, which are categorized as neutral in the original BAR scale, can be perceived as an act of conflict or cooperation. I also added additional water-related actions that were not originally captured by the BAR scale, depicted in italics in the table below.

Table 5: Modified BAR Scale created for this dissertation.

BAR Scale	Description
-7	Formal declaration of war
-6	**Extensive war acts causing deaths, dislocation, or high strategic cost:** Use of nuclear weapons; full-scale air, naval, or land battles; invasion of territory; occupation of territory; massive bombing of civilian areas; capturing of soldiers in battle; large-scale bombing of military installations; chemical or biological warfare.
-5	**Small-scale military acts:** Limited air, sea, or border skirmishes; border police acts; annexing territory already occupied; seizing material of target country; imposing blockades; assassinating leaders of target country; material support of subversive activities against target country; *capture of water infrastructure by state or quasi-state actor; large-scale destruction of water infrastructure by state actor or quasi-state actor*
-4	**Political military hostile actions**: Inciting riots or rebellions (training or financial aid for rebellions); encouraging guerilla activities against target country; limited and sporadic terrorist actions; kidnapping or torturing foreign citizens or prisoners of war; giving sanctuary to terrorists; breaking diplomatic relations; attacking diplomats or embassies; expelling military advisors; executing alleged spies; nationalizing companies without compensation; *local-level (village level) destruction of infrastructure by state actor; intervention in small-scale protests by state; mobilization of troops; violent protests*
-3	**Diplomatic-economic hostile actions:** Increasing troop mobilization; boycotts; imposing economic sanctions; hindering movement on land, waterways, or in the air; embargoing goods; refusing mutual trade rights; closing borders and blocking free communication; manipulating trade or currency to cause economic problems; halting aid; granting sanctuary to opposition leaders; mobilizing hostile demonstrations against target country; refusing to support foreign military allies; recalling ambassador for emergency consultations regarding target country; refusing visas to other nationals or restricting movement in country; expelling or arresting nationals or press; spying on foreign government officials; terminating major agreements; *seizure of property by state; halting negotiations; small-scale non-violent protests; withdrawal from agreement; local-level vandalism/property destruction by non-state actor; cutting off water access; unilateral construction of dam or other infrastructure; reducing flow of water to another country, abrogation of a water agreement.; litigation; threat to destroy water infrastructure from a state actor*

-2	**Strong verbal hostility:** Withdrawal of support; official statements that threaten further discord; official letters of complaint; threats to withdraw from a treaty; face-to-face disagreement
-1	**Mild verbal expressions of opposition or discord:** *Statement of disagreement in interview with news outlet); disagreement expressed by non-state actor; failing to reach agreement; communicating dissatisfaction through a third party*
1	**Dialogue, mild verbal exchanges:** *Meeting of government officials to discuss water sector issues; hosting of a conference or other platform for multi-party dialogue; visits by officials; request for meeting; meeting of non-state and state actors; comments about cooperation expressed through interview*
2	**Strong verbal support:** statements of agreement or cooperation; raising legation to embassy; reaffirming friendship; asking for help against third party; apologizing for unfavorable actions or statements; allowing entry of press correspondents; thanking or asking for aid; resuming broken diplomatic or other relations; *parties agree to enter into negotiations; joint site visits; report issued by non-state actor*
3	**Cultural or scientific agreements:** Starting diplomatic relations; establishing technological or scientific communication; proposing or offering economic or military aid; recognizing government; opening borders; conducting or enacting friendship agreements; conducting cultural or academic agreements or exchanges; *Agreements to set up cooperative working groups between states; financial agreement involving a country outside of the basin (foreign aid to water sector); any other agreement involving a non-state actor; agreement between non-state actors; signing of meeting minutes*
4	**Non-military economic, industrial, technological agreement:** Making economic loans, grants; agreeing to economic pacts; giving industrial, cultural, or educational assistance; conducting trade agreements or granting most favored nation status; establishing common transportation or communication networks; selling industrial-technological surplus supplies; providing technical expertise; ceasing economic restrictions; repaying debts; selling non-military goods; giving disaster relief; *financial agreement involving countries within the basin; agreement to undertake cooperative watershed management project (even if only verbal agreement made); water sales agreements; any other agreement between state actors; increasing water flow*
5	**Military economic or strategic support:** Selling nuclear power plants or materials; providing air, naval, or land facilities for bases; giving technical or advisory military assistance; granting military aid; sharing highly advanced technology; intervening with military support at request of government; concluding military agreements; training military personnel; joint programs and plans to initiate and pursue disarmament.
6	***International Freshwater Treaty*; Major strategic alliance (regional or international):** Fighting a war jointly; establishing a joint military command or alliance; conducting joint military maneuvers; establishing economic

	common market; joining or organizing international alliances; establishing joint program to raise the global quality of life.
7	**Voluntary unification into one nation:** Merging voluntarily into one nation (state); forming one nation with one legally binding government.

Data Processing. While coding, I flagged articles and codes about which I was unsure and returned to them after coding was complete to make a final decision. After all events were coded, I was able to create separate timelines depicting multi-scalar water conflict and cooperation in each basin (see Chapters 5a and 5b). These timelines were then used to track changes in conflict and cooperation as it occurred at different spatial and temporal scales. I analyzed the events data for relationships between water-related events, domestic pressures such as changes in the ruling political party, and broader international relations to paint a picture of how water conflict and cooperation is explained at different scales.

Interview Methods

In the second phase of my research, I conducted semi-structured interviews with 20 people living in and/or working across the Jordan and Euphrates-Tigris basins. Data from interviews was used to answer sub-research questions two and three: how does power explain patterns of water conflict and cooperation between actors at different scales and how can transboundary water arrangements in the Jordan and Euphrates-Tigris basins be transformed to promote more equitable transboundary water arrangements? Interviews were conducted to learn more about efforts to promote water as a source of cooperation and peace in the region and the specific actions that organizations have undertaken to promote their goals and contest unequitable arrangements imposed by the state. Interviews were also conducted with academics and former and current government officials to learn more about research being undertaken and government narratives regarding shared water resources. Due to the state-centricity of much of the water conflict and cooperation literature on the Jordan and ET basins, interviews provided an opportunity for me to gather novel insights about factors that shape patterns of conflict and cooperation at different scales. The following sections describe the data collection and analysis processes.

Data collection. My objective in conducting interviews was to elicit diverse perspectives on water conflict and cooperation across both basins. Therefore, I selected participants with an eye to maximizing the diversity in responses by talking with people from different countries, religions, cultures, industries, and upbringings. Participants were recruited using a combination of purposive sampling and

snowball sampling (Parker et al., 2019; Robinson, 2014). I began by reaching out to contacts from my personal networks and those suggested by my advisor via email and asked all interviewees if they could recommend any people for me to speak with. Several connections with interview participants were made at conferences such as the International Environmental Peacebuilding Conference held in The Hauge in June 2024, where I was able to meet interviewees in person and follow up on our conversation. My original goal was to speak with people from every country in both basins to ensure that all voices could be represented; however, I was unable to connect with participants from Syria and Iran. Nonetheless, the people I interviewed came from a variety of backgrounds and brought diverse, enriching, and sometimes contradicting insights to the table. Many participants worked for non-governmental organizations (NGOs) such as EcoPeace and BluePeace, the Arava institute for Environmental Studies, and Save the Tigris, while others were academics or government officials. Several participants were former government officials who had been involved in high-level water negotiations. Often, participants working in academia were also affiliated with the public sector or with civil society organizations. Basic demographic information for interview participants is shown below:

Table 6: Interviewee demographic information.

Interview Participant	**Country**	**Sector/Industry**
1	Iraq	Civil society
2	Turkey	Academia
3	United States (Israel)	Civil society
4	United States	Government
5	Turkey	Academia/civil society
6	Turkey	Academia
7	Israel	Government
8	Iraq	Academia/civil society
9	Turkey	Civil society
10	Iraq	Government
11	Turkey (Kurdish)	Civil society

12	Turkey (Kurdish)	Civil society
13	Palestine	Civil society
14	Iraq	Academia
15	Palestine	Civil society
16	Iraq	Academia/government
17	Israel	Academia/civil society
18	Jordan	Academia
19	Jordan	Civil society
20	Iraq (Kurdistan)	Civil society

Water in the Middle East is a highly sensitive topic and NGO workers and activists can face physical danger due to the nature of their work. Therefore, all interviewees were informed that no identifying information[10] would be published in my dissertation and their responses would remain anonymous and confidential. Interviews were conducted in person, on Zoom, or via WhatsApp between February 2023 and January 2024. All but two of the interviews were conducted in English; the two interviews with Kurdish participants were held in Kurdish with the help of an interpreter. Interviews lasted between 45-90 minutes, depending on the participant's availability and how much information was shared. All of the interviews held in English were recorded and subsequently transcribed; during the interviews held in Kurdish, I took detailed notes and relied on these during the coding process. As I mentioned previously, the goal of the interviews was to elicit information about how different organizations engage with water in the basin, the role of civil society in contributing to water conflict and cooperation, and different knowledge and discourse about water that are at play in each basin. Although I did not originally ask, I also asked participants about challenges to water cooperation in the basin after I noticed that the first few interviewees spent significant time talking about challenges they faced in their work. Rather than

[10] I have elected to not even publish the specific organizations that each participant worked for, as there are cases where doing so would de-anonymize the participant.

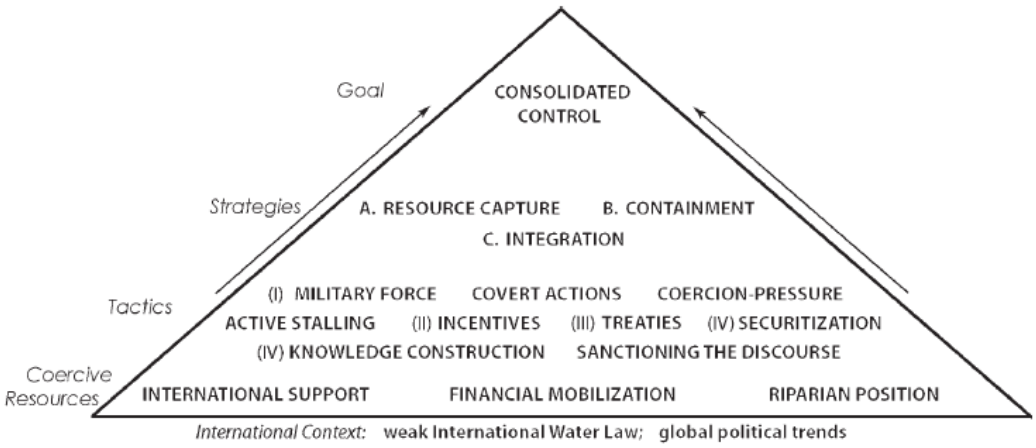
use a standard interview guide, I tailored the questions depending on the interviewee's background. Some common questions I asked interviewees were:

- Can you tell me about the work you do with your organization and some projects you are currently involved in?
- What are the impacts of your work on local communities? How have these impacts changed over time?
- What are some of the main challenges hindering cooperation in the basin?
- What role do you see organizations such as yours play in fostering cooperation across the basin?
- How does your organization promote awareness about issues facing the basin?

Interviewees with technical backgrounds were also about climate change impacts while I asked other interviewees specific details about their research or activities I knew they were involved in, such as the campaign against the Ilisu Dam or the Green Blue Deal. Since I was asking people about their personal experiences and opinions, interviewees were considered human subjects by the Institutional Review Board at Oregon State University. The research was submitted for ethics review prior to commencing interviews and approved as an exempt study.

Data Analysis. Interview data was coded with the help of NVivo software. Interview recordings were transcribed using the caption generator on the Kaltura video platform, which is where the recordings were stored. Interviews were coded following a thematic analysis protocol, in which meaningful patterns, or themes, are pulled out of large amounts of qualitative data. The general steps in thematic analysis are data familiarization, generation of the initial codes, collating codes with supporting data, grouping codes into themes, refining themes, and writing up the results (Braun & Clarke, 2006). Coding was conducted through a mixed inductive and deductive approach. Inductive approaches to qualitative coding create codes based on patterns that emerge from the data and deductive approaches create codes based on existing theories or frameworks (Fereday & Muir-Cochrane, 2006). Interview data informed the development of the Typology of Actions to Promote and Contest Hydro-Hegemony (TAPHH) and the Typology of Actions to Contest Hydro-Hegemony (TACHH) introduced in Chapter 6. I began developing the typologies with a deductive approach, utilizing existing frameworks of hydro-hegemony and counter-hegemony as starting points. Specifically, I utilized Zeitoun and Warner's (2006) typology of Water Resource Control Strategies and Tactics to form a baseline for the development of TAPHH (Figure 3).

Figure 3: Typology of water resource control strategies and tactics. Source: Zeitoun and Warner, 2006.



Roman numerals relate to Lustick's (2002) classification of increasingly efficient compliance-producing mechanisms: (I) coercion, (II) utilitarian exchange, (III) instigating normative agreement and (IV) inducing ideologically hegemonic beliefs. The list is non-exhaustive.

Zeitoun and Warner (2006) categorized actions taken by states to acquire control over water resources and sustain compliance with the established order under four types of mechanisms: coercive, utilitarian, normative, and ideological compliance-producing mechanisms. Given that their typology centered on actions undertaken by state actors, and most of my interviews were with non-state actors, few of the codes that I generated from the interviews fit into these categories. Indeed, I acquired most of my data about these mechanisms from the existing literature rather than from interviews. Therefore, the TAPHH I created largely arose deductively.

Creation of the Typology of Actions to Contest Hydro-Hegemony (TACHH) occurred through a mixed inductive and deductive process. As before, I began coding the interviews using existing frameworks as a baseline. In this case, I used two frameworks. The first was the framework of dynamic transboundary water interaction created by Zeitoun et al. (2017) to help explain how states contest hegemonic transboundary water arrangements. The framework describes three mechanisms of resistance and counter-hegemony that I explain in further detail in Chapter 6: coercive, leverage, and transformative mechanisms. I used these three categories to form the codes associated with actions of resistance and contestation that I identified from interviews. I created sub-codes under each of these categories to identify specific actions or strategies utilized by various stakeholders to engage in water conflict and cooperation (see Table 7). These sub-codes largely arose inductively, although two of them -

diplomatic tactics and the utilization of legal instruments - were created deductively based on Cascäo's (2008) research on counter hydro-hegemony.

Table 7: Summary of codes generated in NVivo.

Code	Number of Interviews Cited In	Total References	Inductive or Deductive?
Normative Mechanism			Deductive
Treaties	4	10	
Ideological Mechanism			Deductive
Discourse	2	3	
Coercive Mechanism			Inductive
Facts on the ground	2	2	
Non-violent protest	1	1	
Leverage Mechanism			
Diplomatic tactics	3	4	Deductive
Utilization of legal instruments	1	2	Deductive
Alliance formation	8	15	Inductive
Advocacy	7	15	Inductive
Capacity building	9	14	Inductive
Transformative Mechanism			
Creation of new space for dialogue	7	11	Inductive Inductive

Construction of expert-based knowledge	5	9	Inductive
De-politicization	3	4	Inductive
Counter-sanctioned discourse	5	10	Inductive
Promotion of alternatives	5	8	
Challenges			Inductive
Broader conflict dynamics	11	37	
Power asymmetries	7	18	
Lack of political will	9	10	
Climate change	5	9	
Lack of capacity	5	10	
Lack of decision-making power	4	4	
Funding	3	5	
Upstream development	2	2	

I also created codes to characterize the challenges that interviewees described encountering in the course of their work. Conversation about these challenges initially occurred organically as participants explained how factors such as the broader conflict and security issues hindered their work, and I later began intentionally asking about these challenges as interviews progressed. 3

Dissertation Structure

This chapter introduced transboundary water conflict and cooperation (hydropolitics) as the main issue under study in this dissertation. It identified two limitations in the existing literature on hydropolitical analysis that this dissertation will address: the state-centricity of the literature on hydropolitics and the lack of understanding of how non-state actors, subnational and transnational institutions, and domestic constituencies can influence states' conflict and cooperation over transboundary water resources. In Chapter 2, I develop a theoretical framework that blends political ecology and hydro-hegemony to inform a multi-scalar analysis of the power relations in Middle Eastern hydropolitics. I briefly describe political ecology as an academic method of inquiry and a community of practice and survey its prior application in the study of human-water relations before introducing the concepts of power and hydro-hegemony and discussing how these concepts can be incorporated into a multi-scalar analysis of transboundary water interactions. In Chapters 3 and 4, I provide background information on the Jordan and Euphrates-Tigris basins, respectively, including basin hydrography and main hydropolitical developments. Chapter 5 is the first of three analytical chapters and presents my findings in relation to my first research sub-question by mapping out the relevant actors in each basin and comparing trends in broader international relations to trends in water conflict and cooperation. This chapter is split into two parts: Chapter 5a and Chapter 5b. Chapter 5a presents the database of water-related events in the Jordan basin, highlighting key findings and patterns in water conflict and cooperation across multiple scales. The influence of the domestic sphere and the broader political context on interstate hydropolitical relations are also discussed. Chapter 5b covers the same material for the Euphrates-Tigris basin. In Chapter 6, I present my findings for sub-question two by analyzing the specific actions that different stakeholders undertake to promote or contest hegemonic arrangements. Findings for sub-question three are presented in Chapter 7, which focuses on the transformative mechanisms stakeholders use to contest hegemonic arrangements and the challenges they face in doing so. Chapter 8 concludes the dissertation by summarizing its findings and outlining its limitations, directions for future research, and contributions to the literature.

Chapter 2: Literature Review

There is a need for an analytical approach to hydropolitical analysis that moves beyond privileging the state as the central unit of analysis and framing conflict and cooperation as separate, mutually exclusive phenomenon. This chapter develops a theoretical framework that blends a critical approach to hydropolitics, political ecology and hydro-hegemony to inform a multi-scalar analysis of the power relations in Middle Eastern hydropolitics. As discussed in chapter one, a critical approach challenges conventional realist and liberal ontologies by highlighting the discursive means through which social relations of power are manifested and codified in joint management institutions and everyday interactions. In seeking to understand how the exercise of power at multiple scales influences transboundary water outcomes, my research is firmly rooted in a critical ontology. My research also represents a political ecological inquiry into the nature of human-environmental relations. Political ecology, which has been variously described as a community of practice (Robbins, 2019), as a trickster science (Robbins, 2015), and as an alternative to apolitical explanations of ecological degradation (Robbins, 2019), provides a nuanced insight into human-environment relationships by exposing the hidden power dynamics underpinning environmental knowledge production and resource use, management, and access. Finally, my research draws on the Framework of Hydro-Hegemony (FHH), which itself is informed by political ecology and a critical approach to hydropolitics through its focus on discourse and power (e.g. Zeitoun & Warner, 2006; Zeitoun & Mirumachi, 2008), to critically analyze transboundary water interactions. By incorporating non-state actors into the FHH and applying it at different levels of analysis, my research represents a unique contribution to the study of how human-environment relationships are (re)produced by social relations of power that are exercised across multiple spatial scales.

This chapter will begin with a brief introduction to political ecology as both an academic method of inquiry and a community of practice that identifies and challenges the inequalities that underpin differential environmental change impacts, the burden of which often fall on the poor. As an epistemological project, political ecology dismantles preconceived truths about human-environment relations to reveal alternative explanations to ecological degradation rooted in political economy. Its outgrowth was a reaction to the environmentalism of the 1960's and 1970's and concerns about apolitical explanations of fields such as hazard studies and cultural ecology on the one hand and a reaction to the decolonization that took place in the 1950's-1970's in the global South on the other. The chapter will then highlight how political ecology has been used in prior analyses of human-water relations by introducing the concept of the waterscape to explain the linkages that exist between water, different actors, and the

power dynamics and social relations that dictate their interactions. In line with political ecology's concern with scale, the multilevel nature of hydropolitics and socially constructed nature of scale will briefly be discussed. The last sections of the chapter will introduce the concepts of hydro-hegemony and power to articulate how these concepts can be extended to a multi-scalar analysis of transboundary water relations.

What is Political Ecology?

Political ecological research is underpinned by the premise that ecological conditions and environmental change are interwoven with political processes (Robbins, 2019). Hydraulic environments, for example, are the product of a certain historical context and specific social-biophysical processes that mutually shape and reinforce one another. Researchers in the field understand that the unequal distribution of the cost and benefits coupled with environmental change affect existing socioeconomic inequalities (Bryant and Bailey, 1997). This change in turn yields significant political implications relating to actors' power relative to one another. There is therefore a focus on the asymmetric distribution of power and how this distribution produces, and is reinforced by, certain social and environmental outcomes. This emphasis is embedded within political ecology's five theses of degradation and marginalization, conservation and control, environmental conflict and exclusion, environmental identity, and socio-political conditions (Robbins, 2019). Each of these five paradigms calls attention to human-environment interactions, the non-linear nature of power dynamics, and the importance of scale.

As an interdisciplinary field with elements from fields as diverse as anthropology, geography, environmental history, and development studies, political ecology is at once easy to make claim to but hard to define. Conventional approaches to the field in the Anglophone tradition place political ecology as emerging from the seminal works of Watts (1983), Blaikie (1985), and Blaikie and Brookfield (1987). These scholars were influenced by the wave of environmentalism that characterized much of the 1960's and 1970's and by widespread neo-Malthusian perspectives on resource scarcity and conflict. Concerned by the apolitical explanations of environmental degradation that tended to place the blame on poor people living in underdeveloped regions, early pioneers in the field sought to "shatter comfortable and simplistic 'truths' about the relationship between society and its natural environment," (Perreault et al., 2015, p.5). Rather than ascribe to such simplistic and empirically weak arguments, early political ecologists developed alternative explanations for environmental degradation underpinned by political economy, resource capture by corrupt elites, and colonial capitalism (e.g. Bassett, 1988; Wisner, 1978). As a mode of academic inquiry, political ecology was inspired by a general turn towards Marxist scholarship, as evidenced in Harvey's (1974, 1982) portrayal of nature as inseparable from the capitalist means of

production that give it meaning and value, as well as by a growing acceptance of central tenants from feminist and postcolonial scholarship (Perreault et al., 2015). The influence of post-structuralist thought on political ecology is also noticeable in the latter's focus on the role of discourse and power in shaping our understanding of human-environment relations (Escobar, 2006; Fletcher, 2010). Political ecology is also characterized by its explicitly normative commitment to enacting social justice and structural political change by providing alternative explanations to interlinked social and environmental processes. Indeed, critiques of political ecology question whether the field is amply political and caution that the field's 'liberatory potential' has not yet been fully realized (Walker, 2007, p.364). Greater engagement with policymakers and the co-production of knowledge with local communities are needed to enact transformative change.

My research falls squarely within a political ecological approach to the study of transboundary water relations. First, my research is predicated on a waterscape perspective that views humans as part of nature rather than forming a dualism with nature (Budds & Hinojosa, 2012). Utilizing the waterscape as the unit of inquiry enables analyses to extend beyond conventional scalar hierarchies and generate a more enriched understanding of how water is co-produced by the reinforcing relationships among people, water flows, institutions, practices, and social relations. Second, my research seeks to challenge the dominant discourse that power belongs to the realm of the state and is the result of possessing a certain combination of geographic, economic, and military factors (Frey, 1993; Elhance, 1999; Link et al., 2016). Instead, I argue that weaker actors are not inherently powerless and that transboundary water arrangements can and are contested through the exercise of softer forms of power. Finally, my research shares political ecology's concern with scale by extending the analysis beyond interstate relations to examine how power relations are produced and reinforced amongst actors at the subnational and transnational scales. My goal is to use political ecology's concern with scale and the social production of nature through the ways in which power is established and contested by different actors to supplement a critical approach to hydropolitical analysis and illuminate the multilevel nature of human-water interactions.

Political Ecological Approaches to the Study of Water

In a transboundary water context, employing a political ecological approach can be useful because such an approach emphasizes the importance of looking at the broader historical, economic, and political context of human-environment relationships (Conker, 2014). A political ecology approach to hydropolitical analysis takes as its starting point the connections between transformations of and

within the hydro-social cycle at multiple scales and social relations of power that shape and are shaped by it (Swyngedouw, 2009). In doing so, the hidden power dynamics and discourses, norms, and knowledge that underpin how transboundary waters are managed can be exposed (Boelens et al., 2016).

Some political ecological perspectives on water emphasize the dual human-physical nature of the hydrological cycle, theorizing the circulation of water as "a hybridized socio-natural flow that fuses together nature and society in inseparable manners," (Swyngedouw, 2009, p.56). Hydro-social territories are physical and social spaces that create and are recreated by interactions between water flows, hydraulic infrastructure, social practices, socioeconomic structures, and governance institutions (Boelens et al., 2016). They seek to align people and the environment, and the ways in which people think about the environment, within a network that aims to establish a dominant governance and knowledge system (Boelens et al., 2016). The creation of hydro-social territories is predicated on people's cultural, political, and social visions of the world as it exists and their normative views of how the world should be. It is therefore crucial that an analysis of hydro-social territories is grounded in their broader socioeconomic, political, and historical context.

Political ecologists have previously applied the concept of hydro-social territory to case study research. For example, Hommes et al. (2016) engaged with the concept to argue how different actors ascribe different hydro-social imaginaries to dam development in southeast Turkey. For instance, NGOs concerned about the environmental impact of dams may feel that they represent an attempt to reconfigure the territory of the ET river basin ecologically, while Kurdish and other ethnic minority groups may feel that the dams attempt to reshape the region's symbolic and socioeconomic landscape. A political ecological examination of the political, historical, economic, and biophysical processes that created aspects of hydro-social territories such as hydraulic infrastructure and physical water flows can provide nuanced insights into how a specific hydro-social territory was produced and who created it.

Other scholars have employed a political ecology approach to explore the dynamics between water flows, access and relations of power (e.g. Boelens et al., 2016; Norman, 2012; Vos & Hinojosa, 2017). These scholars see water as part of a broader waterscape in which social power shapes and is shaped by water's physical flow and symbolic meanings (Budds & Hinojosa, 2012, p.124). As an analytical concept, waterscapes call attention to the linkages that exist between water, different actors, and the power dynamics and social relations that dictate their interactions. The emphasis is therefore on process rather than scale. The waterscape concept has been utilized in geographic settings as diverse as

Spain, Bangladesh, and South Africa to call attention to issues such as water modernization (Swyngedouw, 1999), groundwater contamination (Sultana, 2011), and urban water governance (Sutherland et al., 2015), respectively. As Budds and Hinojosa (2012) note, actors can occupy different spaces at different times. For example, environmental NGOs can operate at different levels as they work to protect water resources. Their lawyers might push back against government decisions, their technical teams might produce environmental impact assessments to push back against proposed infrastructure, and their outreach staff might liaise with local communities to gain new perspectives. By drawing attention to a range of social-ecological process that occur across multiple temporal and spatial scales, the waterscape concept calls attention to the changing scalar nature of water governance and avoids restricting analysis to conventional scalar containers. In doing so, the multi-scalar nature of water co-production, management, and governance is placed at the center of analysis.

The Multi-Scalar Nature of Hydropolitics

Water's fluid nature means that it does not recognize or adhere to the spatial delimitations of artificial, socially constructed scales. Works on water conflict and cooperation, however, tend to be constrained to the interstate level of analysis and thus ignore or overlook the multi-scalar nature of transboundary water politics. Indeed, the existing hydropolitical literature has been criticized as being overly state-centric and ignorant of complex socio-ecological dynamics at the local scale (Furlong, 2006), despite acknowledgment that the domestic and international spheres can and do influence each other. Transboundary water management is inherently multi-scalar in nature (Neumann, 2009); the technical and transboundary nature of many water-related problems invites the participation of experts, NGOs, private firms, and epistemic communities to work together across political boundaries to craft solutions. Political ecology's emphasis on how social and ecological change are produced by political and economic interactions that occur at different scales can help us move beyond what Agnew (1994) calls the 'territorial trap.' Viewing humans' relationship with water through a political ecology lens exposes the hidden power dynamics and discourses, norms, and knowledge that underpin how transboundary waters are managed (Boelens et al., 2016). Such an approach goes beyond conventional state-centric framings of transboundary water management to encompass the interrelated interactions that occur at the local, regional, national, and international scales.

The nexus between domestic and international politics has been widely considered in the broader international relations literature (Fearon, 1998; Milner, 1997; Putnam, 1998); yet, this area of study is not as developed in the hydropolitics literature. Interactions over transboundary waters take place within and

across different layers. Mollinga (2001) proposes that the study of water and politics can take place across three distinct levels – the interstate, the subnational, and the everyday[11]. The interstate level of hydropolitics refers to sets of relations between sovereign states over water resources[12]. As already discussed, most of the analysis on transboundary water resources has taken place at this scale, with much of the research examining how conflict or cooperation occur in international river basins (see Dinar, 2009; Mitchell & Zawahri, 2015; Munia et al., 2016; Schmeier, 2013; Tir & Stinnett, 2012 for examples). Mollinga's second level of hydropolitics refers to the "politics of water resources policy", which can be interpreted to comprise the political struggles that take place within the state apparatus in the formulation and implementation of water policy (2001, p.737). States are composed of different actors with different interests, all of whom exert some influence over decision-making processes (Milner, 1997). As a result of this competition, water policy is continually negotiated and contested at multiple scales. Mollinga's final level of hydropolitics encompasses the "everyday politics of water use", which refers to how water use and access shapes and is shaped by social relations of power (2001, p.737).

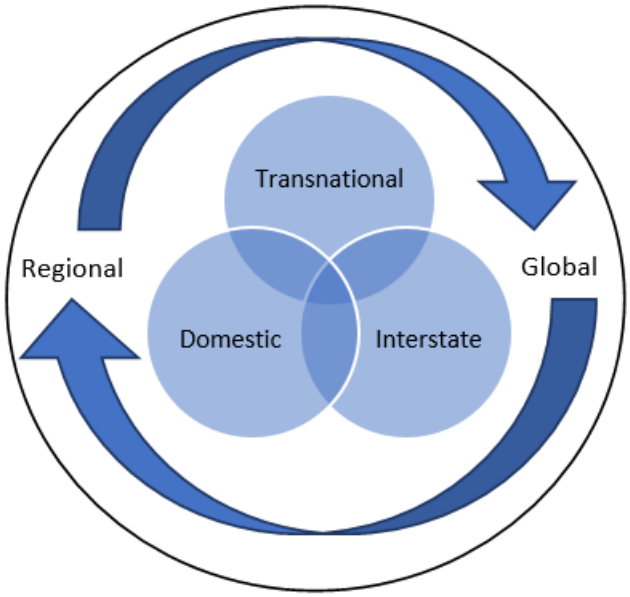
In addition to the three layers of hydropolitics identified by Mollinga (2001), I argue that a fourth layer – transnational hydropolitics – needs to be taken into consideration. Within the broader IR literature, the transnationalist perspective highlights the interconnectivity of people and institutions across the borders of nation-states (Keohane and Nye 1972; Keck and Sikkink 1998). Transnational actors include private foundations, domestic and international NGOs, and components of regional and global intergovernmental organizations. Transnational hydropolitics also needs to be taken into consideration as private sector actors and transnational advocacy networks can influence transboundary water management. The privatization of water resources represents a new flashpoint for geopolitical tension as transnational corporations and groups involved in water justice movements, such as NGO's and global citizen movements, are pitted against each other as the latter seek to advance a vision of water management that balances human and ecological needs and the former one that prioritzes water as a commodity (Davidson-Harden et al., 2007). The fluid nature of water makes hydropolitics a pertinent field for the application of transnationalism, as the technical and transboundary nature of many water-related problems invites the participation of experts, NGOs, private firms, and epistemic communities to work together across political boundaries to craft solutions (Hale 2020). As seen in Figure 4, the domestic and

[11] He also acknowledges the existence of a fourth level – global hydropolitics, which is characterized, for example, by efforts to develop international water law and by global water conferences.

[12] This layer can also refer to water relations between states within the same sovereign nation, such as those within a federal structure such as India or the United States (Mollinga, 2001). For the purposes of this dissertation, I will use interstate hydropolitics to refer only to water relations that take place between different countries.

transnational layers are connected as actors within a country interact with outsiders. Interactions between different actors can occur horizontally, vertically, and diagonally, as increasing interdependence forces actors to interact across different levels (Conker, 2014). These interactions all take place within the broader context of regional and global politics (see Figure 4).

Figure 4: Different layers of hydropolitics. Source: Author's own compilation.



In much of the literature on transboundary water conflict and cooperation (e.g. De Stefano et al., 2010; Dinar, 2000; Mitchell & Zawahri, 2015), the focus on interstate relations does not account for how domestic constituents and national and transnational non-state actors influence transboundary water arrangements. While most of the literature may perceive states as unitary actors, in fact they are not. In Turkey, for example, municipalities with representatives from the pro-Kurdish People's Democratic Party (HDP) tend to hold a much more critical view over dam construction in the country's southeast than other municipalities (Birgün, 2017). Non-state actors can also be influential players; in India and China, non-state actors held the state accountable for abiding by their own water quality policies (Zawahri & Hensengerth, 2012). The private sector represents another important sphere of influence operating within the umbrella of the state. When it comes to the privatization of infrastructure, the build-operate-transfer model can function as an invited space where private sector entities are invited by state elites to participate in decision-making and finance large infrastructure projects (Durdyev & Ismail 2017).

The state-centric perspective is also predominant in the literature on hydro-hegemony, where the state is viewed as the hegemon (e.g. Zeitoun & Warner, 2006). This conception of the state as the main actor engaged in, and contesting, basin wide management practices, is problematic for several reasons.

First, it inhibits analysis of how the state's control may be contested from both within and without the state (Warner et al., 2017). Second, it misses out on how the consequences of hegemony are also experienced by non-state actors, and that these actors may participate in contestations of hegemony (Selby, 2007). Third, the state-centric worldview emphasized by traditional hydro-hegemony theory is at odds with its supposed roots in Gramscian hegemony, which largely sought to analyze the struggles between the state and civil society (Selby, 2007). In sum, the state-centric view adopted by the literature on transboundary water conflict and cooperation can make it difficult to identify important non-state actors and leaves little room for an analysis of how transboundary governance networks can impact water relations.

Deconstructing Scale

Key concepts from human geography such as place, region and scale are fundamental to a political ecological inquiry into human-environment relations (Neumann, 2009). Of special concern in this dissertation is the concept of scale, which I interpret as referring to both the territorial demarcation of a physical landscape or a social, political, and economic entity and to the level at which processes of interest operate. Scale then has both geographical and operational connotations. A state, for instance, is delineated by territorial borders while its various governmental institutions operate within the boundaries of these borders. In human geographical tradition, scale is socially constructed and viewed as an outcome of material processes and power dynamics that reflect broader social and political relations (Marston, 2000; Neumann, 2009; Rangan & Kull, 2008). I follow theorists such as Howitt (1998) and Marston (2000) who reject scale as a given ontological category and see scale as one of the component parts of geographic totalities. Geographic and operational scale are not rigidly defined; they are configured by socio-ecological processes that influence the nature of social relations of power. As Swyngedouw (2005) observes, changes in power relations between different actors can transform scalar dynamics. Individuals, civil society movements, government and non-governmental organizations, and the private sector all interact at different scales in the pursuit of their goals. As power relations between these actors shift, the scalar configurations at which they interact may also change, as evidenced, for example, by the transformation of the anti-dam movement in southeastern Turkey from a local initiative into a multi-continental network. Indeed, the body of work on the political ecology of scale that Neumann (2009) refers to emphasizes how human and non-human actor networks can transcend single spatial scales to form new socioenvironmental spatialities (e.g. Sneddon & Fox, 2006; Swyngedouw, 2009).

Political geographers and ecologists have long debated about the relationship between scale, mobile natural resources like water, and the political constructs in their management (Brown & Purcell, 2005; Cox, 1998; Swyngedouw, 2007). An understanding of the politics of scale and the extent to which scale is socially and politically constructed can help provide a more nuanced understanding of the multifaceted nature of transboundary water governance. The politics of scale underscores how conventional spatial domains such as the 'local' and 'regional' are not fixed repositories of space in which social processes occur but are rather constructed by people to make sense of these social processes (Cox, 1998). Some scholars have argued that scale is an important analytical tool in the analysis of the social power dynamics embedded within human-environment relationships (Harris & Alatout, 2010) while others have suggested that the use of scale is problematic given its fixed, hierarchical connotations (Marston et al., 2005). Towards this end, MacKinnon (2011) suggested that replacing the term "politics of scale" with "scalar politics" would more accurately highlight that it is the processes and institutionalized practices that occur across different scales that are the objects of analysis. Within the hydropolitics literature, it is becoming increasingly recognized that attention to scalar politics is important for fleshing out the dynamics of human-water relationships (Feitelson and Fischhendler, 2009; Harris and Alatout, 2010; Sneddon and Fox, 2006). The usefulness of a scalar approach to the study of hydropolitics is also underpinned by the fact that water is managed and governed by political boundaries that are socially constructed for the purpose of restricting water to a fixed territorial scale (Norman et al., 2012).

It is ironic that one of the most interconnected and mobile resources on the planet is governed by a series of fragmented, socially constructed systems. Indeed, it is important to keep in mind that spatial scales are not fixed elements, especially when it comes to water governance. Scales such as basins and regions may be fixed constructs on maps, but in reality, they can be the result of human-environment interactions that themselves are shaped by broader relations of power. Conflict between the riparians of the Euphrates-Tigris basin over whether the two rivers form a joint system or should be considered separately highlights how even a physical unit such as a river basin can be contested, while the construction of large dams showcases how human interventions can result in the formation of new scales (Harris, 2002). In the case of large infrastructure, human-water relationships unfold at multiple scales as domestic concerns about national identity, security, and socioeconomic development mix with concerns about the dams' environmental and cultural impacts that are spearheaded by networks of domestic and international NGOs to influence the nature of the waterscape. Private investors and regional organizations may also exert influence at different scales. While each of these scales can be viewed in isolation, they

are also inextricably linked to processes, actors, and institutions that exist within and across other scales that together produce and are produced by hydro-social relations.

Power, Scale, and Hydro-Hegemony

In addition to introducing political ecology and providing nuance to the concept of scale and problematizing the state-centricity of conventional approaches to hydropolitics, this chapter also seeks to understand how the Framework of Hydro-Hegemony (FHH) may be used as an analytical tool for examining how the dynamics of transboundary water interactions play out at different levels. Developed by Zeitoun and Warner (2006) and later refined by Cascão and Zeitoun (2010), Menga (2016a), and Warner et al. (2017), hydro-hegemony as a framework seeks to shed light on the broader political context in which interactions over water take place. It also seeks to reveal the different strategies that are used to secure access to and utilization of water. Central to the FHH is the idea that power, in both its material and discursive forms, is instrumental in pursuing and contesting hegemonic agendas (Cascão, 2008; Zeitoun et al., 2011). Taken together, power and hydro-hegemony have been used to explain the coexistence of conflict and cooperation in international river basins (e.g. Mirumachi, 2015; Zeitoun & Allan, 2008; Zeitoun & Mirumachi, 2008). Instead of being neatly written off as being either conflictive or cooperative, hydropolitical interactions are often characterized by simultaneous conflict and cooperation that is shaped by broader power relations.

While the FHH was initially designed to help explain the nature of interactions between states, subsequent research has moved beyond the state-centric approach to explore how hydro-hegemony is produced and challenged by different actors at different scales (e.g. Hensengerth, 2015; Warner, 2012). The next section will flesh out the interrelated concepts of power and hydro-hegemony in three parts to include: a) further developing the concept of hegemony and its application in the hydropolitical literature, b) drawing on Lukes' (2005) three dimensions of power to outline how power is used to contest and reinforce hydro-hegemony, and c) engaging with the idea of hegemony as a layered phenomenon (Warner, 2008) and connecting power to the concept of scale via Gaventa's (2005) power cube to understand how non-state actors may be incorporated into hegemonic analysis.

Hydro-Hegemony and Counter-Hegemony

Before developing the concept of hydro-hegemony further it is first necessary to unpack the term 'hegemony' and distinguish it from similar terms, namely 'dominance.' Hydro-hegemony draws its professed roots from Antonio Gramsci's theorization of hegemony. Attempting to understand the

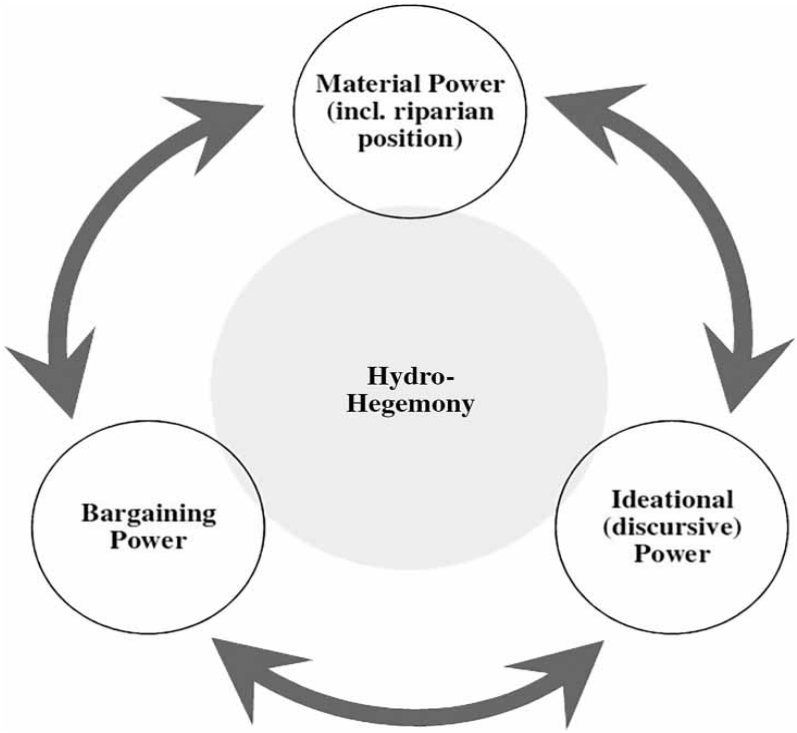
weakness of the early 20th century Italian Communist movement from his own Marxist perspective, Gramsci argued that the reason for the fragility of the state in eastern Europe lay in its reliance purely on dominance and coercion, while in western Europe, state and class power were additionally derived from consent (Gramsci, 1971). Therefore, in a Gramscian sense, hegemony is different from dominance because of the former's reliance on consent to maintain power over weaker social groups. However, for Gramsci, hegemony is still reliant upon coercion such that:

> the normal exercise of hegemony […] is characterized by a combination of force and consent, which balance each other variously, in a way that force does not stand above consent, on the contrary, force should appear as if it is sustained by the consent of the majority (Gramsci, 1975, p.1638)

As Ekers and Loftus (2008) note, hegemony is established through dual relations of consent and coercion and maintained through the reproduction of certain social relations via private institutions that normally operate outside the realm of the state. Practices of consent formation through means such as social guidance and leadership lie at the center of the concept of hegemony adopted by this dissertation. This consent can be established by, for example, the use of force, or it can be ensured through more invisible means such as through the internalization of a certain discourse. What this means in a transboundary water setting will be discussed in the following sections.

As explained by Zeitoun and Warner (2006), the FHH is meant to enable a hydropolitical analysis that avoids conventional framings of water conflict and cooperation as mutually exclusive phenomenon. Underpinning the FHH is the idea that power is central to understanding the nature of transboundary water interactions and why certain actors frame water issues in a certain way (Mirumachi, 2015). I follow Menga's (2016a) view of hydro-hegemony as "the success of a basin riparian in imposing a discourse, preserving its interests, and impeding changes to a convenient status quo," (p.411). Under Zeitoun and Warner's (2006) original conceptualization of the FHH, this success is based on three pillars which represent the origins of power asymmetries in riparian relations: riparian position, power in its different dimensions, and exploitation potential. However, given that an argument can be made for the inclusion of both riparian position and exploitation potential under the broad umbrella of power, I adhere more closely to Menga's (2016a) circle of hydro-hegemony that privileges the centrality and interconnectedness of power and its different dimensions in hydro-hegemonic analysis (Figure 5). Furthermore, this schematic of hydro-hegemony adheres more closely to Gramsci's (1975) vision of the different aspects of power as being connective in promoting hegemony.

Figure 5: The circle of hydro-hegemony. Source: Menga, 2016b



Central to the theory of hydro-hegemony are two ideas drawn from political ecology: power and discourse are instrumental in pursuing and contesting hegemonic agendas and natural resource management must be viewed in the broader political, historical, and economic context. The role of power in determining hydropolitical outcomes and hydro-hegemonic arrangements has been the subject of numerous analyses (e.g. Daoudy, 2009; Lowi, 1993; Zeitoun & Warner, 2006; Zeitoun & Mirumachi, 2008). In hydro-hegemony theory, the more powerful actor, both in terms of hard power (i.e. military capability) and soft power (i.e. the ability to use noncoercive means to further its interests), will maintain the upper hand in dictating how shared waters are governed, subordinating weaker riparians. Crucial to hydro-hegemony theory and political ecology is the role that discourse and constructed knowledge play in propagating certain waterscapes or hydro-social territories. Ideational power refers to a state's ability to shape discourse (Zeitoun & Warner, 2006) and is realized through processes of knowledge construction and securitization. This dimension of power is often used by hydro-hegemons to conceal unfavorable aspects of water relations while highlighting more positive aspects. For example, the Turkish government continues to frame the GAP as a sustainable human development project that will yield positive benefits on southeast Anatolia's political, socioeconomic, and physical landscapes (Bilgen, 2018b). Other actors

such as antidam activists portray the dams as existential threats to the environment and have used this portrayal to acquire widespread support at home and abroad (Conker, 2014). The hydro-social territory created by a hydro-hegemon can therefore be contested through means such as processes of knowledge production undertaken by other groups. The following section will turn to a discussion of the strategies of control and contest used by hydro-hegemons and weaker actors.

Strategies of Control and Consent

Hegemonic orders are continuously reproduced through control and consent producing mechanisms (Zeitoun et al., 2017). However, conventional hegemonic analysis is rooted in realist approaches to international relations and tends to overlook how and why consent is established in favor of focusing on mechanisms of control. This is an important oversight because hegemonic analysis needs to both illustrate how control is established and how it is maintained through the acceptance and consent of others (Warner & Zawahri, 2012). The establishment of control and securement of consent are premised on the use of different forms of power, especially through the use of soft power to influence the types of issues that are up for negotiation and how people think about these issues (Lukes, 2005; Nye, 2004). The following section develops a typology of the different strategies through which hydro-hegemons can achieve and maintain control and consent.

Hydro-hegemons can secure their control of water resources through three strategies Zeitoun and Warner (2006) identify as resource capture, containment, and integration. These strategies are exercised through a variety of compliance-producing mechanisms described in Table 8 and explained below:

Table 8: Compliance-producing mechanisms in transboundary water management (adapted from Zeitoun & Warner, 2006)

Type of compliance-producing mechanism	**Tactic**	**Description**	**Example**
Coercive	Military force	Military action that alters the reality over the competition or access to water	Israeli attack on Arab Headwater Diversion project in Syria in the 1960's (Wolf, 1995)

	Covert action	Undercover strategies that weaken the military, political, or hydraulic infrastructure of a competitor	Syrian support of PKK attacks on Turkish dam construction related to the Southeastern Anatolian Project throughout the 1980's and 1990's (MacQuarrie, 2004)
Utilitarian	Incentives	Tools used to incentivize other states to comply with a preferred status quo	Ad hoc water releases by Turkey to Iraq (Mohammed, 2009)
Normative	Treaties	Institutionalizes the status quo to provide the stronger side with leverage	The 1994 peace treaty between Israel and Jordan
Hegemonic	Securitization	Enables policy makers to create knowledge around a water-related issue so that it aligns with other political interests	Israeli threats to attack Lebanese diversion project on a tributary to the Jordan river in 2002 (Zeitoun et al., 2012)
	Knowledge construction	Holistic understanding of an issue is guided by both popular beliefs and scientific fact; knowledge is "constructed" to suit the interests of a particular party	Turkish discourse surrounding the Southeastern Anatolian Project, particularly construction of the Ilisu Dam (Warner, 2012)
	Sanctioned discourse	Conceals unfavorable dimensions of water relations	Israeli discourse regarding the JWC between Israel and the

		and emphasizes favorable aspects	Palestinian Authority (Selby, 2013)

Resource capture is when resource distribution is shifted in favor of a more powerful group (Homer-Dixon, 1994). The construction of large dams and other hydraulic infrastructure, annexation of land with favorable water resources, and development of extensive water distribution networks all act to increase a hydro-hegemon's access to and control over water. In instances where such blatant resource capture may not be possible of the most efficient course of action due to factors such as customary international law, stronger states may opt to pursue a strategy of containment. A containment strategy attempts to secure compliance from other actors using normative compliance-producing mechanisms such as treaties. Treaties can be effective tools for promoting hydro-hegemonic arrangements because they are not easily enforceable and because their content can reflect existing inequalities.[13] The deployment of hegemonic compliance-producing mechanisms, such as the securitization of water or dissemination of sanctioned discourse, can also promote a hydro-hegemon's strategy of containment (Zeitoun & Warner, 2006). For example, the promotion of a sanctioned discourse, which is endorsed by the more powerful actor and supports their "definition of reality," can hide unfavorable elements of hydropolitical relations while emphasizing positive aspects such as technical cooperation (Hajer, 1997, p.59).[14] The final way in which hydro-hegemons seek to consolidate their control over water is through a strategy of integration, using incentives such as trade and framing water projects as mutually beneficial to secure compliance (Zeitoun & Warner, 2006).

As seen in Table 8, hegemonic actors have a large arsenal of compliance-inducing tools at their disposal. It is important to note that these mechanisms do not exist in and of themselves; they are underpinned by factors such as international support, financial capacity, and geographical position (Zeitoun & Warner, 2006). Actors that enjoy large amounts of political and financial support in the international sphere typically have a favorable political position that translates into a favorable position when it comes to accessing water. On the other hand, actors that are reliant on external donor money for funding water-related projects are likely to be constrained from development due to donor-imposed regulations. Riparians that finance their hydraulic development projects with internal funding sources,

[13] For example, the Israel-Jordan peace treaty, which contains several water-related provisions, has often been cited as institutionalizing unresolved water issues between Israel and Jordan in favor of Israel (Fischhendler, 2004; Talozi et al., 2019; Zeitoun, 2008).

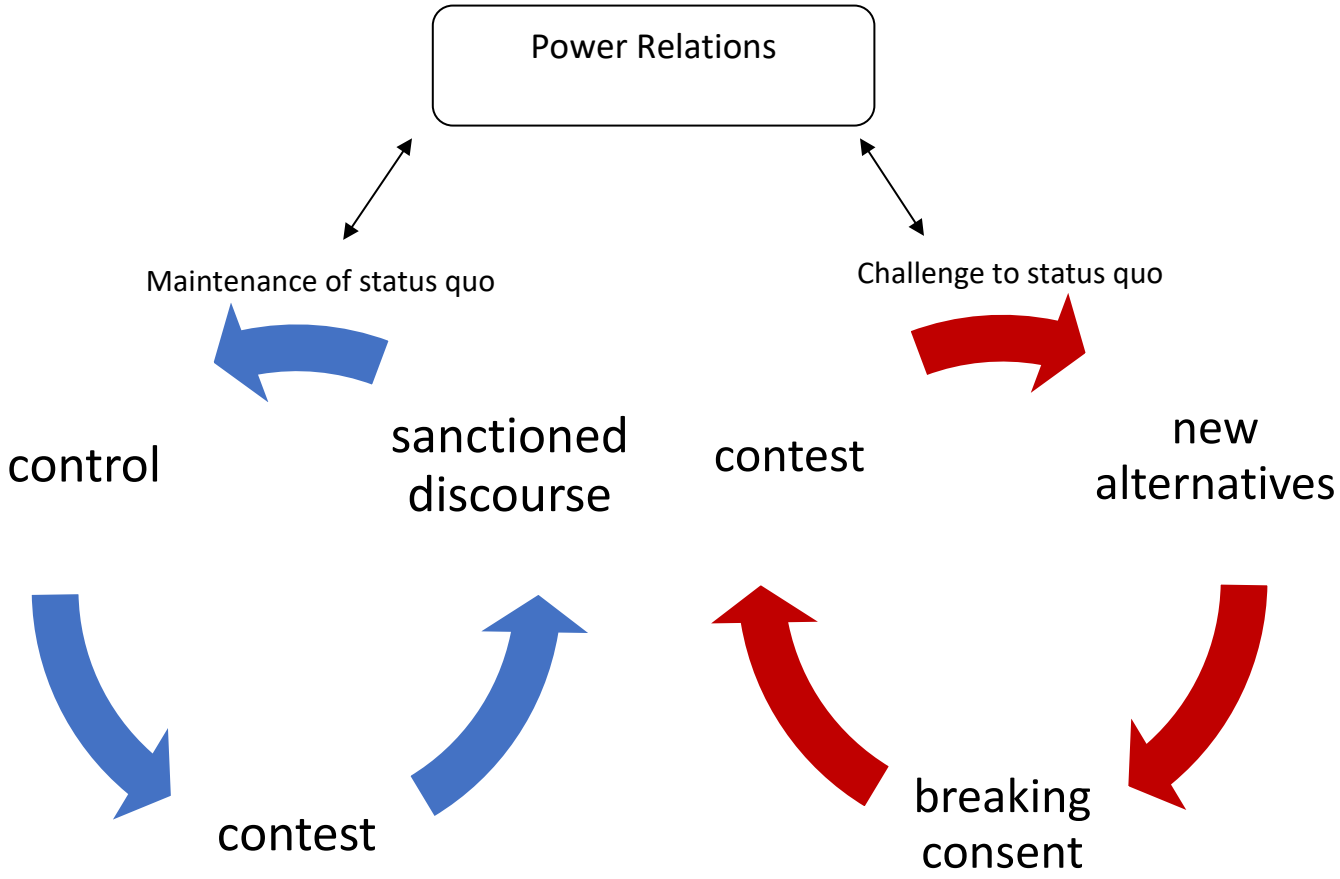
[14] A commonly cited example of this is the Israeli discourse that hails cooperation with the Palestinians through the Joint Water Committee (Selby, 2003, 2013).

such as Turkey, are in a better position to advance unilateral projects and policies. Finally, a favorable geographical position relative to the river's headwaters provides riparians with the opportunity to essentially "control the tap" absent any downstream resistance (Hayat et al., 2022).

Counter-Hegemony

Hydro-hegemony is not incontestable. Non-hegemonic actors may use different tactics to challenge the hegemonic status quo, contest hegemonic legitimacy, and create alternatives to the hegemonic arrangement (Cascão, 2008; Daoudy, 2009). Indeed, some of the same tactics discussed in Table 8 as promoting hydro-hegemony can also be used to contest it. For instance, anti-dam activists in Turkey challenged the sanctioned peace and development discourse put forward by the Turkish government by promoting an alternative discourse framing dams as human rights issues and existential threats to the environment (Warner, 2008). Issue linkage, calling on international law, and incentives may be used to reduce the hegemon's room for maneuvering. In the Rhine river basin, upstream France and Germany were provided with compensation from the downstream Netherlands for reducing their chloride pollution (Dieperink, 2011). Within the Jordan basin, Palestinian negotiators held multilateral negotiations hostage to political issues by threatening to boycott talks during the Oslo peace process if Israel did not include recognition of Palestinian water rights in any future agreement (Sosland, 2007). As seen in Figure 6, counter-hegemony (red) is premised on both the contestation of the status quo and on the development of alternatives that promote shared control of water resources. As the next section will discuss, both hegemony and counter-hegemony are underpinned by power dynamics that shape the nature of interactions between actors.

Figure 6: Visualization of hegemony and counter-hegemony. Source: Author's own compilation.



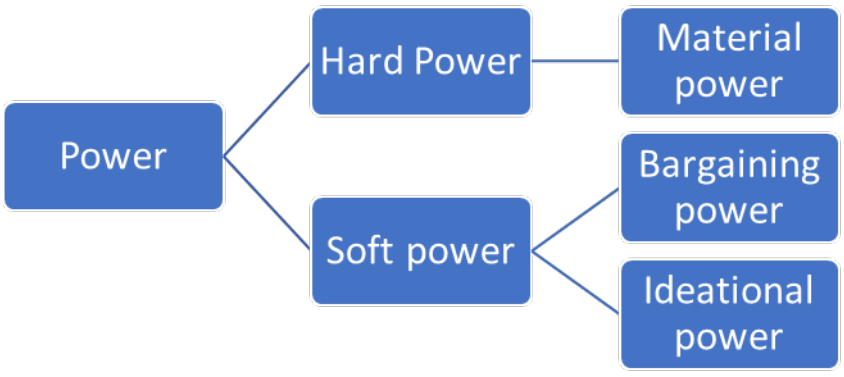
Power

Throughout my discussion of hegemony and counter-hegemony, I have emphasized the centrality of power in determining hydro-hegemonic outcomes. It is therefore useful to unpack the concept of power and its different dimensions to understand how its asymmetric distribution shapes and is shaped by hydro-hegemonic arrangements. Classical theorists in the social sciences such as Hobbes (1995), Weber (1947), and Waltz (1986) have attempted to variously define power as the ability of one actor to enact their will in a social relationship despite the opposition of others. Perhaps most useful for illustrating how power shapes and is reproduced by hydro-hegemony is Robert Dahl's (1957) definition of power as the ability of A "to get B to do something that B would not otherwise do," (p.203). Traditional theorizations of power conceptualize it as having two faces, one which is related to Dahl's view of power as visible in decision-making processes, and the other which is less directly observable and found in the ability to

obscure conflicts from being brought up in the public eye (Bacharach & Baratz, 1962). Unsatisfied that all forms of power can be observable, Lukes (1974, 2005) takes this theorization of power one step further by adding a third dimension of power that encompasses hidden forms of power that influence the preferences and perceptions of others. For Lukes, the first dimension of power corresponds to Dahl's view of power as the capacity of one actor to do something against their will (see Figure 7). Lukes' second dimension of power corresponds to Bacharach and Baratz's (1962) definition of power as the ability to control what issues are put on the negotiation table and how they are aired to the public eye. The novel contribution of Lukes' theorization of power lies in his description of a third dimension of ideational power that is exercised through controlling the thoughts and desire of others (Menga, 2016a). This last dimension of power reflects the Gramscian view of hegemony in its explanation of how the powerful secure the compliance and consent of others.

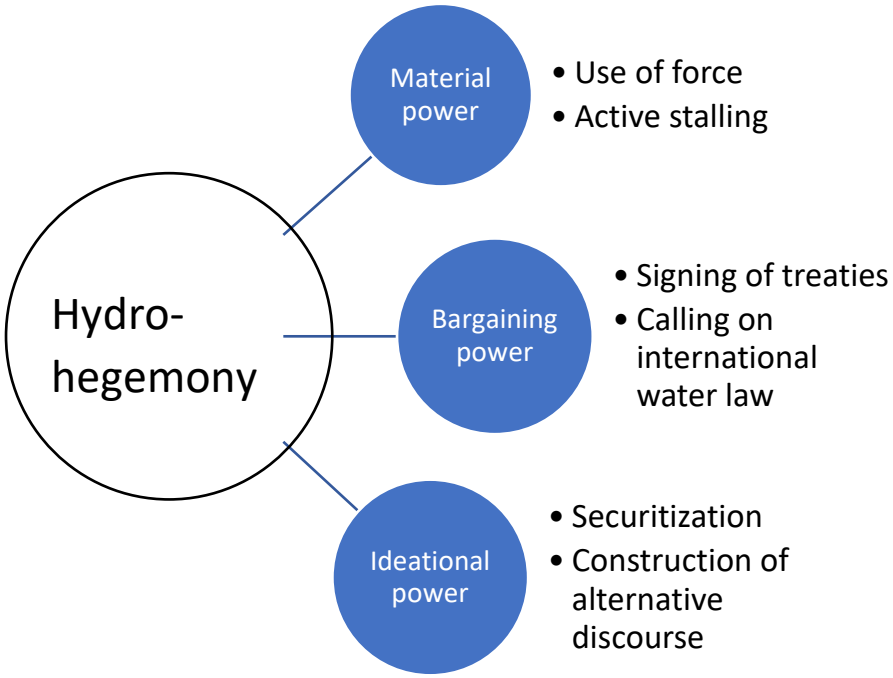
Power is typically thought of in terms of guns, tanks, and money. The country with the largest army or the most money is likely going to be the last one to back down. Indeed, a country's military and financial resources, along with its ability to access knowledge and mobilize political support, constitute a fundamental pillar of power (Zeitoun & Warner, 2006). This type of power is often referred to as 'hard' or 'material' power because of its visible nature (Zeitoun & Allan, 2008). Lukes' (2005) second and third dimensions of power are both concerned with more immaterial forms of power referred to as "soft" power (see Figure 4). Soft power is often exercised through more hidden or subtle means and is found in the ways in which actors frame and reframe problems and attempt to influence other actors' perceptions of the problem and each other (Zeitoun et al., 2010). At its most effective, the exercise of soft power succeeds in "getting others to want what you want," (Nye, 1990, p.131).

Figure 7: Lukes' dimensions of power. Adapted from: Lukes (2005).



In Lukes' second dimension of power, actors set the rules of the game through the use of bargaining power. The third dimension of power, ideational power, refers to a state's ability to shape discourse (Zeitoun & Warner, 2006), and is realized through discourse and processes of knowledge construction. As Foucault (1980) noted, the interactions between power, discourse, and knowledge shape our constructed understandings of the world and dictate what is perceived as the "truth". This dimension of power is often used to conceal unfavorable aspects of social relations, such as the inequitable distribution of resources, while highlighting more positive aspects. With ideational power, the status quo becomes so normalized that it is rarely challenged, even though it is clearly unequitable (Zeitoun & Allan, 2008). Thinking of power in a three-dimensional manner highlights its linkages with Gramsci's definition of hegemony as being premised on both force and consent. We can also link the different dimensions of power to the various strategies used to establish and contest hegemony to illustrate the importance of power in determining hydro-hegemonic configuration (Figure 8).

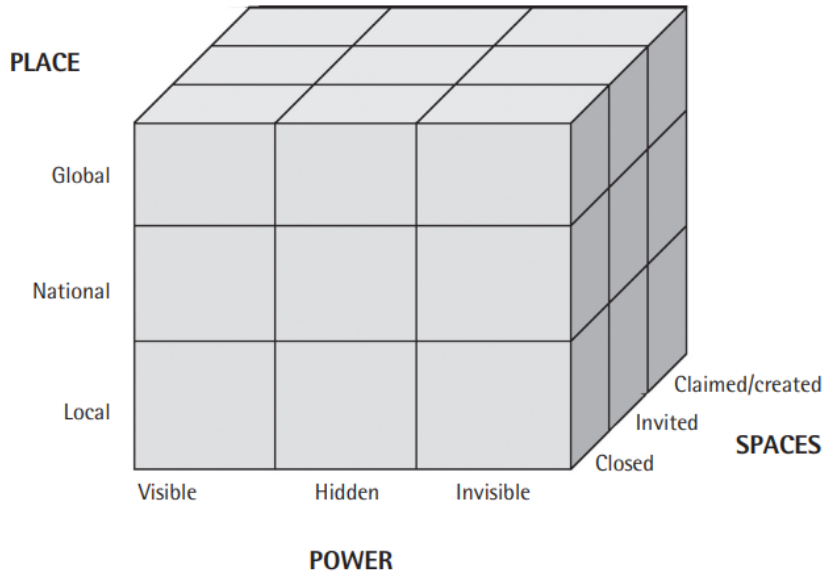
Figure 8: Linking power to hegemonic and counter-hegemonic actions. Source: Author's own compilation.



Linking Power to Scale

To identify possibilities for transformative change, analysts must understand how power is related to the establishment of spaces of engagement and how different types of power are unevenly distributed across scales (Gaventa, 2005). Power arrangements are not fixed and change over time as social, political, and economic relations fluctuate. Indeed, changes in power configurations can result in changes to scalar dynamics, and vice-versa (Swyngedouw, 2005). Gaventa's (2005) power cube is a useful tool for understanding the relationship between scale and Lukes' three dimensions of power. The power cube links power to spaces through which people can exert power to influence policies and discourses. These spaces are socially constructed and both shape and are shaped by power relations. Such spaces can be closed to all but an elite group of decision makers, inclusive to certain non-elites by invitation, or claimed by less powerful actors (Gaventa, 2005). The power cube also links power to places (e.g. global, national, and local places) where different types of power reside and decision making occurs.

Figure 9: Gaventa's (2005) power cube.



Space, the first element of Gaventa's (2005) power cube, refers to channels, moments, and opportunities for citizens to wield influence over the discourses and policies that affect their lives (see Conker, 2014 also). Power relations shape the nature of these participatory spaces, dictating who may enter with which identities, discourses, and interests. As such, spaces of engagement are relational and are not ontologically given but are socially constructed. Gaventa identifies three categories of space that

are distinguished by the types of actors that participate in them: closed spaces, invited spaces, and claimed/created spaces. Closed spaces are only available to a certain group of decision-makers, usually the elite. They are often the focus of civil society efforts that aim to increase transparency, participation, and accountability in decision-making. As closed spaces transition into more open arenas of engagement, new spaces may be created in which different actors are invited to participate by governmental authorities, NGO's, and supranational agencies. Gaventa's (2005) final category of space is claimed or created by less powerful actors against those with more power. They may emerge out of social movements around concerns of a common interest or may be spaces where actors organically gather to engage with certain issues outside of institutionalized space.

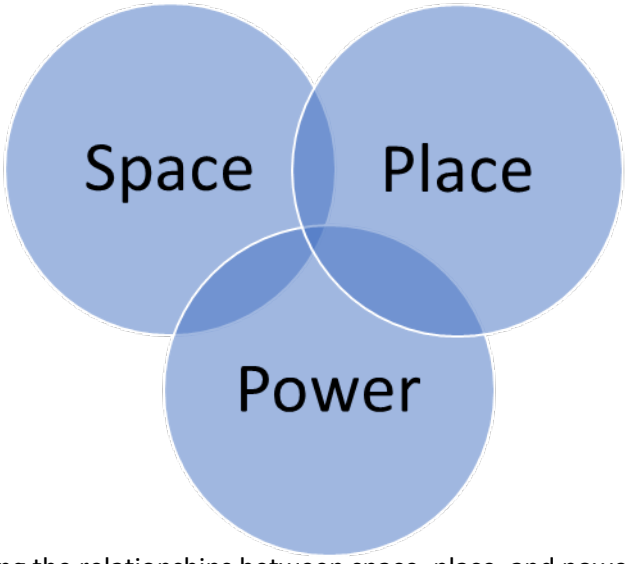
Gaventa's (2005) conception of place corresponds broadly to conventional spatial hierarchies ranging from the local to the global. Similar to space, place is a socially constructed and dynamic construct, fluctuating in tandem with social, economic, and political power relations. It is important to think of place not as a rigid hierarchy of places for engagement but rather as a flexible continuum of potential arenas of engagement that differ according to the broader context and actors involved. For example, Budds and Hinojosa (2012) describe how Peruvian mining companies operate within and across multiple spaces and places as their lawyers work at the national level to negotiate water rights while their community relations teams work with individual villages. This idea that one actor may operate within multiple scales at once or that a local actor can "jump scale" and engage in a global arena highlights how Gaventa's dimension of place should not be viewed as composed of discrete hierarchical platforms but rather as fluid and politically contested arenas of action that are defined only in relation to one another (Moore, 2008).

Gaventa's approach to power builds on Lukes' portrayal of the three dimensions of power that have been discussed elsewhere in this chapter. However, Gaventa opts to distinguish different types of power based on its visibility in decision-making spaces. Following VeneKlasen and Miller (2002), power is identified as being visible, hidden, or invisible depending on the degree of visibility of the conflict and voices of different actors involved. Visible, hidden, and invisible power correspond roughly with Lukes' (2005) material, bargaining, and ideational power, respectively. Just as power shapes the nature of spaces and places of engagement so is the visibility of power influenced by the nature of space or place. Visible power may be wielded by actors in closed spaces where decisions are made and the policy agenda set while the local, national, and global agenda opens and closes other types of space.

As suggested by Gaventa's depiction of space, place, and power on a three-dimensional cube, each of these elements may intersect in a myriad of different combinations to inform possibilities for

participation. I argue, however, that these relationships are better depicted as an interconnected set of rings (see Figure 10).

Figure 10: Gaventa's power cube reconceptualized. Source: Author's own compilation.



The danger of presenting the relationships between space, place, and power as a cube is that there is a risk of thinking of each side of the cube as a fixed set of boxes. Visualizing the relationships between power, space, and place as a set of interconnected rings emphasizes the interrelated nature of each of these domains. For example, actors may create new spaces of engagement by gaining or losing certain types of power, while new spaces may be opened or closed by changes in the place at which power is utilized. These dynamics are constantly playing out in interactions over transboundary water resources. Interactions between elite decision makers or members of civil society establish different spaces while these interactions themselves occur within and across different places. Hydropolitics is therefore very much a multi-scalar phenomenon.

Incorporating Non-State Actors into the Framework of Hydro-Hegemony

We have seen that power and hydro-hegemony involve different sets of actors who operate across interrelated scales. Why then has the majority of hydro-hegemonic analysis privileged the role of the state in perpetuating these interactions? Non-state actors operating at the domestic and transnational scales may employ different power strategies to contest hegemonic behavior and create new spaces of hydropolitical engagement that themselves reconfigure power relations. Additionally, the concept of hydro-hegemony has overlooked the increasingly fuzzy boundary between state and non-state actors. As Suhardiman and Giordano (2012) note, the same actor can belong to both sectors. The Islamic State of Iraq and the Levant (ISIS), for instance, is an example. Seeking to develop their own state under an Islamic

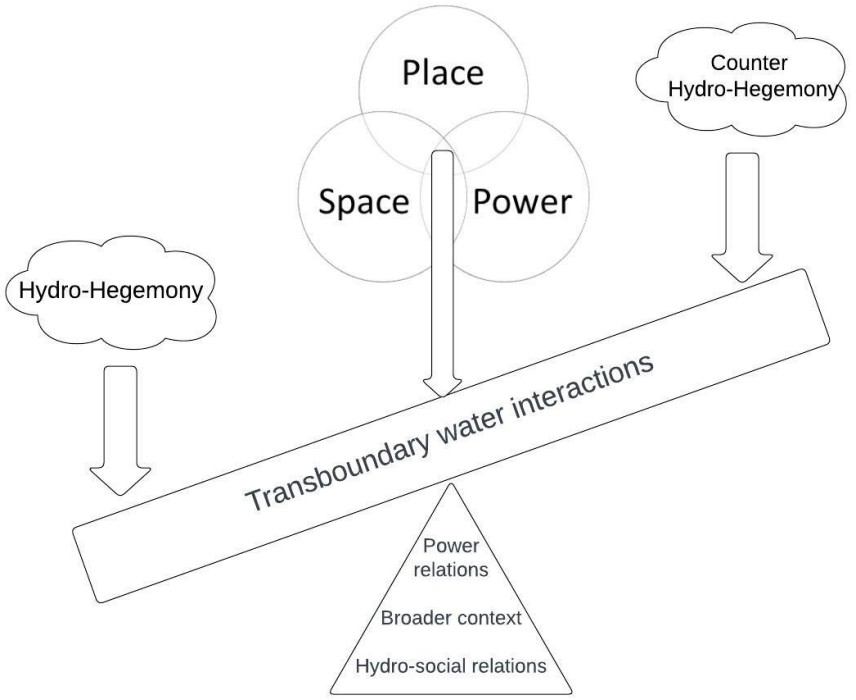
Caliphate, ISIS is a non-state actor who has taken the role of a state actor at various instances during their engagement in Iraq and Syria. The capture of key cities and hydraulic infrastructure, such as the Mosul Dam, enabled ISIS to control water supplies, levy taxes, distribute key food products such as subsidized bread, and occupy roles traditionally associated with states (Daoudy 2020). Through its weaponization of water, however, ISIS pursued conflicting objectives (von Lossow, 2016a). Persistent threats to flood or dry out agricultural land in opposition areas indicated that ISIS was committed to pursuing its goals through carrying out acts of terror. However, any disruptions in water and electricity supply also impacted ISIS supporters living among the broader civilian population. Furthermore, every interference in water infrastructure and supply caused by ISIS undermined the legitimacy that the organization sought. Its bid for statehood was undermined by its reliance on violence to maintain authority, yet in the absence of the state, ISIS had provided vital public services. The distinction between who is a state actor and who is a non-state actor is therefore not as clear as it might have once been.

Hegemony as a state-centric concept is counter-intuitive because hegemons have to interact with actors across different scales and defend their interests across different scales (Warner & Zawahri, 2012). Furthermore, as Warner (2008) points out, hegemony itself is enacted and contested across different domains. In the hydropolitical literature, hegemony is typically depicted as a phenomenon that occurs at the level of the international river basin. However, hegemony can play out at the national, regional, and even global levels as actors seek to present their interests as the general interest (Warner, 2008). To this end, power dynamics are constantly unfolding between actors who occupy different spaces and places. Even when power asymmetry exists, non-state actors such as NGOs, private sector entities, and networks of experts can influence transboundary water management outcomes (Warner & Zawahri, 2012). These actors exert influence by utilizing the power available to them to support or contest arrangements imposed by 'hegemonic' actors. For example, non-state actors may lobby government officials, enter into alliances with prominent international allies, catalyze public protests, leak reports to the media, and take legal action against their opponents (Warner, 2008; Zawahri & Hensengerth, 2012). These interactions can be conceptualized as occurring on multi-level chessboards as actors operating locally, nationally, and transnationally engage with one another.

Conclusion

This chapter developed a theoretical framework rooted in a critical ontology that draws on political ecology to inform a multi-scalar analysis of hydro-hegemonic arrangements (Figure 11).

Figure 11. Theoretical framework underpinning this dissertation. Source: Author's own compilation.



A political ecological approach to analyzing transboundary water interactions reveals that they are part of a broader waterscape constructed by the mutual interactions between water's material flows, its constructed meanings, and power relations between different water users. Interactions themselves are underpinned by power relations, the broader context, and hydro-social relations and are formed at the nexus of space, place, and power. Hydro-hegemonic and counter-hegemonic actions can change the "balance" of interactions by tipping the scale in favor of one riparian over another.

In a transboundary water context, employing a political ecological approach can be useful for two reasons. First, political ecology emphasizes the importance of looking at the broader historical, economic, and political context of human-environment relationships (Conker, 2014). Second, water's fluid nature means that it does not recognize or adhere to the spatial delimitations of artificial, socially constructed scales. Political ecology's emphasis on how social and ecological change are produced by political and economic interactions that occur at the local, national, and international scales can help us move beyond what Agnew (1994) calls the 'territorial trap.' Conventional hydro-hegemonic analysis often privileges the

state as the central unit of analysis, rejecting the socially constructed nature of scale and denying non-state, domestic, and transnational actors' agency in transboundary water interactions. As discussed in this chapter, hegemonic arrangements are contested by a variety of actors who operate within and across different spaces of engagement, which themselves are shaped by power relations between actors. Reconceptualizing Gaventa's (2005) power cube as a set of interlocking rings helps to better illustrate the interrelated nature of space, place, and power. Introducing the concept of space into hydropolitical analysis highlights the multi-scalar nature of hydropolitics, as closed, invited, and created spaces can be identified at different scales, or places. It is within these spaces that hydro-hegemonic arrangements are perpetuated and contested. Such an approach goes beyond conventional state-centric framings of transboundary water management to encompass the interrelated interactions that occur at the local, regional, national, and international scales.

Chapter 3: Hydrography and Hydropolitics of the Jordan River Basin

The purpose of this chapter is to provide background information on the Jordan River basin, one of the empirical case studies that will be analyzed in subsequent chapters. A brief examination of basin hydrography and water use is necessary for the development of an informed understanding of the dynamics of water conflict and cooperation in any river basin. Water scarcity is a significant problem in the Jordan basin, where water scarcity stems from natural and "politically-induced" causes (Messerschmid, 2014, p.53) and is framed as both a scientific fact and a socially constructed reality. As this dissertation has repeatedly emphasized, transboundary water interactions do not take place in a political vacuum; they are very much influenced by and influential on the broader political, cultural, and socioeconomic context. Therefore, this chapter will also provide background information on the hydropolitics of the Jordan basin. It is important to note that the intention of this chapter is not to provide a holistic overview of the basin's hydrographical and hydropolitical history[15], but rather is to provide context to the analysis that will be provided in later chapters.

To accomplish these two goals, this chapter will be divided into main sections. In the first, an overview of the hydrography and water use in the Jordan basin will be presented. While an attempt will be made to provide a comprehensive overview of the whole basin, special attention will be paid to Jordan, Israel, and the Palestinian Territories, where the surface and groundwaters of the basin are a primary, and sometimes the only, water source. The two upstream countries, Syria and Lebanon, have historically utilized much smaller shares of Jordan river water and are primarily reliant on other basins. This overview will be followed by an examination of the main hydropolitical developments and key events within the basin.

Hydrography of the Jordan River Basin

At only 360km from its headwaters in northern Israel and the Golan Heights to its terminus at the Dead Sea, the Jordan river is eclipsed in size by its mighty neighbors like the Nile, the Tigris, and Euphrates. However, what the Jordan lacks in size it makes up for in other ways. The river has significant spiritual importance for believers of all three of the major monotheistic faiths; aside from being the site where Jesus was baptized, several of the Prophet Mohammad's Companions were buried on the river's

[15] For an in-depth overview of these subjects, refer to foundational works such as Lowi (1993), Sosland (2007), and Wolf (1995).

East Bank and the river is considered a symbol of miracles and freedom in Judaism. The Jordan River watershed (Figure 12) drains an area of 18,500km^2 in Lebanon, Syria, Israel, Jordan, and the West Bank. Most of the basin lies within Jordan (40%) and Israel (37%) with Syria, the West Bank, and Lebanon hosting 10%, 9%, and 4%, respectively (FAO, 2009a). The main, naturally occurring sources of freshwater in the basin originate as surface water in the Jordan and its largest tributary, the Yarmouk, and as groundwater in a series of aquifers that underlie the West Bank. The common perception that the Jordan basin is extremely arid is not quite true. While the average precipitation in the basin is 340mm/year, the Upper Jordan basin north of the Sea of Galilee[16] has a more humid climate and receives up to 1400mm/year while the southern end of the basin receives only an average of 100mm/year (FAO, 2009a). Like precipitation, annual per capita water availability and water use vary widely in the basin. Estimates of annual per capita water availability for each riparian in the basin are as follows: Lebanon 1000mcm/year, Syria 800mcm/year, Jordan 200mcm/year, Israel 240mcm/year, Palestine 70mcm/year (Shuval, 2007). For the sake of clarity, the following section separately discusses the hydrography and use of the basin's surface and groundwaters, with attention also given to the Dead Sea.

Figure 12: Jordan River Basin.

Surface Water Hydrography and Utilization in the Jordan River Basin

Researchers tend to artificially divide the Jordan river basin into an upper and a lower basin, with the Sea of Galilee separating the two. The upper Jordan basin includes the headwaters of the Jordan river, the mainstem of the river until it drains into the Sea of Galilee, and the Yarmouk, the largest tributary to the Jordan, while the lower Jordan basin refers to that portion of the river and its catchment areas south of the Sea of Galilee. Estimates of surface water use from the Jordan river by each riparian are as follows: Lebanon 5mcm, Syria 160mcm, Israel 800mcm, Jordan 235mcm, and Palestine 0mcm (PWA, 2013). Three springs that reach a confluence just inside the borders of Israel proper make up the headwaters of the Jordan: the Hasbani which rises in Lebanon with an average flow

[16] Other commonly used names for the Sea of Galilee are Lake Tiberias, after the Israeli city on its western shore, and its name in Hebrew, the Kinneret.

of 123mcm/year, the Dan/Liddani that originates in Israel and is the largest headwater spring with an average flow of 240mcm/year, and the Banias in the Golan Heights with an average flow of 125mcm/year (Wolf, 1995; Zeitoun et al., 2012). The discharge of all three headwater streams originate from karstic groundwater springs that are fed by an aquifer system on the eastern side of Mount Hermon/Jebel al-Sheikh. Notably, the groundwater catchments feeding the headwater streams are all at least partially in Lebanon, with the Wazzani Springs that feed the Hasbani located entirely in Lebanon (Amery & Wolf). After seizing the Golan Heights from Syria during the 1967 war, Israel gained control over two of the three headwater springs of the Jordan, and even acquired temporary control over the Hasbani between 1978-2000 during its occupation of southern Lebanon.

The river's annual flow at its confluence with the Sea of Galilee is estimated to be 616mcm, at which point evaporation, local consumption, and diversion to Israel's National Water Carrier greatly reduce the flow at its exit point from the lake. Five kilometers south of the Sea of Galilee the Jordan is joined by the Yarmouk river, which is fed by sources in Jordan and Syria and forms about 40 kilometers of the Syrian-Jordanian border. Prior to joining the Jordan river, the Yarmouk also runs along the Israeli-Jordanian border for a few kilometers. The natural annual flow of the Yarmouk is estimated to be between 450-500mcm, but this flow has been greatly reduced to between 83-99mcm by upstream diversions, mostly in Syria (Hussein, 2017; UN-ESCWA & BGR, 2013).

Since 1967, Israel has been the main user of the Upper Jordan river.[17] Israeli abstraction from the Upper Jordan is estimated to be between 520-640mcm annually[18], constituting between 25%-33% of the country's total average freshwater consumption (Israel Water Authority, 2012; Zeitoun et al., 2012). Out of basin transfers from the Sea of Galilee to Israel's Coastal Plain and Negev account for one-third of all Israeli freshwater consumption. Water transferred out of the basin is destined for domestic use, industrial agriculture for production of export crops, and is sold to Palestinians (Zeitoun et al., 2012). Official Israeli data for the period 1969-2007 show that transfer out of the basin via the National Water Carrier amounted to an average of 329mcm annually (UN-ESCWA & BGR, 2013), while Palestinian sources put this number at 420mcm/year (Aliwei & Assaf, 2007).

[17] Lebanese extraction from Jordan river headwaters is negligible, with an estimated 7mcm-11mcm abstracted from the Hasbani sub-basin annually, including a maximum of 2.45mcm from the Wazzani Springs (Comair, 2009; Zeitoun et al., 2012).

[18] Reliable data on water abstraction in the region is extremely hard to come by, as often this data is not public and the accuracy of available figures is questionable. When possible, I have triangulated data from different studies produced by authors of different backgrounds to provide an estimated range of abstraction rather than a single number.

Syria has not had access to the flows of the Upper Jordan river since the Israeli occupation of the Golan Heights in 1967. However, it is a primary user of the Yarmouk river. Although data on Syrian abstraction from the Yarmouk is hard to come by, a recent report from the University of East Anglia estimated combined Syrian abstraction of surface and groundwater to be 335mcm/year, with 165mcm of this coming from surface water stored behind dams (UEA, 2019). This figures roughly matches that stated in an earlier report by UN-ESCWA and BGR (2013). Jordan uses approximately 100mcm annually from the Yarmouk[19], with surface water diverted by the Adassiyeh Weir into the King Abdullah Canal that runs parallel to the east bank of the Jordan river (Zeitoun et al., 2019a). Israeli use of the Yarmouk is estimated at 65mcm annually, with most of this water siphoned directly from the river at the Yarmoukim Reservoir (Zeitoun et al., 2019a). Allocations from the Yarmouk river to Jordan and Israel are also provided in the 1994 peace treaty between the two countries. Table 9 lists these allocations, which differ during the winter and summer periods.

Table 9: Israeli and Jordanian water allocations from the Yarmouk River (Treaty of Peace between the State of Israel and the Hashemite Kingdom of Jordan, 1994)

	Summer Period Allocations (May 15th – October 15th)	**Winter Period Allocations (October 16th – May 14th)**
Israel	12 mcm	13 mcm + extra 20mcm in exchange for transferring Jordan 20mcm from the Jordan river in the summer months
Jordan	Remainder of flow (+20mcm extra from Israel sourced from the Sea of Galilee)	Remainder of flow

The Jordan river that emerges from the Sea of Galilee and flows to the Dead Sea is profoundly altered from the upper portion. Human diversions, intrusions of untreated wastewater, and a naturally drier climate gradually reduce the quantity and quality of lower Jordan water until it discharges between

[19]Data compiled by UN-ESCWA and BGR (2013) indicate that Jordan only diverted 30mcm to the King Abdullah Canal between 2002-2011.

a mere 20-200mcm of heavily polluted water annually into the Dead Sea (Al-Weshah, 2000; Shavit et al., 2002). Figures 13-15 below show how the river changes as it flows downstream.

Figure 13: Upper Jordan River. Source: Taken by author.

Figure 14: Lower Jordan River near Gesher, Israel. Source: Taken by author.

s

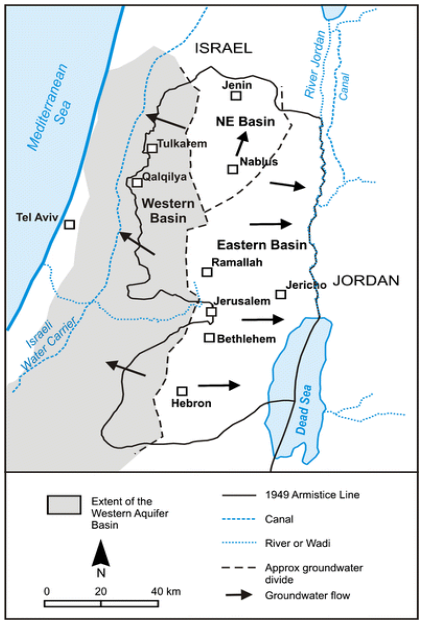
Figure 15: Lower Jordan River at Qasr al-Yahud, West Bank. Source: Taken by author.

After being joined by the Yarmouk just south of the Sea of Galilee, the lower Jordan flows steadily southward for about 100km, forming the border first between Israel and Jordan and then the border between the West Bank and Jordan. The Palestinian part of the Jordan river basin is either a designated closed military zone or within Area C of the West Bank, which is under Israeli administration and security control. As a result, Palestinians living in the West Bank have been denied access to the lower Jordan since 1967, despite historically pumping about 30mcm/year from the river prior to 1967 (Shuval, 2007). Therefore, Palestinians are entirely dependent on groundwater underlying the West Bank and deliveries from Israel.

Israeli and Jordanian use of the Jordan river is primarily dictated by the terms in the 1994 peace agreement, which specifies that Jordan is entitled to 20mcm of water upstream of the Degania Gates (Sea of Galilee) in exchange for allowing Israel to pump an extra 20mcm from the Yarmouk. Jordan is additionally allowed to store 20mcm of floodwater in the lower Jordan and entitled to 10mcm of desalinated water from this part of the river. In exchange, Israel may use up to 3mcm/year of stored water, 10mcm of desalinated water from the lower Jordan, and withdraw 10mcm of groundwater from Wadi Arava (Israeli-Jordanian Treaty of Peace, 1994). It is important to point out that because Israel transfers a large amount of water outside the basin to communities in the Negev, Jordan is forced to pump in water from outside the basin to meet the basic needs of its population living within the basin (Talozi et al., 2019). This has created an inefficient and (for Jordan) expensive system that contributes to environmental degradation within the basin.

Groundwater in the Jordan River Basin.

Figure 16: Map of the Mountain Aquifer. Source: MacDonald et al., 2009.



As Figure 16 shows, there are three aquifers, which together make up the Mountain Aquifer, that underly the West Bank. These aquifers serve as the primary source of water for Palestinians in the West Bank and as an important secondary source for Israelis, with the latter sourcing approximately 40% of their water from these aquifers (Aggestam & Sundell-Eklund, 2014). Water within this aquifer originates from seasonal rainfall across the West Bank, with areas in the mountains receiving about 700mm/year and the Jordan Valley receiving as little as 10mm/year (Aliewi & Assaf, 2007). The total amount of surface runoff that flows from the West Bank towards Israel proper is estimated to be 72mcm/year and surface runoff that drains eastward towards the Jordan river and the Dead Sea is estimated to be 17.4mcm/year (Aliewi & Assaf, 2007). The estimated safe yield of the Mountain Aquifer is 680-700 mcm/year, with about two-thirds of this derived from the Western and Northeastern Aquifers (Shuval, 2007). Table 10 also shows the estimated safe yield of each aquifer sub-basin, on which the allocations set out in the Israeli-Palestinian Interim Agreement on the West Bank and Gaza Strip (Oslo II Agreement) are based.

According to the Oslo II Agreement of 1995, the average annual recharge of the Mountain Aquifer is 679 mcm/year. Table 10 shows the safe yield of each aquifer sub-basin, the allocations for each side under the Oslo II Agreement, and estimated actual extraction rates from 2015.

Table 10: Abstraction regime under Oslo II Agreement and estimated current abstractions. Source: PWA, 2015.

	Safe Yield (mcm/year)	**Israeli Allocation (mcm/year)**	**Palestinian Allocation (mcm/year)**	**Israeli 2015 Extraction Rate (mcm/year)**	**Palestinian 2015 Extraction Rate (mcm/year)**
Western Aquifer	362	340	22	≥411	37.6

Eastern Aquifer	172	40	54 + 78 for developmental purposes	≥150	64.8
North Eastern Aquifer	145	103	42	≥103	21.6

Despite being reliant on groundwater originating within the current borders of the West Bank and the establishment of official allocations in the Oslo II Agreement, Palestinian access to and consumption of this water is tightly regulated by Israel. Since the beginning of the occupation in 1967, limited permits have been granted for domestic purposes and only three agricultural well permits have been granted (Selby, 2013). As a result, Palestinian wells in the Jordan Valley are shallow, aging, and unable to reach water of a quality fit for human consumption, as excessive pumping by both sides continues to decrease the water table (Hareuveni, 2011). According to the Palestinian Water Authority (PWA), there are 383 wells tapping into the Mountain Aquifer system, of which only 119 are functionally normally and not in need of repair (2013). Water abstraction and consumption in the West Bank is therefore highly asymmetrical; figures show that approximately 660,000 Palestinians have limited access to water, with 420,000 consuming less than 50 liters per day (Human Rights Council, 2021). This figure is well below the 100 liters/day recommended by the World Health Organization. It is important to note that these asymmetries in access and consumption are not entirely due to the Israeli occupation but are rather a combination of asymmetrical power relations between Israel and the Palestinian Authority (PA) and internal divisions within the PA itself. Tensions between state-imposed centralized management and traditional irrigation and water sharing systems within the West Bank have resulted in ineffective water infrastructure projects and erode the capacity and legitimacy of the Palestinian Water Authority (Zeitoun, 2008). These asymmetries will be further explored in subsequent chapters; for now, it is enough to note that the asymmetrical water allocation and consumption regime is not the sole result of one issue but is rather the consequence of a combination of historical and political factors.

Gaza

Although not officially in the Jordan river basin, it is worth briefly examining the water situation in the Gaza Strip because a future Palestinian state would presumably include Gaza and therefore require the integration of its water resources under the auspices of the PWA. Occupying an area of only 365km^2 on Israel's southern Mediterranean coast and home to over two million people, the Gaza Strip is

one of the most densely populated places in the world. It has also been experiencing a severe water crisis, with only an estimated 10% of its population having direct access to drinkable water prior to the outbreak of the most recent conflict in 2023 (UNICEF, n.d.). Like in the West Bank, groundwater is the primary water source. Unlike the aquifers in the West Bank, the portion of the Coastal Aquifer that underlies Gaza is downstream of Israel (Zeitoun et al., 2009), meaning that the aquifer basin is susceptible both to saline intrusion from excess abstraction and nitrate pollution from agriculture and untreated wastewater originating in Israel and the West Bank. The estimated safe yield of the aquifer is 60mcm/year, but water is pumped at a rate that greatly exceeds this. In 2012, the reported combined domestic and agricultural withdrawals were 185mcm (PWA, 2013). Small desalination plants provide about 13mcm of water each year, but their productivity is subjected to frequent power cuts due to the Israeli imposed blockade. Under the terms of the Oslo II Agreement, Israel must provide 5mcm of water annually to Gaza; however, after being purchased from Mekorot, the Israeli national water company, this water is run through existing networks where it mixes with highly saline groundwater and thus rendering it undrinkable (HRC, 2021). The ongoing electricity crisis and damaging of infrastructure during periods of violence further contribute to deteriorating groundwater quality as these issues cause raw sewage to be dumped directly into the sea. As a result of the poor quality of water originating from publicly run sources, almost 97% of the population obtain water from small-scale desalination plants and privately owned and unregulated water tankers (World Bank, 2018).

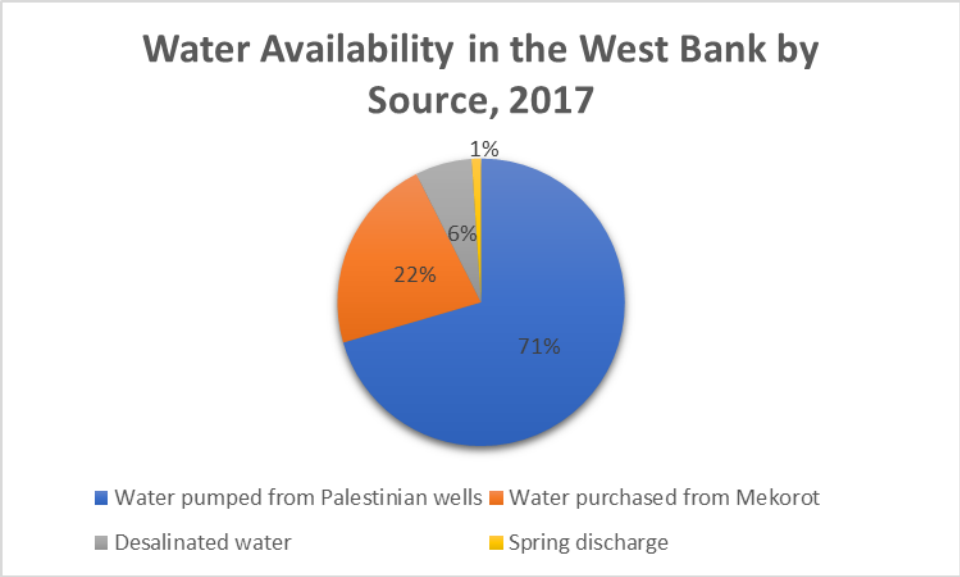
The ongoing war in Gaza has had catastrophic consequences on the enclave's water resources, contributing to a rapidly escalating humanitarian crisis. More than 1.7 million people have been displaced to the south of the Gaza Strip, living in overcrowded camps where communicable diseases are rampant and where people spend hours looking for essential resources such as water (El-Sheikh & Bateh, 2024). In response to the October 7th assault on Israel by Hamas, the Israeli government ordered a "complete siege" on Gaza, including the halting of electricity, water, food, and fuel into the strip (Hall et al., 2024). As of March 2024, it was estimated that Gazans had access to only 2 liters of water per day for domestic purposes, compared to the WHO standard of between 50-100 liters per day (OCHA, 2024). Only one of the three Mekorot connections in Gaza is operating, and that at 42% of its capacity, and two of the three desalination plants in Gaza are operating at only partial capacity (OCHA, 2024). Water quality is also a major issue, as all five of Gaza's wastewater treatment plants have been rendered inoperable and the dense living conditions, especially in the south, have created a public health crisis that is compounded by unsafe hygiene practices due to a lack of WASH services (Abu Shomar & Zeitoun, 2023). Humanitarian organizations such as the International Rescue Committee have warned that

outbreaks of waterborne diseases such as cholera and typhoid are imminent. In short, attacks on Gaza's water infrastructure and a blockade on the flow of critical resources such as water into Gaza have exacerbated a pre-existing water crisis to the point that the consequences will doubtless be long-lasting and far-reaching. A critical shortage of WASH services will perpetuate the spread of communicable diseases while waste leaching into the groundwater will contaminate the Coastal Aquifer, making it even more unusable. Meanwhile, sewage and other waste being discharged into the Mediterranean poses a public health threat to Gaza and Israel alike (Hall et al., 2024). A negotiation for the safe passage of humanitarian relief is urgently needed to restore access to the minimum amount of water so that basic needs can be met. Ensuring that the residents of Gaza have safe and continued access to a clean drinking water and sanitation, which itself was recognized as a human right by the UN General Assembly in 2010, is a necessary prerequisite for negotiating an end to the conflict and an end to the human suffering.

Other Sources of Water

It is worth mentioning that conventional surface and groundwater flows are not the only sources of water in the Jordan river basin, particularly within Israel and the West Bank. Desalination is becoming an increasingly important source of water in the region, especially in Israel, where desalinated water accounted for half of Israel's domestic water needs in 2020 (Kramer et al., 2022). By 2050, Israel aims to produce 775mcm/year of water from desalination (Sneegas et al., 2022). Treated wastewater also constitutes a significant alternative source of water within Israel, with between 85%-90% of wastewater treated and reused for agricultural purposes (Brooks et al., 2020; Tal, 2018). Palestinians living in the West Bank have no access to the Jordan river and have very limited access to the area's groundwater resources, which are tightly controlled by Israel. As a result, water is obtained from a variety of sources both within the West Bank and outside its borders. As seen in Figure 17, water purchased from Mekorot accounted for the highest source of external water, followed by desalination, in 2017. In addition, it is estimated that 165mcm of floodwater flows through wadis in the West Bank in the West Bank every year (PWA, 2013).

Figure 17: Water Availability in the West Bank by Source. Adapted from PCBS, 2020.



The Dead Sea

The Dead Sea is an inland lake with no natural outflow that occupies the lowest point on Earth at an elevation of -417m. Bordered by Jordan to the east and Israel and the West Bank to the west, the Dead Sea is of great ecological and cultural significance in the region (Lipchin, 2007). The Dead Sea's reputation as one of the world's saltiest bodies of water and the reputed health benefits of its mud have produced a large tourism scene along both sides of the lake, which has historically produced millions of dollars in revenue in Israel and Jordan. It is also rapidly shrinking, as diversion of upper Jordan water by Syria, Israel, and Jordan has sharply reduced the flow into the Dead Sea from a historical average of around 1400mcm/year to only about 30 mcm/year today (Brooks et al., 2020; PWA, 2013). Industrial activity in the Dead Sea's southern basin diverts an additional 200mcm of water annually out of the sea and into evaporation ponds for use by the Dead Sea Works in Israel and the Arab Potash Company in Jordan (Lipchin, 2007). Declines in the lake's water level have led in the intrusion of less saline groundwater which mixes with salty water within the lake and results in the formation of sinkholes along the shoreline of the Dead Sea.

Declining water quality is also a problem in the basin, particularly in the West Bank, where less than one-third of the population live in areas with sewage systems connected to wastewater treatment

plants (Brooks et al., 2020). Waste from Israeli settlements in the West Bank that are not connected to proper sewage systems also present a significant issue. Illegal solid waste dumping sites throughout the West Bank contribute to the contamination of groundwater and the polluting of nearly all the streams that rise in the West Bank and flow into Israel. The hydrogeology of the Western Aquifer in particular makes it vulnerable to contamination from Palestinian communities and Israeli settlements (Zeitoun et al., 2009). This aquifer is also where the most asymmetrical pumping takes place as Palestinians have been unable to obtain permits to build wells in this basin since 1967; consequently, they rely on shallow, aging wells that are out-competed by the larger and deeper Israeli wells (Rudolph & Kurian, 2022; Zeitoun, 2008).

A Brief Overview of Hydropolitical Relations in the Jordan River Basin

Transboundary water conflict and cooperation in the Jordan river basin cannot be understood in isolation from the broader political conflict between Palestinians, Israel, and its Arab neighbors. The roots of this wider conflict lie in the Zionist conquest of land in historic Palestine that later became the State of Israel and in Arab and Palestinian reactions to this initial conquest and subsequent ones. The water conflict in the Jordan basin, and indeed the broader political conflict, is as much about ideology as it is about physical control of the land and its resources. As will be briefly explored in this chapter and more deeply unpacked later in this dissertation, the Zionist ethos that led to the establishment of Israel emphasized the importance of a stable water supply in perpetuating an 'ideology of agriculture' in which a Jewish state could only be established by working the land (Lowi, 1993, p.52). This centering of water within Jewish-Israeli identity and statebuilding is paralleled by a similar placement in the Palestinian and broader Arab discourse. As a result, water has become highly securitized and inseparable from the broader political context. Indeed, as this dissertation will show, the power asymmetries, developmental inequalities, and highly securitized environment of the broader conflict are reflected and reproduced in the nature of transboundary water interactions within the Jordan basin.

A full hydropolitical history of the Jordan river basin is beyond the scope of this dissertation and has been extensively written on by authors such as Allan (2002), Feitelson and Haddad (2001), Haddadin (2002), Lowi (1993), and Wolf (1995). Rather, the purpose of the following section is to provide the context against which the power relations between actors in the Jordan basin and their impact on patterns of conflict and cooperation will be analyzed in subsequent chapters. The following section divides the hydropolitical relations of the Jordan river basin into five distinct periods: pre-1948, unilateral development and conflict from 1948-1967, public discord and secret cooperation from 1967-

1994, 1995-2005, and the post-2005 period in which the hydropolitical climate of the basin has been significantly altered by factors such as desalination and the outbreak of the Syrian civil war.

Pre-1948: Legacies of Colonialism and the Development of Nationalism

The end of the 19th century and the first few decades of the 20th century were a transformative time for the land and people of the Jordan river basin. While there had always been a small Jewish presence in Palestine, Jewish immigration to Palestine began in earnest in the latter half of the 19th century, driven by pogroms and rising anti-Semitism in Eastern Europe. The first *Aliyah*[20] between 1882 and 1903 brought between 20,000 to 30,000 immigrants fleeing pogroms in Czarist Russia, while the second *Aliyah* from 1903 to 1914 brought up to 40,000 more Eastern European Jews (CJPME, 2013). During this time, Jewish nationalism, or Zionism, began to take hold among European Jewry, while Arab nationalism began to crystallize in parallel among Arabs living in the Ottoman Empire. Central to both nationalisms was the development of water resources, as the region was naturally characterized by water scarcity and growing populations. Additionally, the Zionist belief in which a Jewish state could only be established by working the land (Lowi, 1993, p.51; see also Lipchin, 2007) highlighted the importance of water in statebuilding. In the 1940's, Lebanon, Syria, and Jordan gained independence from the French and the British and the state of Israel was established in the wake of the Palestinian *nakba*[21], ands it became clear that water was considered a critical strategic resource.

In less than a hundred years, the land and waters within the Jordan river basin changed hands multiple times – from Ottoman rule to the British and French Mandatory powers to finally independent governments. Historic Palestine was under Ottoman rule until 1918. During this time, Shari'a law formed the basis on which Ottoman courts based their rulings. Under Shari'a law, water is seen as God's property and as such is free for all, meaning that effective possession of the resource can be equated with ownership (Husseini, 2007). Two main pieces of Ottoman legislation guided water management and disputes relating to its use during this time: the 1858 Ottoman Law on Land, which stated that only *ab antique* usage was taken into account in disputes over rights to water crops and animals, and the 1870 Ottoman Civil Code, under which both surface and groundwater were considered publicly-owned resources shared by the entire community (Husseini, 2007). The British Mandatory Government

[20] Literally meaning "ascent" or "rise" in Hebrew, this term is also used to refer to periods of mass immigration of Jews from Europe to what would become Israel (Halpern & Reinharz, 1998).
[21] Meaning "catastrophe" in Arabic, this term describes the large-scale displacement and dispossession of Palestinians in the wake of the creation of the state of Israel in 1948.

instituted further legislation concerning water resources management, the most significant of which gave the Mandatory Government control over the public water supply[22] and authorized the drilling of boreholes on privately owned land for the purpose of conducting hydrographic surveys.[23]

Although it will be discussed and analyzed further later on in Chapter 5a, it is prudent to briefly mention here the interconnected nature of water and Zionism and the role this had on shaping the borders of Mandatory Palestine. Early Zionist leaders lobbied British and French authorities for the inclusion of certain water resources, namely all of the headwaters of the Jordan river and the Litani River, which is entirely within present-day Lebanon, in the borders of Mandatory Palestine.[24] The words of Chaim Weizmann, head of the World Zionist Organization, to then-British Prime Minister Lloyd George in 1920, concisely sum up the Zionist perspective on water and borders:

> The whole economic future of Palestine is dependent on its water supply for irrigation and electric power, and the water supply must be from the slopes of Mount Hermon, from the headwaters of the Jordan and the Litani River … [We] consider it essential that the northern frontier of Palestine should include the Litani, for a distance of about 25 miles above the bend, and the western and southern slopes of Mount Hermon (UN, 1992, p.25).

While the Zionist lobbyists were ultimately unsuccessful in convincing the colonial powers to delineate the borders of Mandatory Palestine according to Weizmann's argument, their persistence did secure the Huleh Concession at the 1920 Franco-British Convention, which saw the incorporation of the Huleh Marshes and much of the Upper Jordan under the British sphere of influence (Zeitoun et al., 2012). It is important to note, however, that the headwaters of the Hasbani and the Banias remained within the borders of the French Mandate in what would become Lebanon and Syria, respectively, while the frontier also did not include the Litani. Rather than cut the Sea of Galilee in two, the border ran along the eastern shore so that the entire lake lay within the bounds of Mandatory Palestine, although Syrian inhabitants retained rights to fishing and navigation (Wolf, 1995).

[22] Safeguarding of Public Water Supplies Ordinance No.20/1938.
[23] Water Survey Ordinace No.2/1938.
[24] For a comprehensive account of Zionist efforts to include water resources perceived as necessary to the viability of a future Jewish state, see Wolf (1995). A detailed account of the process that led to the final boundaries of the British and French Mandates can be found in works such as Ra'anan (1955), and Fromkin (1989).

As tensions between Arabs and Jews living within Mandatory Palestine grew and violence became more common, the partition of Palestine into separate Arab and Jewish states became the most promising solution. As a result, the water resources of Palestine became increasingly important in the public eye and several passes at creating viable water management plans were made. The 1939 Ionides Plan backed the Arab position that the water resources of Palestine were inadequate for Jewish immigration and recommended that Jordan river water be used for irrigation within the watershed, Yarmouk floodwaters be stored in the Sea of Galilee, and the construction of a canal parallel to the Jordan river (Phillips et al, 2007). Zionist plans for development of the region's water resources were influenced by work published in 1944 by Walter Clay Lowdermilk, the director of the US Soil Conservation Service, which advocated for a Tennessee Valley Authority (TVA) style approach to water resources development. Under the Lowdermilk Plan, which argued that the region had the capacity to support Jewish immigration in addition to the area's Arab inhabitants, canals would be built on both sides of the Jordan river to support irrigation and a canal connecting the Mediterranean and Dead Seas would be used to generate hydropower and replace diverted freshwater (Wolf, 1995). While neither of these plans ever came to fruition, they did and continue to influence Arab and Israeli approaches to water resources development.

1948 – 1967: Unilateral Development and Confrontation

Hydropolitical relations in the Jordan river basin from 1948-1967 are best characterized by unilateral development and sporadic outbreaks of violent conflict that preceded that outbreak of the 1967 War. Armistice agreements formally concluding the first Arab-Israeli war that started in May 1948 were signed in 1949. The Armistice Lines delineating the de facto border between Israel and the surrounding Arab countries became known as the Green Line. As seen in Figure 18, a demilitarized zone was established on the eastern shores of the Sea of Galilee in line with Syrian conditions for the withdrawal of its troops from land allocated to Israel under the 1947 UN brokered partition plan. Importantly, neither side adhered to its obligations regarding the

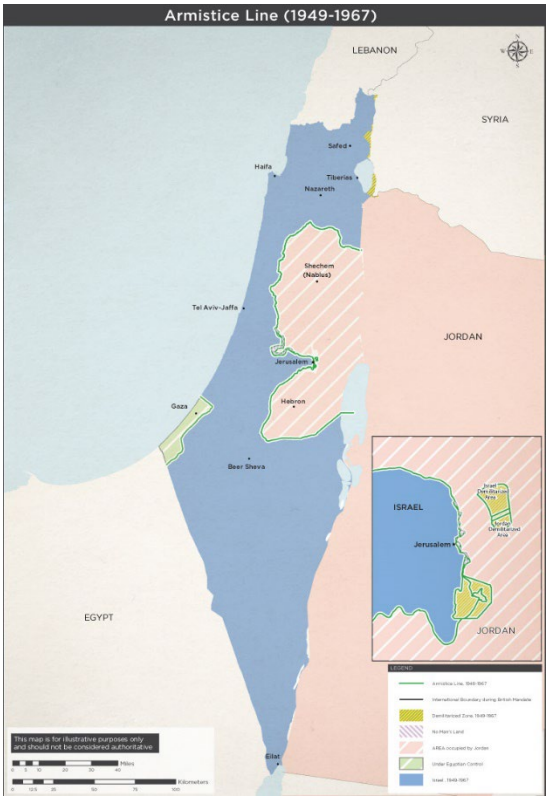


Figure 18: 1949 Armistice Demarcation Line. Source: IDF Mapping Unit.

demilitarized zones, and Syria retained de facto control of the northeastern shores of the Sea of Galilee until 1967 (Hof, 2009).[25] In the decade leading up to the outbreak of war in 1967, a so-called "game of inches" (Hof, 2009, p.6) was fought between Syria and Israel for control over the demilitarized zone, which afforded several strategic advantages including high ground overlooking the Sea of Galilee and the lake itself. The lower portion of the basin also saw changes in borders in the aftermath of the war in 1948. From 1948-1967, Jordan controlled (and later annexed) the West Bank, meaning it had direct control over both banks of the Jordan river and the rich and undeveloped resources of the Mountain Aquifer (Ram et al., 2014). Development of these water resources, however, remained minimal during Jordan's tenure over the West Bank due to limited pumping technologies.

Two main events relating to unilateral development took place in 1950's and early 1960's. First, Israel began draining the Huleh Marshes in 1951 to transform the area into agricultural fields (Daoudy, 2008). This operation was in direct violation of the 1949 Armistice Agreement with Syria, which stipulated that no operations should take place within the demilitarized zone (draining of the marshes negatively impacted Arabs living in the demilitarized zone, therefore constituting a violation of the agreement). Subsequently, Israel was ordered by the UN Security Council to cease operations within the DMZ (see Daoudy, 2008, p.219). Two years later, Israel was granted permission by the United Nations Truce Supervision Organization (UNTSO) to drain the Huleh marshes as long as Arab land remained unaffected. In alignment with Israel's Seven Year Plan[26], work began to divert water from the Jordan river into the Gesher B'not Ya'akov/Banat Yakub area of the demilitarized zone, signaling implied Israeli sovereignty over the area. The diversion project was only halted when the US threatened to withdraw financial aid to Israel.

Both Jordan and Israel began constructing large-scale water pipelines in the 1950's.[27] In 1953 Israel began constructing its National Water Carrier (NWC) at Gesher B'not Ya'akov/Banat Yakub, which

[25] Under the 1923 Paulet-Newcombe Agreement, which delineated the official boundary of Mandatory Palestine, the boundary between Syria and Palestine ran parallel to and 10m to the east of the shores of the Sea of Galilee, such that the entire lake lay within Palestine and a 10m strip of land separated it from Syria (Hof, 2009). The 1949 Armistice Line follows this arrangement around the Sea of Galilee.

[26] Israel's Seven Year Plan, inspired by Lowdermilk's earlier plan envisioning out-of-basin transfers and the generation of hydropower through a canal connecting the Mediterranean and Dead Seas, envisioned a central irrigation system that would draw water from sources north of Lake Huleh and siphon it through the Sea of Galilee enroute to the Negev. Plans for generating hydropower through a Med-Dead canal were also made (Lowi, 1993). The Seven Year Plan was to become the basis of Israeli water resources planning and highlighted the centrality of water in the Zionist statebuilding project.

[27] Interestingly, the U.S. provided significant amounts of funding to both countries for these projects under the condition that each project would be approved by the opposite party (Jagerskog, 2003).

lay in the demilitarized zone north of the Sea of Galilee. Escalating violent conflict with Syria, which opened fire on several construction sites from across the border, and US threats to cut funding to Israeli water projects drove the Israelis to move its intake to its current location on the northwestern shore of the Sea of Galilee at Eshed Kinrot. Completed in 1964, the NWC is 130km long and has the capacity to transfer up to 1.7mcm of water daily from the Sea of Galilee to population centers along the coast and in the arid Negev (CIE, n.d.). A few years after Israel began constructing the NWC, Jordan began work on the East Ghor Canal (now the King Abdullah Canal) on the east bank of the Jordan river. Water diverted by gravity from the Yarmouk flows into the canal which runs for approximately 70 kilometers parallel to the east bank of the Jordan river, bringing much-needed irrigation water to farmers, increasing crop yield and raising the standard of living (Hazleton, 1979). Similar to the NWC, the East Ghor Canal became a source of tension between Israel and Jordan, particularly in the late 1960's when Israel bombed the canal due to accusations that Jordan was diverting too much water (Jagerskog, 2003).

Growing regional tensions, increasing water demand due to natural population growth and the influx of Palestinian refugees, and Arab aversion to cooperating with Israel, even indirectly, led to a flurry of water management plans in the Jordan basin in the 1950's. In 1952, American engineer Mills Bunger proposed a plan for the joint Syrian-Jordanian development of the Yarmouk through the construction of a 140-meter high dam at Maqarin that would enable water to be diverted through a canal along the east bank of the Jordan river (Lowi, 1993). The Bunger plan was attractive to Syria and Jordan because it provided solutions to growing water and electricity demand and, more importantly, did not require cooperation with Israel. On June 4, 1953, Syria and Jordan signed the Agreement Concerning the Utilization of the Yarmuk Waters, in which the countries agreed to construct a dam near the Maqarin generating station in Syria and an additional generating station near the village of Adasiya in Jordan. While the treaty does not explicitly allocate water, it gives Syria the right to utilize water originating from the Yarmouk and its springs and tributaries (except those above the dam below the 250m level), and gives Jordan rights to any unused flow. Electricity generated from the dam was to be allocated in a 75%/25% split between Syria and Jordan (Agreement Concerning the Utilization of the Yarmuk Waters, 1953). Plans for the first stage of the project went ahead despite Israeli objections but were later stalled by worsening political relations between Jordan and Syria (Hussein, 2017a).

Around the same time that the United States was working with Jordan on the Bunger Plan, it was also working with the United Nations Relief and Works Agency for Palestinian Refugees in the Near East (UNRWA) to commission a study on the unified development of the Jordan-Yarmouk system. Under

the supervision of the TVA, the engineering firm Charles T. Main Inc. produced a broad water resources development plan that disregarded political borders for the purposes of irrigation, hydropower generation, and regional economic development. The three main points of the Main Plan were: (1) the Upper Jordan basin was to be irrigated through the construction of diversions at the headwaters of the Jordan river; (2) the Sea of Galilee was to serve as a storage reservoir for floodwaters of both the Jordan and the Yarmouk; and (3) lowlands of the Jordan Valley were to be irrigated with canals along both sides of the Jordan river (Sosland, 2007). Significantly, the Main Plan explicitly stated that water from the Jordan river system should not be diverted out of the basin and did not make reference to diverting water from the Litani, both of which were prominent features of Israeli water development plans.

In response to the Main Plan, Israel and the Arab countries published the Cotton Plan and the Arab Plan, respectively, in 1954. The Arab Plan differed from the Main Plan in that it recognized political boundaries as posing a constraint to water resources development and that it rejected the Sea of Galilee as a storage reservoir in favor of storing water within the Yarmouk system at Maqarin and Adasiya (Phillips et al., 2009). The Cotton Plan also diverged significantly from the Main Plan by calling for the allocation of water for out-of-basin uses and including the Litani, which is entirely contained within Lebanon, in the calculation of allocations (Lowi, 1993). As seen in Table 11, allocations for Jordan and Syria were lower in the Cotton Plan than they were in the Arab or Main Plans while the Israeli allocation was significantly higher in the Cotton Plan due to the inclusion of the Litani. It was against this background of conflicting demands and visions of water resources development that the American-led Johnston mission attempted to secure an agreement between all of the Jordan river's co-riparians.

Table 11: Allocations to riparians of the Jordan river as determined in the Main, Arab, and Cotton Plans. Adapted from Phillips et al. (2009).

	Main Plan (mcm/year)	**Arab Plan (mcm/year)**	**Cotton Plan (mcm/year)**
Lebanon	0	35 (from the Hasbani)	450
Syria	45	119	30
Israel	394	234	1,290 (including 810 for out-of-basin use)
Jordan (including West Bank)	774	490	575

In October 1953, President Eisenhower appointed Eric Johnston as his personal representative with the rank of Ambassador to craft an agreement between the riparians of the Jordan river over the utilization of its waters. The main objective of the agreement was to guarantee water for the irrigation of crops; as such, the final allocations laid forth in the Johnston Plan are based on each riparian's calculated irrigable land and irrigation needs (Sosland, 2007). Johnston's initial proposals were based on the Main Plan and later attempted to reconcile Israeli and Arab differences put forward under the Cotton Plan and Arab Plan. Additionally, Johnston was instructed that any final settlement should not include development of the Litani river, as such an issue was recognized by the U.S. as best dealt with in bilateral lsraeli-Lebanese negotiations, and the elimination of the demilitarized zones between Israel and Syria (Lowi, 1993). During a two-year period from 1953 to 1955, Johnston engaged in intense (and separate) negotiations with each of the riparians against a backdrop of Arab mistrust of American intentions in the regions and growing tensions due to Cold War politics. The final allocations laid out in the Johnston plan were as follows: 35mcm/year to Lebanon, 132 mcm/year to Syria, and 477mcm/year to Jordan (Sosland, 2007). Importantly, the Johnston Plan did not allocate an explicit amount of Jordan river water to Israel, instead allocating 25mcm/year from the Yarmouk and all residual flow from the Jordan river.[28] The Plan also reserved 300mcm/year of storage space for Jordanian water in the Sea of Galilee, allowed for the construction of a Lebanese dam on the Hasbani, and proposed the creation of a neutral supervision system consisting of an engineering board and a watermaster (Sosland, 2007). While the Johnston Plan was never officially accepted by any of the riparians, they were accepted by the riparians' technical committees and laid the foundations for further Israeli-Jordanian cooperation in the decades to come.

The years between the breakdown of the Johnston talks and the outbreak of war in 1967 were characterized by sporadic violence and attacks on water infrastructure, primarily involving Israel and Syria, and to a lesser extent, Israel and Jordan. While the argument that the 1967 War was indeed a "water war" has been discredited (see for example Amery & Wolf, 2000; Haddadin, 2002; Lowi, 1993), there is no doubt that water was a contributing factor to the tensions that culminated in the outbreak of

[28] While the Johnston Plan itself does not specify an allocation to Israel from the Jordan river, calculations by Phillips et al. (2009) based on figures from recently declassified documents and inclusion of contributions from local water sources in allocations put the Israeli allocation at 616mcm/year. Similarly, the authors figure that Jordan's allocation under the Johnston Plan is more accurately figured to be 720mcm/year due to the contribution of 243mcm/year from local water sources.

war between Israel and its Arab neighbors on June 5, 1967.[29] Between 1964 and 1967, border skirmishes between Israel and Syria, provoked by perceived violations of activity in the demilitarized zones, gradually escalated in intensity. The start of construction on the Arab Diversion Plan, an Arab League plan to divert water from the waters of the upper Jordan in Syria and Lebanon, further increased the intensity of border clashes, as Israel focused on destroying diversion equipment. Clashes over the Arab Diversion culminated in several instances in which the Israelis conducted aerial attacks on Syrian equipment, the last of which took place at Ein Sufeira in July 1966 (Shemesh, 2004). The Arab Diversion was viewed by Israel as a direct threat to national security and encroachment on its sovereignty (Sosland, 2007). Then-Israeli Foreign Minister Golda Meir warned that Arab attempts to divert the Jordan river headwaters would be seen as "an outright attack on one of Israel's means livelihood" and a "threat to peace" (quoted in Lowi, 1993, p.119). After the July 1966 attack, Syrian work on the Arab Diversion resumed after a month-long pause at a negligible pace, and the Syrians remained frustrated at their inability to respond to Israeli attacks without the full backing of the rest of the Arab League, particularly Egypt (Shemesh, 2004).

Tensions along the Israeli-Jordanian border were also heating up, as Israel accused the Palestine Liberation Organization (PLO) of mounting an intense guerilla campaign against settlements in the Jordan Valley and suspected Jordan of over-diverting water from the Yarmouk (Wolf, 1995). Indeed, the first official act of the PLO was an attempt to blow up the NWC in 1965 (Katz, 2022). For the PLO, stopping Israeli diversions of Jordan river water out of the basin was an important issue and closely linked to the broader Israeli-Arab conflict. In the words of a close confidant of PLO leader Yasser Arafat, "the water issue was the crucial one. We considered our impact on this to be the crucial test of our war with Israel," (Dr Nabil al-Shath, quoted in Cooley, 1984, p.15).

Tensions over water were clearly a direct contributor to the outbreak of war in 1967. However, it is important to keep in mind that the hydropolitical interactions discussed in the previous paragraphs did not take place in a political vacuum. The 1950's and 1960's were a tumultuous time in Middle East politics. The 1956 Suez Crisis, which can be viewed as a proxy conflict between Western-aligned powers and the Soviet Union over dominance in the Middle East, contributed to regional instability and solidified Egyptian President Gamal Abdel Nasser as a leading voice in the growing Arab nationalist movement. Additionally, fears of Zionist expansion and rejections of Western involvement in Middle

[29] For example, see Shemesh (2004) for a detailed account of how the Arab-Israeli water conflict shaped the Arab-Israeli conflict and disagreements among the Arab states about how to solve the water problem.

Eastern affairs provided a platform for the growth of Pan-Arabism, the Arab nationalist movement championed by Nasser, and a common rallying cause for Arab nations. However, disagreement over how the Arab states should respond to these threats, especially the threat posed by Israel, threatened Arab unity, with the Syrian Ba'ath party calling for the immediate destruction of Israel and Egypt's Nasser pushing for a more cautionary approach (Lowi, 1993). It wasn't until May 1967, when Nasser called for the immediate removal of United Nations Emergency Forces from the Sinai Peninsula and mobilized troops along the Israeli border in response to Soviet reports that Israel was launching an imminent attack on Syria, that the outbreak of war was inevitable.

1967 – 1994: New Hydropolitical Realities and Secret Cooperation

In just six days, the balance of power in the Middle East was irrevocably altered and the geopolitical (and hydropolitical) realities of the region transformed. During the Six Day War, Israel captured the Sinai Peninsula, the Golan Heights, the Gaza Strip, and the West Bank, including East Jerusalem. In addition to making significant territorial gains, Israel had also greatly improved its "hydrostrategic" position (Wolf, 1995, p.52); its occupation of the Golan Heights gave it control over two of the three headwaters of the Jordan river and an advantageous position overlooking the Yarmouk. By occupying the West Bank, Israel also acquired control over the territory's rich groundwater resources. Although Israel had been tapping into the Mountain aquifer system by drilling wells inside the Green Line prior to 1967, occupation of the West Bank allowed it to monitor groundwater use from within the West Bank and take actionable steps to ensure that groundwater remain available for Israeli use (Lowi, 1993). With its newly acquired territory in the Golan, Israel had gone from being a mid-stream riparian on the Jordan river to fully upstream, a move that many scholars have argued as consolidating Israeli hydrohegemony in the basin (e.g. Feitelson, 2000; Zeitoun & Warner, 2006; Zeitoun et al., 2012).

Israeli-Jordanian relations. Left with no access to the West Bank and unable to implement planned development on the West Bank of the Jordan river, Jordan turned its attention to developing the agricultural potential of the Jordan Valley, which constitutes most of the country's irrigable land but less than 1% of its territory. However, development of the Valley did not take off in earnest until after the expulsion of the PLO in 1970 (Lowi, 1993). Prior to being expelled, the PLO had been carrying out raids against the NWC and Israeli settlements; in response, Israel attacked the East Ghor Canal at least eight times between 1968 and 1970 (Sosland, 2007). Secret negotiations mediated by the US provided Jordan with permission to repair the canal in exchange for adhering to Johnston Plan allocations on the

Yarmouk and agreeing to put a stop to PLO activity in Jordan[30] (Naff & Matson, 1984). After 1970, development in the Jordan Valley progressed much more rapidly due to greater stability domestically and within Israeli-Jordanian relations. In 1973 the Kingdom established the Jordan Valley Commission, which later became the Jordan Valley Authority, and began executing a multi-stage plan that entailed constructing the King Talal Dam on the Zarqa river, expanding the East Ghor Canal, and developing domestic water resources (Khouri, 1981). The second stage of the plan, which envisioned development of the Yarmouk, including construction of a large upstream dam, was more difficult to implement because it required cooperation with Israel (Haddadin, 2002).

Israel's newly acquired position on the Yarmouk necessitated the coordination of allocations and maintenance of the river's flows with Jordan. While hydropolitical relations were not overtly hostile in this time period, they were still less than friendly. Both Jordan and Israel mobilized their troops several times along the Yarmouk in response to escalations in disagreements over the removal of a sandbar and other debris from the riverbed to ensure that water continued to properly flow into the intake of the East Ghor Canal (Sosland, 2007). However, cooperation between Israeli and Jordanian water officials began and continued to persist despite occasional heated disagreements until the signing of the peace treaty in 1994, even against this backdrop of fluctuating hostilities. From 1979 to 1994, secret meetings over the division of Yarmouk waters took place several times a year. Known as the "picnic table talks" because they often took place at a picnic table on the Jordanian side of the Yarmouk, these talks took place under the auspices of the UN Joint Mixed Armistice Commission (MAC) and primarily concerned summer water allocations and their impacts on Jordanian and Israeli farmers (Sosland, 2007). On average, the Yarmouk summer flow was divided so that 30% went to Israel and 70% went to Jordan. Talks were not held in the winter months because Jordan was unable to store much floodwater without an upstream dam and water was less scarce during this time anyway (Sosland, 2007). As I will discuss further in the next two chapters, water cooperation between Israel and Jordan was able to persist, albeit secretly, for 15 years despite occurring against a background of broader hostilities because the states shared complementary interests that were facilitated by the picnic table talks. Indeed, the confidence and trust developed during the talks directly contributed to the development of a political

[30] The PLO additionally were a thorn in the side of King Hussein, who was rapidly losing power and faced pushback from the military for his lax treatment of the PLO.

atmosphere that was conducive to the formalization of Israeli-Jordanian water cooperation and the normalization of relations through the signing of the peace agreement in 1994.

Jordanian-Syrian relations. Jordan's plans for development on the Yarmouk also required cooperation with Syria, namely in the form of securing a commitment on Syrian upstream water use and cooperation in the construction of Maqarin Dam on the Syrian-Jordanian border so that Jordan could harness Yarmouk floodwaters. In the years since the breakdown of initial talks over the construction of the Maqarin Dam, Syria built numerous dams on Yarmouk tributaries and increased its use of upstream springs and groundwater feeding springs on the Jordanian side (Haddadin, 2006). Recognizing that cooperation with Syria was necessary, Jordan enthusiastically pursued the Maqarin Dam project, and in 1976, resumed talks with Syria about construction of the dam. In 1977, the 1953 Yarmouk water treaty was amended to give Jordan the rights to all water and electricity produced by the dam, and in 1978 the two states signed the Maqarin Dam Agreement, which established the design and terms of Syrian use for the dam (Sosland, 2007). However, plans for the Maqarin Dam were again shelved in 1981 primarily due to the deterioration of Jordanian-Syrian political relations and a failure to strike with Israel a deal regarding the allocation of Yarmouk water to the West Bank (Sosland, 2007).

The next few years in Jordanian-Syrian hydropolitical relations were initially marked by the absence of such relations. The Assad government continued to rapidly utilize Yarmouk water resources in a bid to increase agricultural productivity in the southern Yarmouk basin to reduce urban overpopulation and increase food self-sufficiency (Sosland, 2007). However, as Syria hoped to reduce its political isolation and improve relations with the West, it became more amenable to restarting talks with Jordan about a joint dam project. In 1987, the two countries signed an agreement on the construction of the Unity, or al-Wahdah, Dam that would be located near the intended site of the Maqarin Dam but would be half the size (Hussein, 2017a). The agreement gives Syria the right to 75% of the electricity produced by the dam and ensures that Syria's prior regime of water use will continue. Jordan was allocated 25% of the electricity produced and given the right to use any overflow water from the dam's reservoir, essentially limiting its entitlement to any flows released from the dam, which in turn are beholden to upstream use by Syria (Zeitoun et al., 2019a). The dam became fully operational in 2006 and was fully completed in 2009 (UN-ESCWA & BGR, 2012).

Israeli-Lebanese relations. While Lebanon occupies only a small portion of the Jordan river basin (4%) and does not rely on the basin as a primary or even a secondary source of water, it remains the only country other than Israel to retain sovereignty over some of the headwaters of the Jordan river.

By virtue of this fact, many arguments have been made that the Israeli invasion[31] of Lebanon first in 1979 and then in 1982 and subsequent occupation until 2000 was motivated at least in part by a desire to achieve control over the Hasbani and Litani rivers (e.g. Beamont, 1994; Cooley, 1984). The hydraulic imperative argument gains more traction when one recalls that earlier water development plans put forward by Israel such as the Cotton Plan included plans for diversion of Litani water to Israel. As I discussed previously, early Zionist leaders such as Chaim Weizmann also considered access to the Litani river as the prosperity of the state of Israel. When Israel invaded Lebanon in 1982, it captured the Qir'awn Dam on the Litani and seized all hydrological data relating to the river and its infrastructure (Cooley, 1984). The Israeli security zone that existed in southern Lebanon until 2000 even stretched as far as the Litani. However, subsequent investigations have unearthed no evidence that the capture of water resources was a military objective (MacBride, 1983; Wolf, 1995; Wolf, 2000), nor indeed was water even mentioned in accounts of Israel's military strategy provided by top-ranking military officials (Tamir, 1988).

While the Israeli invasion of Lebanon did not have a hidden hydrostrategic imperative, it did have a profound effect on regional hydropolitics and water use. Development of the Lebanese water sector was essentially halted during the occupation while agricultural products from southern Lebanon were prevented from being exported (Zeitoun et al., 2013). Targeted destruction of orchards, irrigation infrastructure, and agricultural lands further contributed to the degradation of both the agricultural and the water sectors. It is estimated that southern Lebanon experienced a 75% loss in crop production and only 60% of irrigable land was being used during the Israeli occupation (Zeitoun et al., 2013). Misunderstandings about Israeli intentions to divert the Litani also contributed to the emergence of a Lebanese discourse that depicted Israel as a thief trying to steal Lebanese waters (Zeitoun et al., 2012). As I will discuss in Chapter 6, this discourse continued to color Israeli-Lebanese hydropolitical relations well after Israeli troops withdrew from Lebanon.

Israeli-Palestinian relations. After occupying the West Bank in 1967, Israel took over management of the West Bank water resources. As discussed previously, the Mountain Aquifer, which consists of three sub-aquifer basins, underlies much of the West Bank. Groundwater originating from the aquifer is the main source of water for Palestinians in the West Bank and is also an important source

[31] The stated objective of the invasion, called Operation Litani, was to "create a physical zone that would distance the (mainly Palestine Liberation Organisation) resistance from Israel's northern border," (Zeitoun et al., 2012, p.69).

of water for Israel, which has been abstracting water from inside the Green Line since before 1967 (UN-ESCWA & BGR, 2012). Weeks after the start of the occupation, Israeli authorities issued Military Order No. 92, which "granted complete authority over all issues concerning water in the Occupied Territories to an Israeli officer named by the Area Commander," (quoted in Brooks et al., 2020, p.28). To this day, Palestinian water projects still require military approval; as such, hardly any permits are ever granted. Between 1967 and 1990, 46 drilling permits were issued for Palestinian wells, with more than half of them for domestic purposes and seven of the eight agricultural wells drilled on the Eastern aquifer (Sosland, 2007).

Israeli water policy in the West Bank is heavily influenced by its settlement policy, which in turn is largely determined by whether the Labor or Likud party is in power in Israel. Under Labor government rule from 1967 to 1977, Jewish settlement of the West Bank was dictated by security concerns, a desire to expand agriculture in the West Bank, and Labor's "land for peace" policy. To that end, settlements were concentrated in the Jordan Valley and on the east side of the mountain ridge running through the West Bank to create more defensible borders (Shalev, 1985). Settlement construction along the heavily Arab populated mountain ridge, where cities such as Hebron and Nablus are located, did not begin in earnest until the Likud party came to power. Under Labor, minimal water allocations for agricultural purposes were granted to Palestinians and water and wells intended for domestic purposes received priority. Permits for agricultural wells were restricted in an effort to conserve water resources for Israeli use (Dillman, 1989). Despite these restrictions, water-related tensions between Israelis and Palestinians remained relatively quiet for two reasons. First, many Palestinians were able to find higher paying jobs outside the West Bank and thus did not require as much water as they would have had they remained in agricultural occupations at home. Second, Israeli programs increased agricultural productivity through the introduction of modern irrigation and cultivation techniques (Kahan, 1983). It wasn't until the right-wing Likud party came to power in 1977 that Palestinians became more aware of inequities in water allocation and water-related tensions began to increase.

The Likud party's water policy in the West Bank was driven by its rejection of Labor's policy of territorial compromise in favor of settlement expansion and increasing the Jewish population inside the West Bank. By 1992, there were over 100,000 Jewish settlers in the West Bank, representing a 20-fold increase in the Jewish population since 1977 (Sosland, 2007). Along with government policies designed to attract settlers to the West Bank and make life easier came increasing water restrictions for Palestinians. In 1982, responsibility for managing the West Bank water system was given to Mekorot (Selby, 2003).

Palestinian drilling permits for drinking water wells became harder to obtain while more and more water was instead siphoned to growing Jewish settlements. As a result, Palestinians became more dependent on Mekorot for water, often having to pay much more than Israeli settlers, who began receiving water at a low cost after the implementation of government subsidies in 1987 (Lowi, 1993). Prompted by a series of water shortages, a state investigation into the management of West Bank aquifers in the early 1990's found that Israel had seriously mismanaged the West Bank's groundwater resources and that many Jewish settlements were exceeding their water quotas (Comptroller). Furthermore, untreated sewage originating from settlements was reducing water quality, especially in the Western Aquifer basin. As Israelis became more aware of the country's water scarcity and talks of territorial compromise in the West Bank progressed with the initiation of the Madrid peace process, concern grew over whether relinquishing control over the West Bank (and its valuable water resources) would threaten the security of the Jewish state (Sosland, 2007). A leaked report published by the Jaffee Center for Strategic Studies at Tel Aviv University highlighted the need for Israeli-Palestinian cooperation due to mutual dependencies on West Bank groundwater. Without cooperation with the Palestinians on water, it was feared that overexploitation and pollution on the part of the Palestinians would harm one of Israel's vital water sources (Sosland, 2007). These concerns and subsequent recognition that some form of cooperation would be necessary and mutually beneficial informed the water negotiations that took place during thew peace process.

Water in the Oslo Process. At the request of the United States and the Soviet Union, representatives from Israel, Syria, Lebanon, Jordan, and Palestine (under a joint delegation with Jordan) met in Madrid in the fall of 1991 to begin negotiations towards a comprehensive and lasting peace settlement. Direct negotiations between Israel, the Palestinians, and the Arab states took place along bilateral and multilateral tracks throughout the 1990's. The structure of the peace process was such that the multilateral talks addressed regional issues such as refugees, water, and arms control while the bilateral talks focused on resolving conflicts between the two parties involved.

The early stages of the peace process yielded significant progress on the water front. Going into negotiations, the number one concern of the Palestinians was recognition of Palestinian water rights, while concerns about security and maintaining water supply based on historic use occupied the top of the Israeli negotiation agenda (Sosland, 2007). On September 15, 1993, the Declaration of Principles (DOP) on Interim Self-Government Arrangements was signed. The DOP provided for the redeployment of Israeli forces from Gaza and Jericho and Palestinian self-government (Wolf, 1995). The DOP did not have a large

focus on water but it did call for the establishment of a Palestinian Water Authority (PWA) and Annex IV described regional water development projects such as a Mediterranean-Dead Sea Canal and a joint Israeli-Palestinian-Jordanian project focused on exploiting the Dead Sea (Annex IV, DOP). On May 4th, 1994, the Gaza-Jericho agreement was signed by PLO Chairman Yasser Arafat and Israeli Prime Minister Yitzhak Rabin. This agreement, also known as the 1994 Cairo Agreement, was a follow-up to Oslo I and provided for Palestinian self-rule in the West Bank and Gaza in five years and created the Palestinian Authority and Palestinian Civil Police Force as vehicles for Palestinian autonomy (Jagerskog, 2003). In what is commonly hailed as a breakthrough in Israeli-Palestinian relations, Israel and the PLO signed the Interim Agreement on the West Bank and Gaza Strip (Oslo II) on September 28, 1995.[32] In this agreement, Israel formally recognized Palestinian water rights in the West Bank (but importantly did not define them) and the PLO formally recognized Israel's right to exist in peace and security (Selby, 2003). Water is dealt with extensively in Article 40 of Annex III of the agreement, summarized as follows:

- Both sides agreed that the future water needs of the Palestinians are estimated to be between 70-80mcm/year. However, potential water sources were not discussed.
- To meet the immediate needs of Palestinians for domestic use, an annual quantity of 28.6mcm was to be made available to the Palestinians.
- Article 40.3 discusses the principles that will underpin the coordinated management of water and sewage in the West Bank. These principles include maintaining existing quantities of utilization, preventing the deterioration of water resources, utilizing water in a way that ensures sustainable use, taking all measures to prevent harm to water resources, and properly treating or disposing of all forms of sewage.
- Powers and responsibilities regarding water and sewage solely related to the Palestinians were transferred to the PA. Israel retained authority over all other water resources.
- Issues relating to ownership of water and sewage infrastructure were left to be addressed in final status negotiations.

[32] It is important to note that the Oslo II Agreement gave the PA limited control over parts of the West Bank and Gaza, with Palestinians being charged with both civil and security control over cities and towns in Area A, which covers about 18% of the West Bank, and civil control in Area B, which covers about 22% of the West Bank. The Israelis retained control over security matters in Areas B and C as well as civil control in Area C, which covers 60% of the area and includes 100% of Israeli settlements. Importantly, Area C contains most of the West Bank's water resources and agricultural lands (HRC, 2021). The agreement also delineated the parameters for economic and political cooperation.

- A permanent Joint Water Committee (JWC), composed of equal numbers of Israeli and Palestinian representatives, was established to deal with water and sewage related issues. Among other things, the JWC is responsible for approving the licensing and drilling of new wells and the development of new water resources.
- Joint Supervision and Enforcement Teams (JSET) were established to facilitate supervision and enforcement of the provisions in the agreement.

Schedule 10 of the agreement delineates fixed allocations from each of the three aquifer basins underlying the West Bank as seen in Table 12:

Table 12. Annual water allocations from the West Bank aquifers in the 1995 Oslo II Agreement. Adapted from Brooks and Trottier (2010).

	Israel (MCM/y)	**Palestine (MCM/y)**
Western Aquifer	340	22
Eastern Aquifer	40	54 + 78 for developmental purposes
North Eastern Aquifer	103	42

While the water-related provisions of the Oslo II Agreement have generally been viewed favorably (e.g. Kliot & Shumeli, 1998), there is a growing awareness that they did not result in any meaningful improvements in the Palestinian water crisis and instead served to simply legitimize a highly asymmetrical

water management framework and dressed up “domination as co-operation,” (Selby, 2003, p.96); see also Selby, 2013; Trottier, 1999). I will analyze these asymmetries in greater detail in chapter 6; for now, it is sufficient to note that the way in which water was dealt with under Oslo was greatly influenced by the broader political context and that the Oslo process did not bring about meaningful change in water management so much as it did preserve the status quo.

On October 26, 1994, King Hussein of Jordan and Yitzhak Rabin, the Prime Minister of Israel, signed the Treaty of Peace Between the Hashemite Kingdom of Jordan and the State of Israel. The treaty ended the formal state of war that had existed between the two countries since 1948 and normalized relations. While this alone makes the treaty a significant step forward in the transformation of relations between Israel and Jordan, Article 6 and Annex II of the treaty outline water sharing arrangements, as summarized below (Talozi et al., 2019):

- Israel recognized Jordan’s rightful allocations to the Jordan and Yarmouk waters.
- The parties agreed to ensure that the management and development of their water resources was undertaken in such a way so that it does not cause harm to the other’s water resources.
- They agreed to cooperate in numerous areas such as the development of new and existing water resources, the prevention of contamination of water resources, mutual assistance to alleviate water shortages, and joint research and the exchange of information regarding water-related development.
- Annex II details the allocation regime between Israel and Jordan, as summarized in Table 13. Importantly, the Annex also provides for an extra 50mcm of water for Jordan, to be jointly developed by Israel and Jordan and implemented a year after the treaty’s implementation. However, it does not specify where this additional water will come from.
- Stipulated the construction of a diversion/storage dam downstream of the Adassiya Diversion on the Yarmouk river. The treaty also called for joint cooperation in the building of a water storage system along the lower Jordan river.
- A Joint Water Committee (JWC) composed of three members from each country was established to implement the water-related provisions of the treaty and serve as a platform for information exchange.

Table 13: Allocations in the Israel-Jordan Peace Treaty. Adapted from Sosland, 2007.

Israel	Jordan
25 mcm from Yarmouk 12 mcm in summer 13 mcm in winter	50 mcm additional water
20 mcm from Yarmouk	20 mcm from Jordan river in summer[33]
Jordan river residual	Yarmouk river residual
10mcm from Arava groundwater in south	10mcm desalinated water from Israel in north[34]

Because the treaty did not specify where Jordan's extra 50mcm of water would come from, protracted disagreements about the sources of water and funding ensued. As a result, Israel agreed to deliver an extra 25mcm to Jordan for three years until Jordan could build a desalination plant; however, Jordan continues to only receive this 25mcm extra and does receive its full allocation (Talozi et al., 2019). In general, however, the water provisions of the peace treaty have provided a framework for water cooperation that has largely been followed for 30 years, even as broader political relations between Israel and Jordan remain cold (Haddadin, 2011).

1994 – 2005: Lingering Conflict

Plateauing Relations. Hydropolitical relations in the years after the signing of the Israeli-Jordanian peace agreement and the Oslo I and II agreements reached a plateau. Between 1995 and 2008, the Israeli-Palestinian JWC met at least 176 times (Selby, 2013), with meetings taking place every year even as the Oslo peace process began to unravel in the wake of Yitzhak Rabin's assassination in 1995 and the outbreak of the second intifada in 2000. Even as the peace process was losing momentum, water continued to feature prominently. In the Camp David talks of July 2000, Israel offered the Palestinians the following additional quantities of water annually: 50mcm from the Western Aquifer, 10mcm/year from the

[33] This water was stored in the Sea of Galilee in the winter and delivered to Jordan in the summer through a 2 mile pipeline connecting the lake with the King Abdullah Canal (formerly the East Ghor Canal).
[34] This water was to come from the Sea of Galilee until Jordan was able to build a desalination plant.

Northeastern Aquifer, 80mcm/year from the Eastern Aquifer, and 40mcm/year from the Jordan River (Aliewi & Assaf, 2007). However, the talks at Camp David soon collapsed before final agreement could be reached on water or any of the other final status issues that were supposed to be resolved during the interim period. With no final water arrangement reached between Israel and the Palestinians, both sides continued to use Oslo II as their operational framework (Brooks et al., 2020). Under Oslo II, the PWA acquired administrative responsibilities relating to the management of West Bank water, while the West Bank Water Department (WBWD) was responsible for day-to-day operations (Selby, 2003). As a result of the lack of progress made in water-related negotiations throughout the 2000's, Palestinian water rights remain undefined and both parties continue to unsustainably abstract water from the West Bank aquifers. Furthermore, Palestinians continue to obtain much of their water from Mekorot (and therefore receive less water at a higher price than Israeli settlements) and are largely prohibited from engaging in further water resources development due to the structural asymmetries that will be discussed in chapter 6 (Dai, 2021).

Regional water dialogue. It is worth mentioning that even as bilateral hydropolitical relations between Israel and the PLO were slowing down, several regional initiatives to improve water supply in the Jordan river basin were undertaken in the early 2000's. Several projects involving the transfer of water from Turkey, which is relatively water-rich with an average annual water potential of 98 billion cubic meters (bcm), were proposed (Rende, 2007). In 2004, Israel and Turkey signed a deal wherein Israel agreed to purchase 50mcm annually from the Manavgat river on Turkey's southwestern Mediterranean coast. Water would be transported by tanker to Ashkelon on Israel's coast, at which point it would enter the Israeli distribution system. The plan, however, was prohibitively costly at billions of dollars and was eventually shelved. In another proposal that was by no means less ambitious, Turkish President Turgut Özal proposed to transfer 10mcm of water daily from Turkey's Seyhan and Ceyhan rivers to population centers in Syria, Jordan, Israel[35], and the Gulf states as part of the Peace Pipeline Project (Rende, 2007). Concerns about the financial and political feasibility of such a proposal morphed it into a smaller pipeline that would end in Jordan or Israel (pending Syrian agreement) and thus contribute to closing the water gap in Jordan and Palestine (Bilen, 2000). However, concerns about regional instability and uncertainties about cost have stalled further progress on this project.

[35] At the objection of several Arab states, Israel was later removed from the proposal pending the establishment of peace treaties between it and its neighbors.

By far the most detailed and thought-out regional water transfer projects discussed during this time period were those involving the Dead Sea. As discussed earlier in this chapter, the Dead Sea is rapidly shrinking at a rate of about a meter of elevation a year. Recognizing the need for an urgent solution to the Dead Sea crisis and seeking to capitalize on the potential for hydropower production presented by the significant elevation drop to the Dead Sea, several projects have been proposed by the Israeli, Jordanian, and Palestinian governments. Most recently, the Red Sea-Dead Sea Conveyance Project (RSDSC) was touted as a way to protect the Dead Sea from disappearing while producing electricity and much-needed drinking water from desalination. Announced at the Johannesburg World Summit in 2002, the RSDSC projectwas viewed by international donors as a "peace conduit" for its potential to positively influence the peace process. The project received formal green lights from the Israeli, Jordanian, and Palestinian governments in 2005 (Lipchin, 2007). In the proposed project, seawater would be pumped from Aqaba on the Red Sea through Jordan's Arava Valley, where it would then flow down to the Dead Sea with gravity. Some of the water would be desalinated for drinking water purposes and transported to population centers while the remaining brine would be delivered to the Dead Sea where it could replenish dwindling water levels (UN-ESCWA & BGR, 2013). However, rising project costs, regional instability, and uncertainty about the project's environmental impacts hindered progress, and the project was formally abandoned by Jordan in 2021, citing a lack of credible commitment to the project by Israel (TOI, 2021).

Conflict in the Upper Jordan. Recall that Israel invaded southern Lebanon in 1982 and acquired control over crucial water resources, including the Hasbani river and the Wazzani Springs. Located just across the Lebanese border near the village of Ghajar, the Wazzani Springs contribute about 40mcm of the Hasbani's flow and are the river's only source of water in the summer (Medzini & Wolf, 2004). The springs therefore hold hydrological significance in the Jordan basin system and are of some strategic importance for Israel. One might be forgiven for thinking that Israel's invasion of Lebanon was motivated by a hydraulic imperative, despite the lack of evidence attesting to this (e.g. Zeitoun et al., 2012; Wolf, 1995) and the fact that Israeli troops withdrew from Lebanon in 2000. Tensions, however, over water persisted. In 2001, Lebanon installed two pumps at the Wazzani Springs and a year later announced plans for the construction of a pumping station at the springs. The total capacity of the pumping station was to be 4mcm annually, a small amount in the broader context of the Jordan river system and well within Lebanon's Johnston allocation of 35mcm/year (UN-ESCWA & BGR, 2013). Israel responded to Lebanon's plans by stating that completion of the project would constitute a casus belli, sending IDF jets to conduct flyovers over the construction site, and issuing further hardline rhetoric (see Deconinck, 2006; Sedan,

2002 for examples). The crisis was only prevented from reaching breaking point after weeks of shuttle diplomacy between Beirut and Tel Aviv and involving the US, the UN, and the EU. The issue eventually dropped off the Israeli agenda and the pumping station was completed, although it has never reached a capacity of more than 2.5mcm/year due to ongoing maintenance and electricity supply issues (Zeitoun et al., 2012).

Israel, Syria, and a peace within reach? Until 2000, Israel and Syria were engaged in direct bilateral peace negotiations. While security and borders were the primary issues on the negotiation table, water was an important secondary concern and was closely linked to each state's stance on both. Syria insisted on a return to the June 4, 1967 border, which would give Syria access to a tiny sliver of the northeastern edge of the Sea of Galilee, while Israel pushed for a return to the 1923 Paulet-Newcombe line which placed Syria's border 10m east of the Sea of Galilee (Hof, 1999). Water was therefore inextricably linked to the question of borders and was formally introduced to the negotiation table at the Wye River talks held from December 1995 – February 1996. During these talks, water was linked directly to land and security arrangements; in 1992, then Israeli Prime Minister Yitzhak Rabin had communicated through American diplomatic contacts that Israel would withdraw to the June 4, 1967 border in exchange for full normalization of relations with Syria (Daoudy, 2008). However, ambiguity and controversy surrounded the so-called "Rabin deposit" after his assassination and the track was not picked up by subsequent Israeli governments.

The Wye River talks quickly fizzled out due to regional instability and the election of the right-wing Netanyahu government, which refused to resume negotiations on the basis of Rabin's commitment. Upon the resumption of negotiations in 2000, water was again a central issue. This time, the Israelis were also concerned that the return of some 500,000 Syrian refugees to the Golan Heights would result in a deterioration of the quantity and quality of water that flowed down to Israel (Daoudy, 2008). While these negotiations once again collapsed without reaching an agreement, primarily because Israel insisted on retaining sovereignty over the Sea of Galilee in the event of a return to the June 4, 1967 border, it is important to acknowledge the increasing prominence with which water came to be featured in the Israeli-Syrian negotiations. To that end, it also must be noted that some degree of progress was made in the negotiations, with Syrian negotiators agreeing to the establishment of a joint management group for overseeing the flow of water from Syria to the Sea of Galilee (Daoudy, 2008). If talks were to resume in the future between Israel and Syria, water must be fully addressed in any final settlement due to how closely it is connected with issues of security and borders.

2005 – Present: Desalination and Alternative Possibilities

Water in the West Bank post-Oslo. Hydropolitical relations in the Jordan river basin have not undergone the dramatic transformation that the peace process was hoped to bring about. Diplomatic relations still do not exist between Israel and Syria and Israel and Lebanon, and water continues to be unsustainably harnessed from the Mountain Aquifer system. While a joint management institution (the JWC) exists between Israel and the Palestinians, water resources development has continued to be pursued primarily through unilateral agendas. In the post-Oslo period, international donors invested significantly in Palestinian water resources development to the extent that over 2,000 projects have been proposed since 1994 (Brooks et al., 2020). However, bureaucratic red tape within the JWC and frequent vetoes of proposed projects by Israel have hindered progress in the development of the Palestinian water sector. For example, between 30%-66% of Palestinian well projects up to 2009 and 58% of Palestinian wastewater projects up to 2011 received approval. By comparison, all but one Israeli project of the same type received approval in the same time period (Selby, 2013).

Further hindering development of the Palestinian water sector is the disconnect between local forms of decentralized management and the newly centralized system created under the PWA. The Palestinian Water Law of 2002, which declared water to be a public good, failed to recognize local institutions that had been managing wells and springs as communal property since before 1967 (Trottier, 2019). Decades before the start of the occupation, grassroots forms of water management had successfully managed springs as collectively owned resources while wells were operated by locally owned well companies that only extracted a fee to cover the cost of the pump operation and well maintenance (Trottier, 2019). The introduction of Decree No.14 in 2014, which aimed to clarify the roles and administrative processes of the PWA, did not reconcile local forms of management with centralized institutions. Furthermore, the 2014 law imported principles for water resources development from global conferences that were largely organized and attended by Western governments instead of incorporating existing Palestinian water management principles. As a result of these disconnects, power imbalances stemming from the Israeli occupation, and poor inter-ministerial communication, the 2014 law remains largely unimplemented (Trottier, 2019).

Desalination: A hydropolitical gamechanger? The year 2005 was chosen to demarcate the last time period in my overview of Jordan basin hydropolitics because it is the year that Israel opened its first large-scale desalination plant at Ashkelon. Israel currently operates five large-scale desalination plants

along its coast; in 2019, these plants produced 80% of tap water in Israel (Bar-Zeev, 2019). According to the Israel Water Authority, desalination is supposed to supply more than all of Israel's freshwater resources combined by 2050 (IWA, 2014). Desalination has been described as a hydropolitical "game-changer" because of the flexibility it offers in policy approaches to states negotiating over shared water resources and because of its potential to transform relations from a zero-sum game to a mutually beneficial relationship (Aviram et al., 2014). Within Israel, desalination has increased the overall availability of /freshwater resources and reduced uncertainties about quality and quantity. As a result, the amount of freshwater supplied by Israel to Jordan and the Palestinian territories has increased. In 2016, the PWA purchased 59% of its water from Mekorot, much of which was desalinated (Trottier, 2019). That same year, Israel was also obliged under US pressure to increase its supply of desalinated water to the Gaza Strip to 10mcm/year (Katz, 2022).[36]

In the past few years, Israeli-Jordanian hydropolitical relations have shifted towards greater cooperation. While it is impossible to definitively attribute this shift in policy to desalination alone, it is likely that desalination played a role in catalyzing a subtle yet significant shift in the way that water is approached by Israel and Jordan. Historically Jordan and Israel had discussed water in terms of "rights" or "rightful allocations," as evidenced in the 1994 peace agreement but the Meetings of Minute signed in October 2010 refers to "sold water" in the context of water transfers (Aviram et al., 2014). This shift in discourse frames water as a commodity to be traded and purchased and opens up the discussion to quantities and pricing of desalinated water, as discussed further in the Meetings of Minute text. Capitalizing on the new opportunities offered by desalination, Israel and Jordan, along with the Palestinian Authority, signed an agreement in 2013 to launch a pilot project for the Red-Dead canal described earlier (Jerusalem Post, 2013). In 2021, Israel and Jordan signed an agreement in which Israel pledged to sell an extra 50mcm/year of water to Jordan, doubling the amount it previously sent to the Kingdom under the terms of the Oslo II Agreement (TOI, 2021). While the water sold to Jordan will be sourced from the Sea of Galilee, several sources state that an increase in freshwater supplies through desalination made the deal possible (e.g. Al-Jazeera, 2021; Shabab, 2023). However, perhaps the most explicit example of how desalination opened up new opportunities for cooperation is found in the recent water-for-energy deal reached between Israel and Jordan. Under this project, Jordan would sell solar energy to Israel from a UAE-funded solar plant in exchange for 200mcm/year of desalinated water from Israel (Al-Jazeera, 2023a). The project, with its components dubbed "Prosperity Green" and "Prosperity Blue" respectively, is a

[36] Under the Oslo II Agreement, Israel is obliged to supply Gaza with 5mcm of desalinated water annually.

comprehensive water-for-energy deal that not only addresses water scarcity in the region but also addresses climate change impacts, youth empowerment, and risk adaptation and mitigation (Bromberg et al., 2020). However, with the outbreak of war in Gaza in 2023, Jordan announced it would not sign the deal with Israel, temporarily slashing hopes that a broader water-for-energy deal could be reached and demonstrating how hydropolitical relations are often constrained by the broader political context (Al-Jazeera, 2023b).

Conclusion

The purpose of this chapter was to provide background information on the hydrography and hydropolitics of the Jordan river basin. Shared by Syria, Lebanon, Israel, Jordan, and the Palestinian Territories in the West Bank, the Jordan river basin is small in size but rich in history. The first section of the chapter described the basin's hydrography, highlighting how the once relatively abundant flows of the Upper Jordan and the Yarmouk have been significantly diminished by upstream diversion. As the river travels south, its flows are in quantity and quality so that by the time it reaches the Dead Sea, it is nothing more than a polluted stream. Due to the importance of groundwater as a water source in light of extreme surface water scarcity, this chapter also detailed the availability and use of the Mountain Aquifer, a series of three sub-aquifer basins that underlie Israel and the West Bank. The Mountain Aquifer is an important source of water for both Israelis and Palestinians and has been a significant point of conflict between them. Water purchased from the Israeli water company Mekorot was also highlighted as a crucial water source for residents of the West Bank, while desalinated water and treated wastewater were briefly discussed as alternative water sources within Israel.

The second section of the chapter provided a brief overview of the hydropolitical relations between the basin's riparians. The hydropolitical history of the basin was divided into five time periods that each ended in an event with significant ramifications for the basin's hydropolitics. In the first, pre-1948 period, colonial legacies and the development of Zionism influenced how water was physically divided by political borders and perceived by Jewish immigrants. In the second period, spanning from 1948-1967, unilateral development and confrontation along the Israeli-Syrian border set the stage for the outbreak of the Six Day War. American intervention in the 1950's attempted to create a regional solution to the water conflict, but disagreements over the exact allocations and an unwillingness on the Arab side to be seen as formally cooperating with Israel prevented the Johnston Plan from being formally ratified. By the end of the Six Day War in 1967, Israel controlled all of the Jordan river's headwaters (with the

exception of the Hasbani) and had gained control over the aquifers of the West Bank. The capture of the West Bank also greatly increased the number of Palestinians living under Israeli rule. As Israel began expanding its settlements in the West Bank during the tenure of the Likud Party, which lasted from 1977 until 1992, it appropriated increasing amounts of groundwater at the expense of the Palestinians even as growing concerns about deteriorating water quality and territorial compromise with the Palestinians led to the recognition that some level of cooperation over water was inevitable. At the same time, technical-level cooperation between Israel and Jordan over allocation of the Yarmouk river throughout the 1980's helped lead to the signing of the 1994 peace treaty between the two countries. The peace treaty hailed the start of the 4th era of Jordan Basin hydropolitics, which was dominated by a gradual downturn in bilateral peace talks and lingering conflict in the upper Jordan basin. The 5th and final era began in 2005 with the opening of Israel's first large-scale desalination plant. Israel's increasing reliance on desalination as a primary water source has the potential to act as a hydropolitical gamechanger, and it remains to be seen whether and how desalination will affect the balance of power in the basin.

Chapter 4: Hydrography and Hydropolitics of the Euphrates-Tigris River Basin

This chapter will provide an overview of the hydrography and hydropolitical history of the Euphrates-Tigris basin. In the ET basin, where water is comparatively abundant, dam construction in the upstream countries has dramatically altered the basin's hydrography and is a main source of hydropolitical tension. The first section will provide a brief overview of the basin's hydrography. Because hydraulic development has played such an important role in influencing the basin's hydrography and hydropolitics, it will also briefly outline the development and use of the basin's water resources. The second section of this chapter will present an overview of the hydropolitical relations between Turkey, Syria, and Iraq, the main riparians of the basin. While Iran, the fourth riparian to the basin, is a key player in the geopolitics of the region, water interactions between Iran and the other riparians are more limited. However, the hydropolitical implications of dam building in Iran will briefly be discussed because Iranian dams significantly impact the Kurdistan region of Iraq. As in the previous chapter, it is important to note that the following account is not meant to provide a comprehensive overview of the waters of the ET basin and their use. Rather, it is meant to lay the foundation that will undergird the analysis in Chapters 5a, 5b, 6, and 7.

Hydrography of the Euphrates-Tigris River Basin

The Tigris and Euphrates rivers are the largest rivers in Western Asia. The two rivers originate separately in their headwaters in the Taurus and Zagros mountains in Turkey and Iran and wind their way through the ancient region of Mesopotamia before joining shortly before their only outlet at the Persian Gulf. The land between the Euphrates and the Tigris rivers is often referred to as the "cradle of civilization" and witnessed the rise and fall of great civilizations such as the Sumerians and Babylonians, who established elaborate canal systems to irrigate extensive tracts of land (Lorenz & Erickson, 2023). The Euphrates river basin drains an area of 440,000 km^2 primarily in Turkey, Syria, and Iraq. The Euphrates river is 3,000 km long, with 1,230km in Turkey, 710km in Syria, and 1,060m in Iraq (Conker, 2014). Most of the basin lies in Iraq (47%), followed by Turkey (28%), Syria (22%), Saudi Arabia (2.97%), and Jordan (0.03%) (UN-ESCWA & BGR, 2013). While Turkey contains a relatively small percentage of the basin's land area, it contributes an estimated 89% of the river's flow while Syria contributes the remaining 11% (FAO, 2009b). The headwaters of the Euphrates river are the Murat and Karasu rivers near the Turkish city of Erzurum. They join to form the Euphrates mainstem near the city of Keban (UN-ESCWA & BGR, 2013). The river flows generally southward into Syria, where it runs for almost 700km

before it enters Iraq (Kibaroğlu & Scheumann, 2011). In Syria, the Euphrates is joined by three tributaries – the Sajur, the Balikh, and the Khabour rivers - that are fed by water originating in Turkey.

Originating about 30km east of the Euphrates, the Tigris river drains an area of 221,000km^2 and is 1,850km long, with 400km in Turkey, 32km in Syria, and 1,418km in Iraq (UN-ESCWA & BGR, 2013). The headwaters of the Tigris rivers are the Botan and Batman rivers, which convergence south of the Turkish city of Elazig. The river flows through Turkey to form part of the Turkish-Syrian border before beginning the remainder of its course through Iraq. For the purposes of this study, it is important to point out that the Tigris flows through the autonomous Kurdistan Region of Iraq (KRI) for almost 200km before entering Iraq proper. Among the most important tributaries to the Tigris river are the Greater Zab, which is shared between Turkey and Iraq and contributes an average annual flow of 12.7bcm to the Tigris, and the Lesser Zab, which originates in Iran and contributes an average flow of 249m^3/sec to the Tigris. Most of the Tigris basin lies in Iraq (56.1%), with the remaining in Turkey (24.5%), Iran (19%), and Syria (0.4%) (UN-ESCWA & BGR, 2013). It is estimated that Turkey contributes almost half of the Tigris river's flow (51%), with Iraq and Iran contributing a further 39% and 10%, respectively (FAO, 2009b). The Euphrates and Tigris rivers converge near Qurna in southern Iraq to form the Shatt al-Arab, although they are artificially connected by canals farther upstream in Iraq (Altinbilek, 2004). Figure 19 depicts the catchment area of the Euphrates-Tigris basin.

Figure 19: Map of the Euphrates-Tigris River Basin.

Data on the joint discharge of the Euphrates and Tigris rivers is difficult to determine because both rivers have high intra- and interannual fluctuation in flow. The mean annual flow of the Euphrates river at the Jarablus monitoring station in Syria, on the border with Turkey, was 22.8bcm between 1990-2010 and was 16.8bcm in the same time period at Hussaybah in western Iraq (UN-ESCWA & BGR, 2013). These figures are significantly lower than the mean annual flow recorded in decades prior due to the construction of dams, primarily in Turkey but also in Syria. Although smaller in size, the Tigris has a higher annual average discharge, with an average flow of 20bcm/year measured at Mosul between 1931 – 2011 and 25.7bcm/year measured at Kut in eastern Iraq between 1931-2005 (UN-ESCWA & BGR, 2013). The discharge of the Tigris river has also been significantly reduced by dams in Turkey, Iran, and to a lesser extent, Iraq. Turkey is the only country in the basin considered to possess abundant surface and groundwater resources, although dwindling water supplies due to increasing demand and climate change present a significant problem to all riparians. Water quality is also an issue, particularly in the downstream countries. Irrigation return flows from all riparians contribute to the degradation of downstream water quality, while in Iraq water quality further deteriorates around urban centers such as Baghdad due to large inflows of untreated or poorly treated wastewater (FAO, 2009b).

The Mesopotamian Marshes

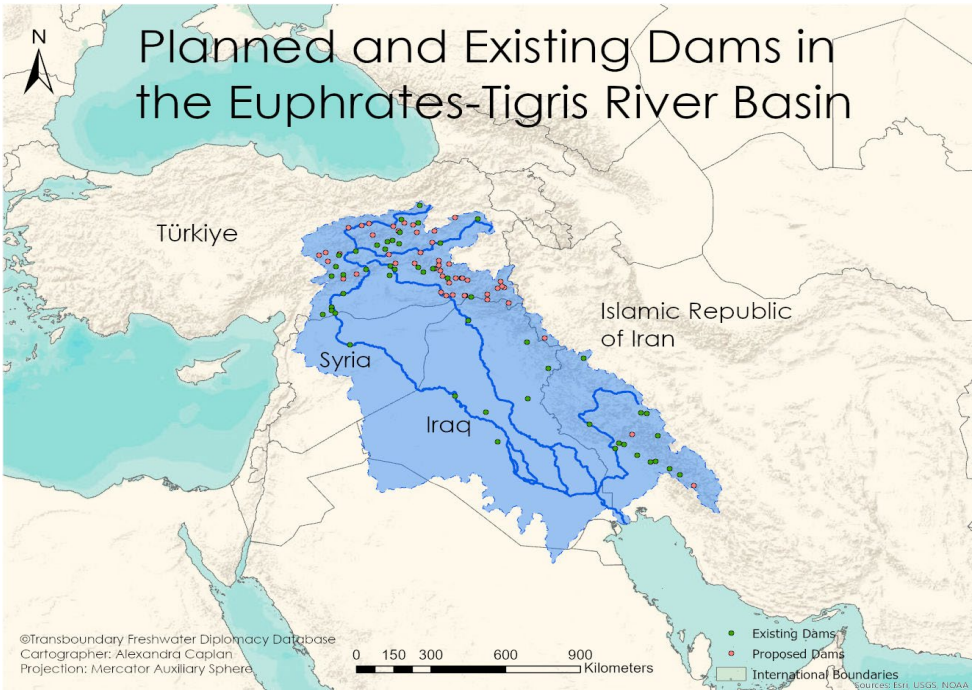
Originally stretching across an area of 35,000km^2 from southern Iraq to southwestern Iran, the Mesopotamian Marshes are an important wetland ecosystem in the ET basin and historically were the largest wetland system in western Eurasia. Aside from providing important ecosystem services, the marshes are also home to the Marsh Arabs who have developed a distinct way of life that is entirely dependent on the marshes (Newman, 2007). Extensive upstream development on the Tigris and Euphrates rivers has significantly degraded the marsh system. Intentional draining of the marshes by Saddam Hussein in an attempt to destroy the culture of the Marsh Arabs, who had rebelled against Hussien's Ba'ath Party regime, further damaged the marshes. Satellite imagery indicates that up to 95% of some parts of the marshes were degraded and transformed into barren land (Albarakat et al., 2018). After Saddam Hussein was ousted, rewatering projects were initiated by local communities and international aid organizations to restore both the wetland ecosystem and the livelihoods of the Marsh Arabs. In 2005, it was estimated that 39% of the former marshlands were reflooded (UNEP, 2005). Today, the marshes continue to be threatened by upstream development, particularly in Turkey and Iran. As this study will later discuss, the marshes have been the focal point of several campaigns to stop upstream dam building, with limited success.

Water Resources Development and Use

The Euphrates and Tigris rivers are an important water source for the main riparian countries of Turkey, Syria, and Iraq, particularly for agriculture and hydropower development. While the ET basin is one of many basins in Turkey, it accounts for a third of the country's surface water and hosts one-fifth of its irrigable area (Kibaroğlu & Scheumann, 2013). Reliance on the basin's waters is much more pronounced in Syria and Iraq, where the basin constitutes over 60% of the former's water resources and 98% of the latter's (Conker, 2014; Zawahri, 2006). Agriculture is the main water user in all riparian countries; in 2017, agricultural use represented 85% of total water use in Turkey, 88% in Syria, and 92% in Iraq and Iran (FAO Aquastat, 2017). Water is also used for hydropower production, especially in Turkey which lacks significant oil reserves and is primarily dependent on energy imports.

Unlike the Jordan river basin, the Euphrates-Tigris basin is characterized by a large degree of hydraulic infrastructure (see Figure 20).

Figure 20: Planned and existing dams in the Euphrates-Tigris river basin.



As is the case in other basins throughout the world, the most downstream country in the ET basin, Iraq, was the first to initiate development projects. Two flood control dams were built in 1914 and 1951, and by the mid-1960s, Iraq was irrigating significantly more land than Syria and Turkey (FAO,

2009b). Further dams for flood control, irrigation, and hydropower were subsequently built (see Table 13) and in 1992, a canal linking the Euphrates and Tigris rivers in Iraq was completed. Syria and Turkey began exploiting the waters of the basin for irrigation and hydropower in the 1960s. The largest dam in Syria, the Tabqa Dam (also known as the Euphrates Dam), was built on the Euphrates in 1973 and its reservoir, Lake Assad, has the potential to irrigate 640,000 ha of land. Other major dams on the mainstem of the Euphrates river in Syria include the Baath Dam, built in 1987 to regulate flow from the Tabqa Dam, and the Tishreen Dam, built in 1999 with the main purpose of generating hydropower (UN-ESCWA & BGR, 2013). Syria has also initiated development projects on Euphrates tributaries, including the Great Khabour Irrigation Project, which involved the construction of three dams on the Khabour river for hydropower and irrigation purposes. In 2000, it was estimated that 325,000 ha of land were irrigated within the Syrian portion of the ET basin, with 325,000 ha more projected to be irrigated in future projects (UN-ESCWA & BGR, 2013). In Turkey, development in the ET basin has mostly taken place under the auspices of the Southeastern Anatolian Project, a massive regional development project that aims to irrigate the country's fertile southeast, produce hydropower, and improve the standard of living in the southeast. Table 14 provides a non-exhaustive list of the main dams and barrages on the Euphrates and Tigris rivers and their main tributaries, in order of construction.

Table 14. Non-exhaustive list of major dams on the Tigris and Euphrates rivers. An asterisk (*) indicates the dam is part of the Southeastern Anatolian Project. Table adapted from FAO (2009b) and UN-ESCWA and BGR (2013).

Country	**Name**	**River**	**Year Completed**	**Capacity (mcm)**
Iraq	Hindiyah	Euphrates	1914	-
	Kut	Tigris	1939	-
	Ramadi	Euphrates	1948	3,300
	Samarra (Tharthar)	Tigris (diverts floodwater to the Euphrates)	1954	85,000
	Dokan	Lesser Zab	1961	6,800
	Derbendi Khan	Diyola	1962	3,000
	Dibbis	Lesser Zab	1965	3,000
Turkey	Keban*	Euphrates	1974	31,000
Syria	Tabqa	Euphrates	1975	14,000

Iraq	Mosul	Tigris	1984	11,100
	Fallujah	Euphrates	1985	-
	Haditha (Qadisiya)	Euphrates	1987	8.280
Syria	Baath	Euphrates	1987	90
Turkey	Karakaya*	Euphrates	1987	9,580
	Hancağiz*	Euphrates	1988	100
	Goksu	Tigris	1991	600
	Atatürk*	Euphrates	1992	48,700
	Kralkizi*	Maden (Tigris)	1997	1,919
	Dicle*	Tigris	1997	6,000
	Batman*	Tigris	1998	1,200
	Çamgazi*	Doyran (Euphrates)	1998	56
Syria	Tishreen	Euphrates	1999	1,900
Turkey	Karkamiş*	Euphrates	1999	160
	Birecik*	Euphrates	2000	1,220
	Kayacik*	Euphrates	2005	300
	Garzan*	Garzan (Tigris)	2012	165
	Sirimtaş*	Birimşe (Euphrates)	2013	-
	Koçali*	Euphrates	2016	-
	Ilisu*	Tigris	2018	10,410
	Silvan*	Tigris	2019	7,300
	Büyükçay*	Euphrates	Planned	-
	Çetintepe*	Euphrates	In progress	443
	Cizre*	Tigris	Planned	-
	Kahta*	Euphrates	Planned	-
	Kayser*	Tigris	Planned	-
Turkey	Kemlin	Euphrates	Planned	-

Hydropolitical Relations in the ET Basin

Bilateral relations at the interstate level dominate basin hydropolitical relations due to a lack of third-party involvement in negotiations, weak domestic influences on water policy, and limited private sector involvement. As I will discuss in chapters 5b and 6, the privatization of the Turkish water sector in the mid-1990's and accelerations in dam building programs among the three riparian countries, but especially Turkey, opened up new spaces for the involvement of NGOs, private sector companies, and general civil society, in promoting and pushing back against water policies. As in the Jordan basin, hydropolitical interactions in the ET basin must be viewed against a broader political context that, for much of the past century, has been defined by four main issues: (1) historically poor relations between Syria and Turkey until the late 1990's, influenced by the broader East/West divide; (2) the Kurdish question; (3) rivalry between the Iraqi and Syrian Ba'ath parties; and (4) regional conflicts, mainly the 1990 Gulf War and the American invasion of Iraq in 2003.

A comprehensive hydropolitical history of the ET basin is the subject of several excellent works such as those by Dolatyar and Gray (2000), Kibaroğlu (2002), Kibaroğlu and Scheumann (2013), and Kut (1993). In this section, I will provide an abbreviated overview of hydropolitical relations between the three main riparians of the ET basin – Iraq, Syria, and Turkey. This section will provide the context against which the impact of the broader political context and power relations between actors on patterns of conflict and cooperation in the ET basin will be analyzed in subsequent chapters. It divides the hydropolitical relations of the basin into 4 distinct timeframes: pre-1960, uncoordinated unilateral development from 1960-1980, accelerated development and the securitization of water from 1980-1998, and increased cooperation at the interstate level and increased conflict at other scales post-1998.

Pre-1960: The End of Empire and Unilateral Development

Prior to its dissolution in 1922, the Ottoman Empire had ruled over much of the territory containing the Tigris and Euphrates rivers for centuries. After the fall of the Ottoman Empire, its lands were divided by the European colonial powers, with Syria falling under the French Mandate and Iraq becoming part of the British Mandate (Fromkin, 1989). Notably, modern-day Turkey did not come under colonial rule and was declared a republic in 1923 following the Turkish War of Independence. The Euphrates-Tigris basin, which had previously been ruled by a single entity, now crossed multiple international borders that had largely been drawn irrespective of ethnic, religious, and other divisions in

the region. Despite this, water relations between the new riparians were generally friendly until unilateral development programs began to accelerate in the 1960's (Altinbilek, 2007).

Although management and governance of the Tigris and Euphrates rivers was not a priority in the decades following the dissolution of the Ottoman Empire, several agreements[37] with water-related provisions were signed during this time period. The Treaty of Sèvres, signed in 1920, partitioned the heartland of the Ottoman Empire between Greece, Italy, and France. Although the treaty remained unratified and was replaced by the Treaty of Lausanne three years later, it established consultative committees to manage the Tigris and Euphrates rivers (Dolatyar & Gray, 2000). Water was also mentioned in the first legal arrangement in the basin signed in 1921 by France and Turkey. Article XII of the agreement stipulated that the city of Aleppo may make arrangements to withdraw water from the Euphrates river in Turkish territory at its own expense (Franco-Turkish agreement signed at Angora on October 20, 1921). Furthermore, article 109 of the 1923 Treaty of Lausanne contains the following provision regarding the use of international water:

> In default of any provisions to the contrary, when as the result of the fixing of a new frontier the hydraulic system (canalisation, inundation, irrigation, drainage or similar matters) in a State is dependent on works executed within the territory of another State, or when use is made on the territory of a State in virtue of pre-war usage, of water or hydraulic power, the source of which is on the territory of another State, an agreement shall be made between the States concerned to safeguard the interests and rights acquired by each of them.

This article has been interpreted by some commentators as an "explicit appreciation of the rights of the downstream parties" (Dolatyar & Gray, 2002, p.133) while others have inferred that it requires Turkey to consult with Iraq before undertaking any activities that could alter the discharge of the Euphrates (Bakour & Kolars, 1995). In any event, the article is significant in that it recognized the need to safeguard the interests of both parties in the event of an alteration in the frontier or the river's flow.

The most important agreement signed during this time period was the 1946 Treaty of Friendship and Good Neighbourly Relations signed between Turkey and Iraq. This treaty, which aimed to improve cooperation in all aspects of Turkish-Iraqi relations, contains an entire protocol dedicated to the utilization and regulation of the waters of the Tigris and the Euphrates. The protocol highlights the need to construct dams on Turkish territory to aid in flood control and obligates Iraq to fund the construction of these facilities. Iraq and Turkey agree to collaborate and undertake technical studies regarding flood control and Turkey also agreed to monitor and share flow data with Iraq. Importantly, Turkey also

[37] See Appendix 1 for a comprehensive list of the agreements in the Euphrates-Tigris basin

obliged itself to inform Iraq of any construction plans on the two rivers and make a concerted effort to accommodate the needs of both countries in doing so (Treaty of Friendship and Good Neighbourly Relations, 1946). This protocol represents a major stepping stone in Turkish-Iraqi hydropolitical relations because it recognized the need for the construction of infrastructure in the upstream state to regulate flooding for the benefit of the downstream states. Furthermore, the protocol recognized the obligation of Turkey to notify the downstream riparians of potential hydraulic infrastructure projects and developed an early mechanism for the exchange of hydrologic data, both of which are important cc xelements of transboundary freshwater treaties (Gerlak et al., 2011; Mitchell & Zawahri, 2015). Taken together, the agreements signed during this period emphasized the right of downstream states to water entering their territory and established a framework to guide future cooperation.

Having recently achieved independence in the first era of hydropolitical relations in the ET basin, the riparian states were primarily focused on nation-building and socioeconomic development. Irrigation represented the dominant use of water in the basin, and even though each state made considerable strides in expanding its irrigated area, the demand for water did not exceed supply and there was no impetus for devising a regional framework for basin management beyond that outlined in the agreements described above. Until its dam building program began to accelerate in the mid-1970's, Turkey was utilizing only about 3% of the Euphrates water, Syria 10%, and Iraq slightly more than 50% (Kliot, 1994). Due to the relative abundance of water supplies and the lack of large-scale development in the basin prior to 1960, transboundary waters remained on the domestic policy agenda and were not perceived as a foreign policy issue (Kibaroğlu & Scheumann, 2013). It wasn't until the riparian states initiated their own large-scale development projects at roughly the same time that shared waters became a politicized issue.

Uncoordinated Unilateral Development: 1960-1980

The second era of hydropolitical relations in the ET basin was characterized by the initiation and acceleration of large-scale development projects in each riparian state. In Turkey, development of the Euphrates and Tigris rivers was driven initially by a desire to minimize dependency on oil imports alongside increasing electricity demand and, later on, the goal to irrigate the fertile soils in southeastern Anatolia. In Syria and Iraq, where flatter topography minimized the rivers' hydropower potential, the focus was on achieving food security. In Syria, the emphasis on achieving food self-sufficiency was underpinned by political goals that emphasized migration to rural areas and the formation of a political

power base rooted in the peasant class (Hinnesbusch, 1989). In Iraq, a revitalized interest in developing the agricultural sector coalesced after the nationalization of oil companies in 1972 led to increased oil revenues (McLachlan, 1991). The initiation of large-scale development projects in this time period can also be seen as a matter of national prestige. In all three riparians, great importance was attached to hydraulic infrastructure and they were perceived as national symbols of pride and progress (Medzini & Wolf, 2004). Large dams are seen as symbols of state progress and are inherently linked to processes of state-making and nation-building through their centrality in a state's hydraulic mission (Allouche, 2005). To this end, they are often named after important political figures and celebrated in the public eye. The names of Atatürk Dam, Mosul (formerly Saddam) Dam, and Lake Asad (the reservoir created by the Tabqa Dam) all attest to the importance of hydraulic infrastructure to national prestige in Turkey, Iraq, and Syria. Some of these developments have even been featured on currency (see Figure 21).

Figure 21. One million Turkish lira banknote (no longer in use) depicting Atatürk Dam and 500 Syrian Pounds showing the Tabqa dam. Source: Conker, 2014.

The following sections will briefly detail the main hydraulic development projects that were initiated in each country during this time period.

The Southeastern Anatolian Project. Turkey has by far the most extensive dam network on the Euphrates and Tigris rivers, the majority of which were built as part of the country's Southeastern Anatolian Project (*Güneydoğu Anadolu Projesi*, GAP). The GAP is one of the largest and most ambitious hydraulic development projects undertaken in the developing world. Energy price hikes and increasing domestic demand combined with a desire to turn Turkey's underdeveloped but agriculturally fertile

southeast into the 'breadbasket' of the Middle East to provide the impetus for the initiation of the GAP in the 1970's. When completed, the GAP will consist of 22 dams (see Figure 22) and 19 hydroelectric power plants on the Tigris and Euphrates rivers to bring cheaper energy and irrigate 1.8 million ha of arid agricultural land (GAP-RDA, n.d.). Construction of the first dam, the Keban dam, was completed in 1973, while the crownpiece of the GAP, the Atatürk Dam, was completed in 1992 (Kibaroğlu, 2002). The GAP was originally started as a narrowly defined scheme to complete Turkey's hydraulic mission through the development of land and water resources in the southeast. When completed, 27 billion kWh of electricity will be generated annually and the southeast will form Turkey's export hub for agricultural production as the ratio of irrigated land to total GAP area will increase from just under 3% to 22.8% (Ünver, 1997).

As the government sought to modernize rural southeastern Anatolia and transform its political, cultural, socioeconomic, and environmental landscapes, the GAP morphed first into a multisectoral and then into a sustainable human development project (Bilgen, 2018b; Warner, 2012). The multisectoral nature of the GAP was codified in the GAP Master Plan of 1989, which outlined four key components of the project: (1) to efficiently manage the GAP region's soil and water resources for domestic, agricultural, and industrial purposes; (2) to encourage the adoption of better agricultural practices; (3) to build-up the region's private sector by encouraging private entrepreneurship; and (4) to reduce emigration from the southeast by enhancing education, employment, and social services (Nippon Koei & Yüksel Proje, 1990). A focus on human development has replaced the project's original emphasis on land and water resources development through the initiation of programs designed to increase literacy, women's empowerment, community participation in decision-making, employment, and a host of other issues at the core of regional modernization and transformation. A Regional Administration (GAP-RDA) was established in 1989 to oversee implementation of the plan. Turkey's aspirations to become a European Union member state influenced the expansion of the GAP into a multisectoral project and later on, a socioeconomic development project, as Turkey sought to align its political economy with the EU's neoliberal development paradigm (Bilgen, 2018b). What had originally started as a technical project in the 1970's therefore transformed into a sustainable human development project with significant ecological, humanitarian, cultural, socioeconomic, and political ramifications.

Figure 22. Planned and existing dams in the GAP. Source: Initiative to Keep Hasankeyf Alive.

The flood control and storage capabilities of the GAP offer benefits to downstream Syria and Iraq. Furthermore, the project has yielded positive impacts on the under-developed southeast of Turkey through expanding the amount of irrigated land, improving drinking water supply and sanitation in rural villages, connecting almost all villages in the region to road networks, increasing literacy rates, and enhancing healthcare and social services (Ünver, 1997). As with all large development projects, however, the GAP is not without its controversies. Syria and Iraq have lodged multiple complaints about the negative impact that dam construction will have on the flow of the Tigris and the Euphrates through their territory, and concerns about deteriorating water quality from increased agricultural runoff in Turkey and Syria have also been raised (Berkun, 2010; Kolars & Mitchell, 1991). Domestically, the GAP also poses numerous issues. Southeast Anatolia is home to a majority Kurdish population who have historically resisted calls for assimilation by the Turkish republic and have campaigned for the establishment of an independent Kurdistan. The relationship between the GAP and the Kurdish question has been the subject of numerous analyses. Some scholars have argued that the Kurdish question is but one of many issues that characterize the complex network of interactions between Turkey, Syria, and Iraq (Çarkoğlu & Eder, 2001), while others have made the case that the GAP is part of a broader strategy to integrate the Kurds into the mainstream Turkish state and repress Kurdish identity and aspirations for statehood (e.g. Jongerden, 2010; Nestor, 1996). Other opponents of the GAP criticize it on

environmental and humanitarian grounds, highlighting the damage the project has caused to the environment and archaeological sites as well as the displacement of local populations (Bilgen, 2018a; Warner, 2012). These issues will be further analyzed in Chapter 6.

The Euphrates Valley Project in Syria. In the early 1960's, the Ba'ath party came to power in Syria following a military-led coup that transformed post-colonial Syria into a one-party state that exerts tight control over multiple dimensions of society, including water resources. The Ba'ath Party's rural roots and reliance on peasantry in the countryside for support manifested in its promotion of agricultural development and keen interest in large-scale water development schemes (Barnes, 2009). In 1963, the government released its first 5-year plan that called for the development of a large dam on the Euphrates in response to increasing food and energy demand (Kibaroğlu & Maden, 2014). The Tabqa Dam became operational in 1973 and is located upstream of Raqqa on the Euphrates river. It produces 60% of the country's electricity and is designed to irrigate an area of 640,000 ha, although it currently does not reach either its hydropower production or irrigation potential. Tabqa Dam is part of Syria's broader Euphrates Valley Project which has the main objectives of increasing irrigable area, producing electricity for urban and industrial use, and providing protection against seasonal flooding (Melizcek, 1987). However, the local population has still not fully received the expected benefits from the project due to setbacks stemming from high concentrations of gypsum in the area's soil and technical issues with the Soviet design of Tabqa Dam (Kibaroğlu, 2002). As a result, the targeted irrigation area was reduced by almost half and the expected increases in the productivity and efficiency of the agricultural sector have not been realized. Rather, the Euphrates Valley Project enabled the Ba'ath Party to consolidate control over the water sector and populations in the countryside.

Connecting Two Rivers: Iraq's Thartar Canal. Iraq was the first country in the basin to begin developing the waters of the Tigris and the Euphrates. Because of its generally flat topography, Iraqi development projects have focused on expanding irrigation and drainage networks while offering protection against seasonal flooding. However, until the nationalization of the oil companies in 1972, agricultural production was largely sidelined in favor of an industrial, oil-based economy. A series of changing agrarian reform laws in the late 1950's and throughout the 60's and 70's enabled absentee landlords with close ties to state elites to control most of the land (Kibaroğlu, 2002). Additionally, political instability and a lack of good management and operational practices have hampered agricultural performance for much of Iraq's modern history. Nonetheless, a growing population corresponded to a growing demand for water, and by 1970, over 10 dams and irrigation projects had

been completed, albeit with most of them being on a smaller scale than those in Turkey and Syria (Al-Ansari et al., 2014). The cornerstone of Iraq's hydraulic development schemes is the Thartar Canal (Depression) linking the Tigris and the Euphrates northwest of Baghdad. Water is diverted from Samarra Dam on the Tigris into a natural depression (Lake Thartar) and then transferred to the Euphrates basin where there is a greater water shortage (McLachlan, 1991). The Thartar Canal has the capacity to transfer up to 6bcm of water annually from the Tigris to the Euphrates, giving it the potential to play a significant role in alleviating Iraq's water crisis.

Technical Cooperation. The almost simultaneous undertaking of the aforementioned development projects necessitated some level of technical cooperation amongst the riparians. During the impoundment of Keban Dam, Iraq insisted on guaranteed flows of 350m^3/sec, a request Turkey eventually agreed to under pressure from international donors provided that the natural flow of the river was able to support such a discharge. In 1964, a meeting was held each with Syrian and Iraqi officials to discuss the construction of Keban Dam and, with Syria, to exchange information about the progress of development projects (Kibaroğlu, 2015). At first meeting with Iraqi officials, the Turkish delegation proposed the establishment of a trilateral Joint Technical Committee (JTC) that would determine the average annual discharge of each river and determine each country's irrigation needs. The importance of having three-way meetings with all of the riparians was reaffirmed at Turkey's meeting with Syria later that year, and in 1965, the first tripartite meeting was held in Baghdad (Kibaroğlu, 2002). At this meeting, information about each country's respective development project was exchanged and preliminary discussions about setting up a JTC were held. However, Iraq strongly opposed Syria's suggestion of negotiating on Tigris waters in addition to the Euphrates and Turkey rejected Iraq's call to entrust the JTC with supervisory and monitoring powers. It would take almost 20 more years for agreement to be reached on the establishment of a permanent JTC that involved all three riparians.

In the absence of a permanent JTC, a series of ad hoc meetings were held in the early 1970's with the primary goal of how to fill the Keban and Tabqa reservoirs while meeting downstream irrigation demands (Kibaroğlu, 2015). However, the Turkish and Syrian delegations failed to reach agreement and subsequently determined their reservoir impoundment programs unilaterally. The lack of a harmonized development program was acutely felt in the spring of 1975 when a particularly dry period of weather coincided with the impoundment of both reservoirs to precipitate a regional crisis. Syria was accused by Iraq of intolerably reducing the flow of the Euphrates while Syria placed the blame on Turkey. This crisis

was further exacerbated by worsening political relations between the two regimes, and violent conflict was avoided only through Saudi Arabian mediation (Daoudy, 2008).

1980-1998: Escalating Conflict and Cooperation

During the third period of hydropolitical relations from 1980-1998, water in the ET basin gradually became more politicized and securitized as it was pushed higher on the political agenda. Political tensions between Turkey and Syria over the latter's support of the Kurdistan Worker's Party (*Partiya Karkerên Kurdistanê*, PKK) and territorial disputes over Turkey's Hatay province contributed to the escalation of the water conflict between the two riparians. Meanwhile, in the aftermath of the Iran-Iraq War, Iraq was hard hit by international sanctions and internal instability (Conker, 2014). Strong trade ties between Turkey and Iraq meant that water relations between those two countries were not as strained as those between Turkey and Syria. Even though the broader political environment was not conducive to large-scale cooperation, the continued exploitation of the Euphrates in Turkish territory led to renewed calls for technical cooperation. While a basin-wide agreement remained elusive and tripartite meetings that took place between the riparians did not make substantial progress on the critical issue of water allocation, negotiations that occurred at the highest political levels led to the signing of two bilateral water allocation agreements during this period. Furthermore, Turkish-Syrian cooperation on critical security issues paved the way for more substantial cooperation at the turn of the 21st century. The following sections will explore these issues in more detail.

Renewed Technical Cooperation. In 1983, a permanent Joint Technical Committee was established between the three main riparians of the ET basin. The JTC was tasked with determining the methods and procedures that would lead to the determination of a reasonable amount of water from both rivers for each country (Kibaroğlu & Scheumann, 2013). During meetings, information regarding the construction of dams and progression of irrigation schemes was exchanged and plans for filling Turkey's Karakaya and Atatürk reservoirs were discussed. However, after 16 meetings, negotiations were suspended in 1993 and no lasting agreement on basin-wide allocation was reached (Kibaroğlu, 2002). Nonetheless, the JTC served as an important platform for communication and set an example for what future institutionalized cooperation in the basin could look like.

The main issue that hindered progress in the JTC meetings was disagreement over whether the Euphrates and Tigris rivers should be considered a joint system or whether talks should only focus on the Euphrates (Kut, 1993). Finalizing the wording of the JTC's final objective was also problematic;

should the goal be to reach an agreement on the 'sharing' of international rivers or should the focus be on determining a tripartite regime for the "utilization of transboundary watercourses?" (Kibaroğlu & Maden, 2014, p.350). Syria and Iraq viewed the Euphrates as an international river over which a water sharing agreement based on declared water needs should be crafted. Meanwhile, Turkey argued that only rivers that form the border between two or more countries are international and considered the Tigris and the Euphrates a single transboundary system over which a water sharing agreement based on objectives needs should be reached (Kibaroğlu, 2002; Murhaf, 1996). The riparian's inability to reconcile their viewpoints regarding the nature of the Tigris and Euphrates rivers undermined the mission of the JTC. Furthermore, the JTC's narrow mandate did not leave space for addressing water problems on a regional level vis-à-vis unpacking riparian's underlying needs and priorities (Kibaroğlu & Maden, 2014).

Moving water into the realm of high politics. Despite the failure of the JTC to reach a basin-wide allocation agreement, two bilateral water sharing agreements were signed during this period. The agreements made during this period were not the result of JTC negotiations but rather were negotiated at the highest political levels and influenced by the broader political atmosphere. Throughout the 1980's and 1990's Syrian support for the PKK, a Kurdish separatist group that had been engaged in violent conflict with Turkish forces since 1984, was problematic for Turkish-Syrian relations. Syria's support for the PKK also presented it with an opportunity to incentivize Turkey to sign a water agreement. Water was publicly linked to security for first time in 1986 when Syria announced that a security protocol with Turkey would only be signed if they also entered into a formal water agreement (Bulloch & Darwish, 1993). A year later, the first bilateral agreement in the basin that included a provision for water allocation, was signed. Its conclusion was facilitated by simultaneous with Syria on security matters involving Syrian support for the PKK. In Article 6 of the 1987 protocol, the Turkish side promised as follows:

> during the filling up period of the Atatürk Dam reservoir and until the final allocation of the waters of the Euphrates among the three riparian countries, the Turkish side undertakes to release a yearly average of more than 500 m3/sec. at the Turkish-Syrian borders, and in cases where the monthly flow falls below the level of 500 m3/sec., the Turkish side agrees to make up the difference during the following month (Turkish-Syrian Protocol on Matters Pertaining to Economic Cooperation)

The two sides also agreed to work with Iraq to determine an allocation regime for the Euphrates and Tigris rivers in the shortest time possible. A Mutual Security Accord that was signed in parallel with the 1987 protocol obligated Syria to cease its support for the PKK, which had been operating from within the country's borders for the past decade (Kibaroğlu & Ahmetova, 2014). During the 1990's,

whenever Turkey reduced the flow of water below the 500m^3/sec threshold, Syria intensified its support of the PKK to incentivize Turkey into honoring the minimum quota. This escalation continued until 1998, when Syria and Turkey signed the Adana Protocol in which Syria expelled the leader of the PKK, Abdullah Öcalan, and ceased to act as a safe haven for PKK operatives (Daoudy, 2009).

The second bilateral water-sharing agreement in the ET basin was ratified by Syria and Iraq in April 1990. By early 1990, Turkey had finished construction of the Atatürk Dam, the centerpiece of the GAP and the third-largest dam in the world. Situated near Bozova in Şanlıurfa Province, the dam created a reservoir with a total capacity of 48.7bcm. From mid-January to mid-February, Turkey interrupted the flow of the Euphrates to begin filling the reservoir, precipitating a regional crisis in Syria and Iraq, who lodged official complaints despite having received prior notification from Turkey and reassurance that the average flow rate into Syria would not fall below the 500m^3/sec minimum stipulated in the 1987 protocol (Kibaroğlu, 2002). At the 13th meeting of the JTC in Baghdad, Syria and Iraq reached an agreement that 58% of the Euphrates water passing into Syria from Turkey would be allocated to Iraq while Syria was entitled to the remaining 42% (Law No.14 of 1990). This division of water was derived from calculations using a formula based on declared water needs rather than Turkey's preferred method of utilizing objective criteria based on what would constitute optimal and reasonable use (Kibaroğlu, 2002).

While both the 1987 and 1990 water-sharing agreements represent important steps forward, it is important to recognize that they are not examples of comprehensive water cooperation between the riparians of the ET basin. Both agreements are one-dimensional in that they are primarily concerned with water quantity and deign to take a more integrated approach to basin management that includes flood protection, ecosystem preservation, and water quality concerns (Kibaroğlu & Maden, 2014). Additionally, the allocation mechanisms are fixed and not adaptable in the event that fluctuations in flow and water availability occur. Given that the flow of both the Tigris and Euphrates is highly susceptible to natural variation within and between years and that the ET basin is one of the most vulnerable regions in the world to climate change (Mueller et al., 2021), it is important that flexible allocation mechanisms are developed to account for future climate change impacts and help increase institutional resilience.

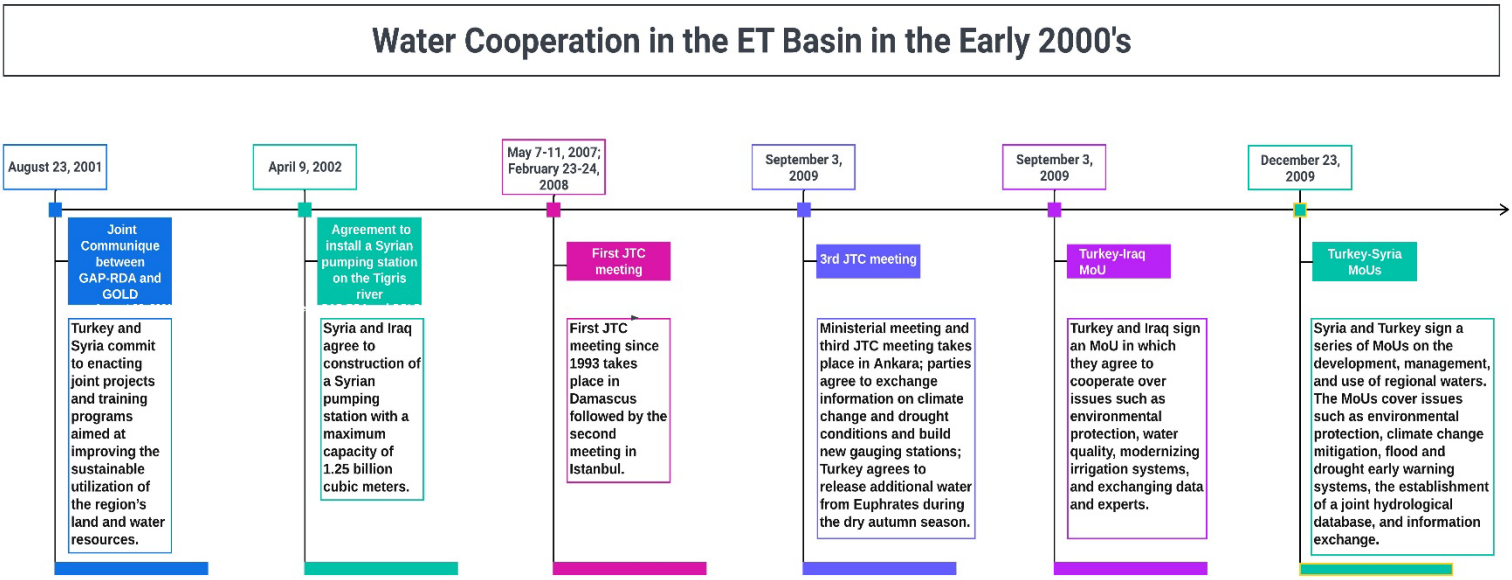
1998 – Present: High-Level Cooperation and Lingering Conflict

In the past 20 years, six bilateral Memorandums of Understanding (MoU) have been signed, four between Turkey and Syria and one each between Iraq and Syria and Iraq and Turkey. These agreements, which cover issues relating to water quality and technical cooperation, have persisted despite the violence and political instability that has plagued the region since the turn of the century. The expulsion of Öcalan from Syria and the signing of the Adana Protocol led to cooperation between high-level Turkish and Syrian water authorities and created new spaces for decision-making (Conker, 2014). While Turkish-Syrian relations have deteriorated since the onset of the Syrian civil war and Turkey's support of the Syrian opposition, middle-level authorities have continued to express enthusiasm for maintaining networks and discussing issues covered in the Turkish-Syrian MoUs (Kirbaroğlu & Scheumann, 2013). Turkish-Iraqi hydropolitical relations, although never as volatile as those between Turkey and Syria, have also been affected by regional instability. Despite this, cooperation at the technical level has largely persisted amongst the three riparians of the ET basin. Nonetheless, continued development in Turkey through the auspices of the GAP has continued to be a source of conflict, particularly with Iraq, and anti-dam activists continue to protest Turkey's dam-building program both from within the region and from without.

Bilateral MoUs and a Revitalized JTC. The signing of the Adana Protocol in 1998 marked a breakthrough in Turkish-Syrian relations on both water and non-water matters. With the PKK threat significantly diminished for the time being, Turkish officials turned greater attention towards pursuing water cooperation with their neighbors. The nature of this cooperation was much broader in scope and scale than the narrowly-focused initiatives that had been pursued in the 80's. In 2001, a Joint Communiqué between the GAP-RDA and Syria's General Organisation for Land Development (GOLD) marked the beginning of a joint endeavor to improve sustainable utilization of the region's land and water resources through joint training programs, study missions, exchanges of experts, and joint environmental protection projects (Joint Communique Between the Republic of Turkey, Prime Ministry, GAP-RDA, and the Arab Republic of Syria, Ministry of Irrigation, General Organization for Land Devel Development, 2001). While dialogue over water still took place at the technical level, the GAP-GOLD initiatives moved beyond a narrow focus on water quantity to include issues such as water quality and rural development (Kibaroğlu & Ahmetova, 2014). Indeed, the four subsequent water-related MoUs signed between Turkey and Syria in 1999 barely touched the water sharing issue, focusing instead on a more multidimensional approach and covering issues such as environmental protection, drought management, water quality preservation, and climate change impacts. The only agreements signed during this period that mentioned water allocation were a 2002 agreement between Syria and Iraq

(Agreement to Install a Syrian Pumping Station on the Tigris River) and a 2009 MoU between Turkey and Syria in which Syria was given permission to construct a pumping station on the Tigris with a maximum annual capacity of 1.25bcm^3 (The Memorandum of Understanding Between the Government of the Republic of Turkey and the Government of the Syrian Arab Republic on the Establishment of a Pumping Station in the Territories of the Syrian Arab Republic for Water Withdrawal From the Tigris River, 2009). Figure 23 provides a chronological summary of the major water initiatives that took place during this time period.

Figure 23: Timeline of key cooperative events in the ET basin in the early 2000's. Author's own compilation.



In May 2007, the first JTC meeting in almost 15 years took place in Damascus. The revitalization of the JTC was primarily due to increased political will at the highest level of government and a broader political climate that was more conducive to cooperation. Similar to the MoUs and other agreements signed post-1998, the three JTC meetings held since 2007 adopted a multidimensional approach to water resources management that focused primarily on starting training programs to improve efficient water utilization, information exchange on drought and climate change impacts, and the construction of additional flow gauge stations (Kibaroğlu, 2019). Dialogue on water was still relegated to the technical level, but it moved beyond a zero-sum approach to water allocation to a focus that prioritized reaping the mutual benefits that could be harnessed from productive cooperation over the waters of the basin. Furthermore, Turkey agreed to increase the flow of the Euphrates river by an additional 550m^3/sec

during the dry season of autumn 2009 after negotiations with Iraq (Kibaroğlu & Scheumann, 2013). While a fourth JTC meeting was scheduled to be held in 2010 in Baghdad, it was postponed, first because of delays in the formation of a parliamentary government in Iraq and then because of the outbreak of civil war in Syria. While water cooperation at the interstate level has largely been put on hold since 2011, actions have been taken at other levels to continue the collaborative work started by the JTC meetings.

The Euphrates-Tigris Initiative for Cooperation. At the heart of this dissertation is the idea that water is managed, imagined, contested, and politicized across multiple spatial scales that interact with one another. In other words, transboundary water conflict and cooperation is not exclusive to the realm of the state. While the broader political environment may limit progress made in water negotiations at the interstate level or even prevent dialogue altogether, water may continue to be discussed at other scales by other stakeholders. This dialogue can lead to cross-scale interactions in which processes at one spatial scale interact with processes at another to reinforce, challenge, and otherwise influence dominant water narratives (e.g. Offut, 2022; Syed & Choudhury, 2018). As I will later elaborate, there are several instances of such dialogue in the ET basin. In 2005, the Euphrates-Tigris Initiative for Cooperation (ETIC) was established by a group of professionals and academics from the three main riparian states to "promote cooperation among the three riparians with a view toward achieving technical, social, and economic development in the Euphrates-Tigris region," (Kibaroğlu & Scheumann, 2013, p.296). As a track II effort, ETIC is not affiliated with a particular government and aims to positively contribute to efforts to enhance dialogue and collaboration between the riparians of the ET basin through workshops and capacity-building programs centering around issues such as gender equity, water management, and grassroots participation in decision-making (Kibaroğlu, 2008). A track 1.5 initiative, Blue Peace Middle East, was launched in 2010 with the aim of transforming water into a source of cooperation and peace across the Middle East. Remarkably, Blue Peace Middle East has continued to function throughout the political instability and conflict that derailed interstate water negotiations in 2011 (Participants 5 and 9, personal communication, July 24, 2023 and August 15, 2023). Both ETIC and Blue Peace Middle East have undertaken important work in establishing international partnerships and building a spirit of trust and collaboration between stakeholders across the basin.

Continuing Challenges. While interstate hydropolitical relations among Turkey, Syria, and Iraq have remarkably improved since 1998, significant challenges remain to achieving effective basin-wide management of the Tigris and Euphrates. Turkish dam building as part of the GAP presents a continued

threat to downstream countries, especially Iraq where water scarcity is already an issue due to drought and mismanagement. The Ilisu dam, which is the first GAP dam constructed on the Tigris, has remained a contentious point of debate for the past two decades. Opposition to the dam is centered around the dam's ecological and humanitarian implications. Scientists and environmental activists worry about the downstream impacts that flooding caused by the dam will have on endangered species such as the Eurasian otter and the Euphrates soft-shelled turtle (Hockenos, 2019). Other opponents of the dam criticize its humanitarian and cultural impacts, citing the flooding of the ancient city of Hasankeyf (see figures 23 and 24) and the displacement of tens of thousands of people, mostly Kurdish (Bilgen, 2018a; Ilhan, 2010). While the dam has since been filled, networks of anti-dam activists led by a coalition of local Turkish NGOs and international NGOs (INGOs) managed to delay construction of the dam and force several private European funders to back out in the early 2000's (Hommes et al., 2016; Warner, 2012). Protests against the dam's impacts continue and it has continued to serve as a bone of contention between Turkey and Iraq, who often accuses the former of exacerbating water shortages in Iraq (Karadeniz & Aboulenein, 2018).

Figure 24: Hasankeyf prior to submergence by Ilisu Dam. Source: Taylor, 2020).

Figure 25: View of Tigris River showing Hasankeyf completely submerged. Source: Author's own photo.

A lack of institutional capacity in the basin, both at the national level and at the interstate scale, continues to impede effective and sustainable water management and governance. The lack of a multilateral agreement covering the entire basin and a legally binding water-sharing agreement on the

Tigris river means that water sharing is often decided on an ad hoc basis. For example, in 2014, Iraq and Turkey signed an MoU in which Turkey agreed to provide Iraq with its fair share of water (Chibani, 2023), and in the spring of 2023, Turkey promised to double the amount of flow from the Tigris river dams in response to Iraqi complaints. However, the flow increase was slow in coming and only lasted for a month (Rasul, 2023). In the recent years since the completion of Ilisu Dam, Iraq receives only about 36% of the 625m^3/sec it was receiving from the Tigris river a decade ago, a shortage that is further compounded by declining precipitation (Kullab, 2022). Without a formal water sharing agreement in place, water planning in Iraq is made much more difficult and how much water Iraq gets from the Tigris will largely be dependent on Turkish irrigation needs.

Institutional mismanagement at the national level, particularly in Iraq, also poses a serious problem. Inadequate pollution and sewage regulation, neglect of water infrastructure, and poor management of upstream sources have contributed to deterioration of water resources within Iraq. In the southern province of Basra, water scarcity compounded by mismanagement, dam development on upstream waters in Turkey and Iran, and extended drought conditions triggered violent protests in 2018 after over 100,000 people were hospitalized due to poor water quality (HRW, 2019). The water crisis in southern Iraq may cause significant depopulation and trigger an internal refugee crisis; as of September 2022, it was estimated that 62,000 people had been displaced due to water scarcity (Salih, 2023).

Climate change represents a serious threat to the waters of the ET basin. It is predicted that by the end of the century, precipitation levels will decline by up to 40% in the Turkish part of the basin, where most of the basin's runoff is generated (IPCC, 2013). Between 2020 and 2021, record low rainfall reduced the flows of the Tigris and the Euphrates by 29% and 73%, respectively (Chibani, 2023). Livelihoods in northeast Syria, where most of the population is Kurdish and almost half rely on agriculture, are threatened by prolonged drought and Turkish development on the Euphrates (Chibani, 2023). In Iraq, ranked as the 5th most vulnerable country to climate change, growing desertification and declining precipitation are causing increasing rural-to-urban migration, placing greater stress on aging water infrastructure (Salih, 2023). As water levels decline, fears of intrastate conflict over water grow, especially in hard-hit areas such as Basra and the Mesopotamian Marshes (Abdul-Ahad, 2023). By 2040, the Euphrates River may even run dry in Iraq (Arvanita, 2023). The triple threat posed by dam development, lack of institutional capacity, and climate change will spell disaster for the waters of the ET basin, and for the almost 70 million people that depend on them, unless water cooperation is

renewed at the interstate level and substantial progress is made towards the implementation of an equitable and sustainable water governance regime.

Conclusion

This chapter provided an overview of the hydrography and hydropolitical relations of the ET basin. Similar to Chapter 3, this chapter began by quantifying the water availability in the Tigris and Euphrates sub-basins. Water in both sub-basins is relatively abundant, although it is difficult to reliably estimate the discharge in both rivers due to high variation in their flows and poor data exchange and transparency in the basin. Even though the Tigris and Euphrates rivers join to form the Shatt al-Arab in southern Iraq, their joint hydrological and hydropolitical nature is highly contested by officials in the basin. Turkish officials claim the rivers are transboundary in nature and so constitute a single basin, while Syrian and Iraqi officials argue that they are international rivers that should be dealt with separately. Either way, large-scale hydraulic development, particularly in Turkey, has exacerbated water shortages in downstream Syria and Iraq, which is especially prone to the effects of climate change. These water resources development projects hold important symbolism to national prestige and provide much-needed hydropower and water for irrigation.

The second section of this chapter provided an abbreviated history of the basin's hydropolitics. This account was split into four time periods that were each dominated by a different degree of development and conflict and cooperation. In the first time period encompassing the early 20th century until 1960, the dissolution of the Ottoman Empire and colonial rule defined the nature of water management. As in the Jordan River basin, the waters of the Euphrates and Tigris were now divided by invisible political borders that would greatly influence the nature of hydropolitics for decades to come. From 1960 to 1980, Turkey, Syria, and Iraq each focused on unilaterally developing the waters of the basin. Turkey's GAP consists of one of the most extensive dam networks in the world, with an envisioned 22 dams and 19 hydroelectric power plants generating hydropower and irrigating 1.8million ha of land. The GAP has been a focal of tension between the three riparians, especially when river flow was halted to fill reservoirs. Although not nearly as vast in size or scope, Syria's Euphrates Valley Project represents another ambitious project designed to generate hydropower and expand irrigation, while Iraqi development projects focused solely on expanding irrigable area due to the country's flatter topography. During the third hydropolitical era from 1980 to 1998, increasing development necessitated cooperation at the technical level. The establishment of a Joint Technical Committee was a promising start to larger-scale cooperation, but a worsening political environment and disagreements over how to

allocate water effectively ended the JTC. After 1998, a turnaround in Turkish-Syrian relations brought about by the latter's expulsion of the PKK initiated an era of renewed cooperation. A series of bilateral MoU's signed in the 2000's expanded the scope of cooperation to previously untouched issues such as environmental protection, water quality, and drought management. However, with the outbreak of civil war in Syria in 2011, the implementation of many of these MoU's has been halted.

Continuing challenges stemming from dam development, lack of institutional capacity, and climate change remain for the ET basin. The ability of the riparians to effectively deal with these challenges is constrained by issues such as political instability and a lack of data exchange. Furthermore, the hydropolitical dynamics of the basin no longer play out exclusively within the realm of the state. As touched upon in this chapter, non-state actors such as anti-dam activists and ETIC reframe the way in which water interactions play out. The remainder of this dissertation will explore the multiscalar nature of hydropolitical interactions in the Jordan and Euphrates-Tigris basins. To begin this analysis, the next chapter will present a database of water events in the Jordan river basin and analyze how domestic influences and the broader political context have influenced patterns of conflict and cooperation in the basin at different scales.

Chapter 5a: Tracing patterns of water conflict and cooperation and their domestic and international drivers in the Jordan river basin

Introduction

Understanding the factors that shape hydropolitical relations is a vital first step to analyzing patterns of conflict and cooperation in any transboundary river basin. As argued in chapter 2, taking a multi-scalar approach to this analysis allows the analyst to identify interesting nuances or patterns of interactions that might be overlooked by a conventional state-centric approach. Taking as a starting point that a multi-scalar lens enables a more robust hydropolitical analysis, the purpose of the next two chapters is to answer research sub-question one: How are hydropolitical relations in the Jordan and Euphrates-Tigris river basins explained by interactions between actors at different scales? To answer this question, I address three sub-questions:

1. What actors are involved in transboundary water conflict and cooperation in the Jordan and ET basins?
2. At what scale do these actors operate?
3. How do the domestic sphere and broader international relations influence transboundary water conflict and cooperation?

In this chapter and the next, I map out the relevant actors in each basin and compare trends in broader political events to trends in water conflict and cooperation. Using data about water-related interactions in each basin, I determine the conflict-cooperation intensity of each interaction to create a timeline of hydropolitical relations that shows how conflict and cooperation have changed over time. I also include interactions involving actors operating at the subnational and transnational scales to provide a more holistic picture of water relations in the basin and demonstrate how conflict and cooperation can coexist at multiple scales. This chapter focuses on the Jordan basin and the next chapter focuses on the ET basin.

This chapter is structured into three parts. In the first part, I discuss the importance of looking at international relations in tandem with hydropolitical relations and why a multi-scalar approach to this analysis is needed. I argue that interactions in transboundary river basins play out on multiple levels where decisions made in one arena (e.g. the domestic) can impact decisions at another (e.g. the interstate). For example, as elite-decision makers craft decisions in closed spaces, civil society actors may exert pressure on elites by opening new spaces of engagement through the utilization of certain types of power. In the second part, I present a dataset of water-related interactions that took place in

the Jordan river basin from 1948-2023. I highlight key findings and trends in water conflict and cooperation in the basin and demonstrate the multi-scalar nature of transboundary water interaction in the basin. I then discuss the influence of the domestic sphere and broader regional politics on interstate hydropolitical relations in the basin through a consideration of issues such as Cold War dynamics, Arab Spring impacts, escalations in broader regional conflict, shifts in internal water discourses, and the work of non-state actors such as EcoPeace. I end the chapter by offering concluding thoughts on the nature of conflict and cooperation in the Jordan river basin.

International Relations

Water's fluid nature means that it often increases interdependencies between users, especially when it crosses political boundaries. These interdependencies, and the fact that water is essential to nearly every aspect of life, mean that how states interact over their shared water resources is contingent upon several factors such as absolute and perceived scarcity, the relative power of the parties, the availability of alternative sources, and underlying geopolitical dynamics between the riparians. There is a general consensus in the hydropolitical literature that the broader context in which transboundary water interactions occur are a central element in understanding hydropolitical dynamics (e.g. Gleick, 1993; Lowi, 1995; Dinar, 2000; Zeitoun & Warner, 2006). Some scholars have even gone so far as to claim that "water resources management is inherently political," (Mollinga, 2008, p.8). Such blanket statements, however, do not qualify what exactly it is about water management that makes it political, and they may well serve more as a strategic way of politicizing water issues to affect change in the status quo. While it is beyond the scope of this chapter to debate whether water management is political, it is hard to argue with the claim that in many instances water issues are interconnected with non-water issues and are undoubtedly influenced by the broader political context. For example, conflict between Iraq and Iran over the Shatt al-Arab in the 1970's played out within a context of worsening political relations that culminated in the start of the Iran-Iraq War in 1980. Few studies, however, unpack what the broader political context means and how it can be conceptualized. Conker (2014) offers what some elements of the broader political context may be, such as issue linkages, geopolitical elements, domestic concerns, historical background, economic interdependencies, and cultural interests. While listed separately, it is important to consider these features as interconnected and impossible to conceive of as existing in a vacuum. In this chapter, I take international relations to refer to the broader political context in which transboundary water interactions occur, with a special focus on, but certainly not limited to, the six elements delineated by Conker.

The relationship between water and international relations is not one-way. That is, water issues can also cross political boundaries and influence the broader political context. While water might not be the ultimate cause for conflict breaking out between nations, it can exacerbate already tenuous political situations. Numerous examples come to mind, such as the outbreak of civil war in Syria in 2011 (Gleick, 2014) or India's decision in the 1960's to build the Farraka Barrage on the Ganges river, which yielded adverse impacts on Bangladesh that extended beyond the water sector (Giordano et al., 2002). Water may also have a positive impact on international relations, an argument made popular through theories of environmental peacebuilding (Conca & Dabelko, 2002; Ide et al., 2021). While few studies have attempted to provide empirical evidence of a link between interstate water and non-water cooperation, there is evidence that more positive, water-related interactions make more peaceful relations between states more likely (Giordano et al., 2002; Ide & Detges, 2018)[38]. Therefore, in this chapter I also give consideration to how water-related events may have influenced the broader political climate, and vice-versa.

Multi-Level Playing Fields

As discussed in Chapter 1, liberal approaches to hydropolitics focus on how states play "two-level games" in which a state's position in international relations is influenced by subnational actors (Wagerich & Warner, 2010). However, the focus remains on the sovereign state as an actor distinct from the rest of society. The existence of multilateral institutions, transnational businesses, and international NGOs that work on water issues provide compelling reasons to move beyond conventional narratives placing the agency of the sovereign state center stage. As this chapter will later demonstrate, interactions over water resources take place between the state and a plethora of actors who operate within and beyond its bounds.

When engaging in negotiations over transboundary water resources, states are engaged in negotiations on multiple fronts. Putnam's (1988) concept of "two-level games" highlights how decision-makers simultaneously wrestle with domestic and international imperatives that are often rooted in conflicting interests; what makes sense at the domestic level may not be intuitive in the international arena. Furthermore, transnational institutions such as regional organizations add a third level to the playing field at which transboundary water interactions play out (Warner & Zawahri, 2012). Actors encounter each other at different chessboards and engage in horizontal, vertical, and diagonal relations.

[38] With the caveat that this scenario is more likely between states that are not in acute conflict with one another.

State preferences for the outcomes of negotiations are crafted in the domestic arena (Dinar, 2000; Feitelson, 2000), while domestic politics itself is influenced by international power games (Warner & Zawahri, 2012). At the same time, non-state actors such as local and international NGOs, terrorist groups, and transnational corporations exert influence that interact with the domestic and the international arenas. The outcome of negotiations is determined by states' abilities to meet internal expectations and balance the pressures emanating from multiple chessboards. As this chapter will demonstrate, hydropolitical relations and resulting patterns of conflict and cooperation are the result of multi-scalar interactions between state and non-state actors.

Introduction to the Jordan Basin Case Study

The Jordan river basin is an interesting case study for hydropolitical analysis and indeed has been the subject of numerous analyses. The basin's history of violent conflict and turbulent political relations, along with the long history of water conflict and cooperation between the riparian states, makes for a rich analysis of how water relations are shaped by the broader political context. Additionally, high levels of water scarcity in the basin and close connections between water and identity mean that water has, to one degree or another, featured prominently on national policy agendas. The Jordan basin is a particularly interesting case study for a multi-scalar analysis of hydropolitical relations because it also has a rich history of cooperation perpetuated by non-state domestic and transnational that has persisted even against a backdrop of stagnant or hostile political relations. Before diving into the events dataset that I created for the Jordan river basin, it is prudent to unpack the diversity of actors who live and work in the basin.

Table 15: Stakeholders in the Jordan basin. Source: Author's own compilation.

Scale		Actor Type	Example
Transnational	International	Intergovernmental organization	United Nations, Arab League, EU
		NGO	EcoPeace
		Regional initiative	Blue Peace

Interstate (Transboundary)		Public sector	Riparian states, Israel-Jordan Joint Water Committee
		Third party state	United States
		Development partners[39]	USAID, EIB
National	Domestic	National authority	Riparian states, Palestinian Water Authority
		Water utility	Mekorot (Israel), National Bulk Utility (Palestine)
		Illicit group	Hamas, Hezbollah
		Private Sector	Arab Potash Company, Dead Sea Works, investors
Local		NGO	EcoPeace
		Epistemic Communities	Universities and affiliated research centers (e.g. Water Diplomacy Center Amman)
		Local authorities	Water users' associations

[39] Many development partners also have national-level programs, but I have listed them as transboundary actors here because I am interested in their capacity working in transboundary settings.

Table 15 provides a non-exhaustive list of the stakeholders who may influence water management and governance in the Jordan river basin. While the table suggests that scales are fixed and an individual group or actor may operate at only one scale, the reality is otherwise. For example, EcoPeace is a trilateral Israeli-Jordanian-Palestinian NGO that conducts projects both within and across country borders with impacts that reverberate across the region, while private sector companies such as the Dead Sea Works operate within national jurisdictions with transboundary consequences. Similarly, actors external to the basin have at times participated in reconciliation processes with differing scopes; in the 1950's, the US played a key role in the basin-wide Johnston Negotiations while the UN played a key role in mediating the localized Wazzani Springs conflict between Israel and Lebanon in the early 2000's. In other words, the scales of operation and impact of many actors in the basin are often not the same and fluctuate depending on the broader context.

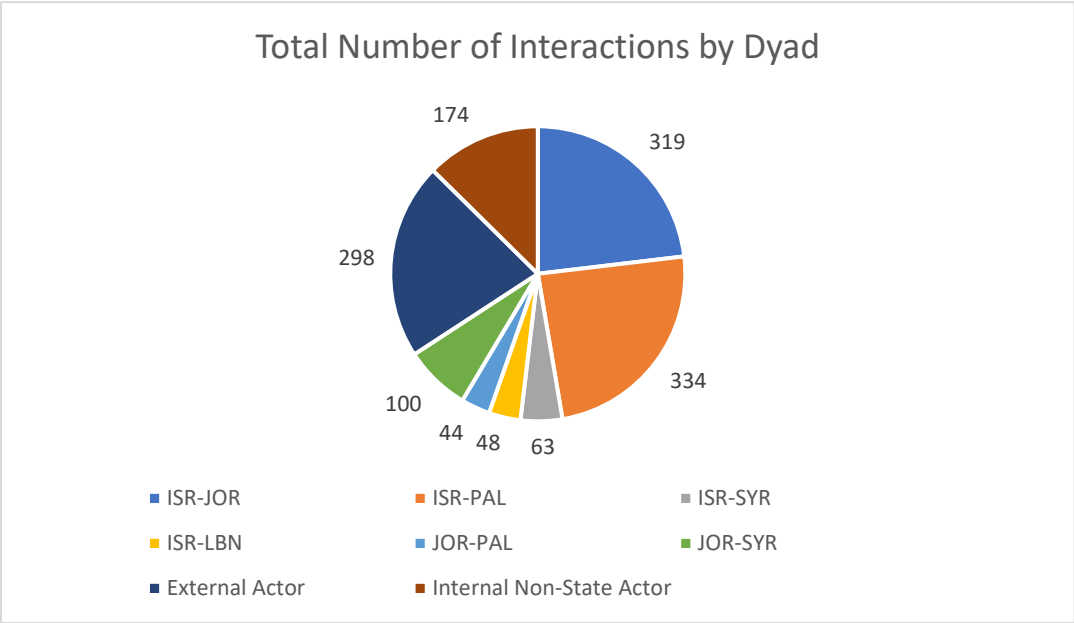
Presenting the Water Interactions Database for the Jordan River Basin

The remainder of this chapter will discuss trends in conflict and cooperation in the Jordan river basin, based on a database of water-related interactions that I compiled. The database spans from 1948 to 2023 and draws on media articles collected from the Nexis Uni and BBC Monitoring databases based on the data collection protocol explained in Chapter 1. Each interaction collected was screened against two inclusion criteria: (1) the interaction had to be about water as a consumable resource and (2) the interaction or its impacts had to be transboundary. Each relevant interaction was given a score based on the Basins at Risk (BAR) scale[40] to determine its conflict/cooperation intensity. The database includes interactions that occurred between state actors as well as those involving non-state actors and actors from outside of the basin.[41] Between 1948 and 2023, 1,250 documented interactions over water took place in the Jordan basin (see Figure 27). Most of these interactions took place between three country dyads (country pairs): Israel-Palestine, Israel-Jordan, and Jordan-Palestine (see Figure 26).

[40] For a detailed explanation of the BAR scale, see chapter 1.

[41] While I aimed to build a comprehensive database of water-related interactions in the basin, it is important to note that my database does not by any means contain every single one of the thousands of interactions that took place in the Jordan basin during my sample period. As I note in Chapter 1, issues such as a limited ability to access non-English sources, underreporting of events (especially cooperation events), and human error. Despite these limitations, this dataset is, to my knowledge, the most comprehensive of its kind. The full database can be accessed online here.

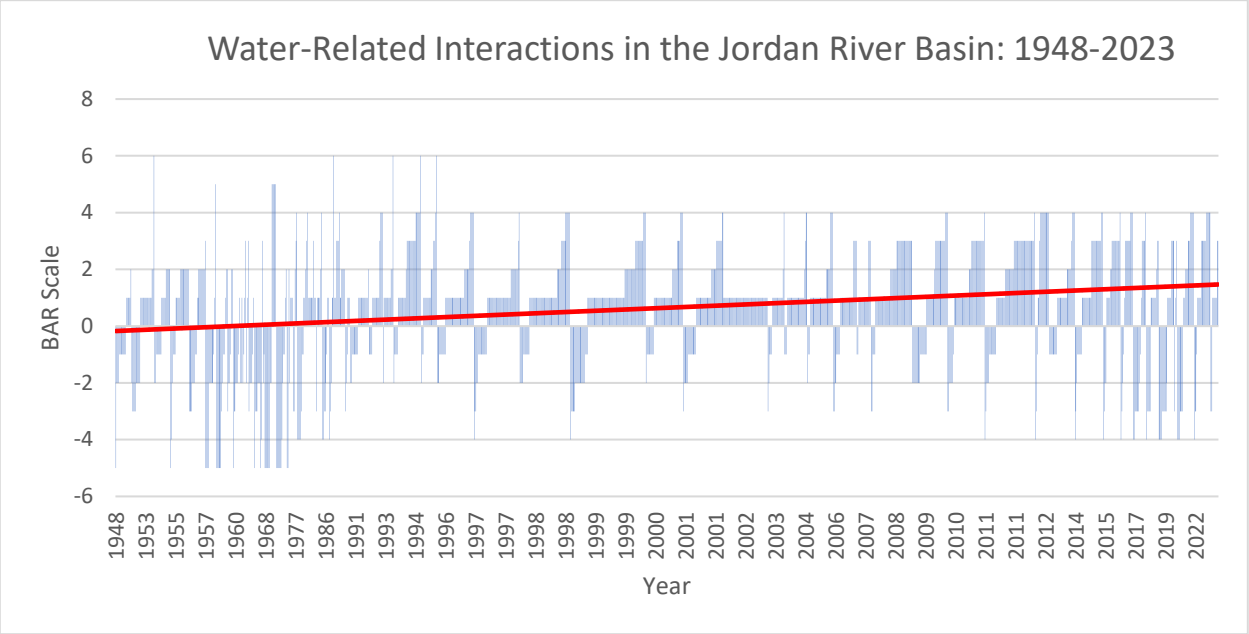
Figure 26: Total number of interactions in the Jordan basin by actor-dyad. [42]



The relatively low number of interactions involving Israel and either Lebanon or Syria can be attributed to the lack of diplomatic relations between these countries. As Israel has diplomatic relations and institutionalized transboundary water arrangements with both Jordan and Palestine, the number of interactions between these entities is much higher. Interestingly, both external and non-state actors are involved in a significant amount of interactions in the Jordan basin. Given the history of external involvement in this basin, from the colonial era to present day, it is no surprise that interactions involving an actor from outside the basin account for more than a quarter of all interactions in the basin. Many of these interactions involve the provision of development aid to Jordan (n=95).

[42] Note that some of the interactions counted under "External Actor" or "Internal Non-State Actor" are double-counted with interactions from the state dyads. For example, an interaction involving the destruction of Palestinian water pipes by Israeli settlers would be included in the counts for both "ISR-PAL" and "Internal Non-State Actor."

Figure 27: Timeline of water-related interactions in the Jordan river basin: 1948-2023.



As seen in Figure 27, the Jordan basin has experienced alternating patterns of conflict and cooperation over the past seven decades. Periods of high-intensity conflict in the 1950's and 1960's are primarily the result of border skirmishes between Israel and Syria and attacks on water infrastructure in the decade leading up to the 1967 War. Interactions in this period were mostly limited to the realm of the state and often involved third party intermediaries due to a lack of formal political relations between Israel and the surrounding Arab countries. Periods of high-intensity cooperation in the 1990's, on the other hand, are related to the Middle East peace process that began at the start of this decade and included water as a major issue of negotiation. In the 2000's, large chunks of low-intensity cooperation with minimal conflict reflect collaboration that was taking place around the Red Sea-Dead Sea Conveyance Project, with much of the conflict during this period attributable to tensions between Jordan and Syria over the Yarmouk river and Israel and the Palestinians over West Bank groundwater. On the whole, however, transboundary water interactions in the basin are trending towards cooperation, and low-intensity cooperation has tended to prevail since 1948 (see Figure 27).

Figure 28: Total number of interactions in the Jordan basin by BAR scale intensity.

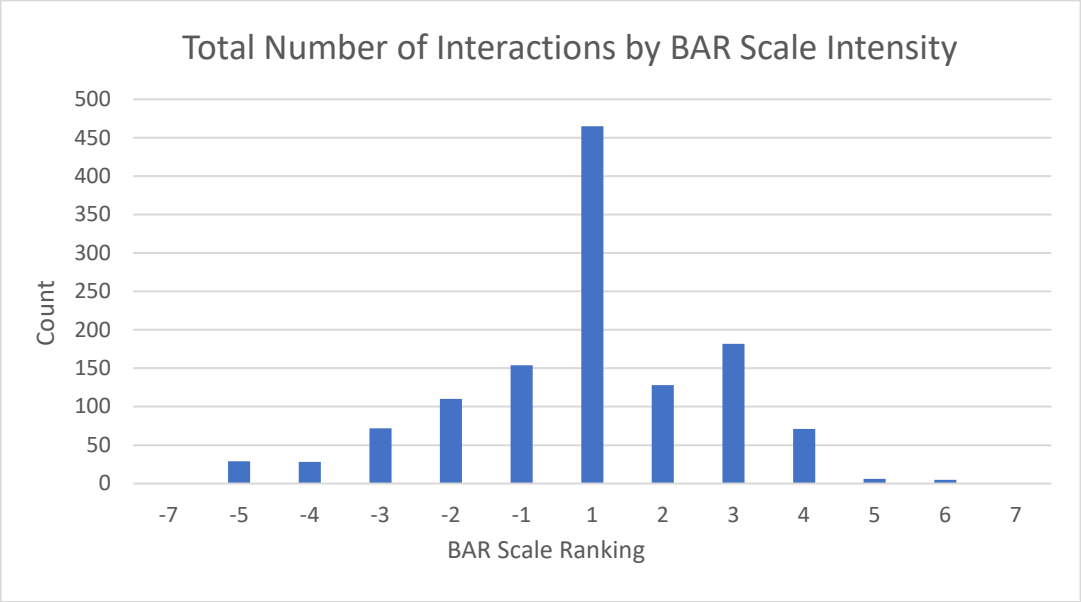


Figure 28 above shows the count of interactions in the Jordan basin of each BAR scale ranking. In line with findings reported by Wolf et al. (2003a) about the nature of water interactions at a global scale, low-intensity cooperation (a ranking of 1 on the BAR scale), prevails in the Jordan river basin. Proportionally, less high-intensity cooperation interactions occur (a ranking of 4 or higher) in the Jordan river basin than what was reported at the global level by Wolf et al. (2003a), and there is more high-intensity conflict (a ranking of -4 or higher). This observation suggests that interactions over shared water resources are highly context dependent and attuned to the broader political climate, as I will illustrate later in this chapter.

While the above graphs provide the observer with a general understanding of how water conflict and cooperation has shifted over time in the Jordan river basin, they do not explicitly call out the role of non-state or external actors in shaping these dynamics. In other words, it is impossible to tell how much conflict or how much cooperation is attributable to these actors. When interactions involving non-state or external actors are disaggregated, as shown in Figures 29 and 30, the stories are different.

Figure 29: Total number of interactions in the Jordan basin broken down by actor type.

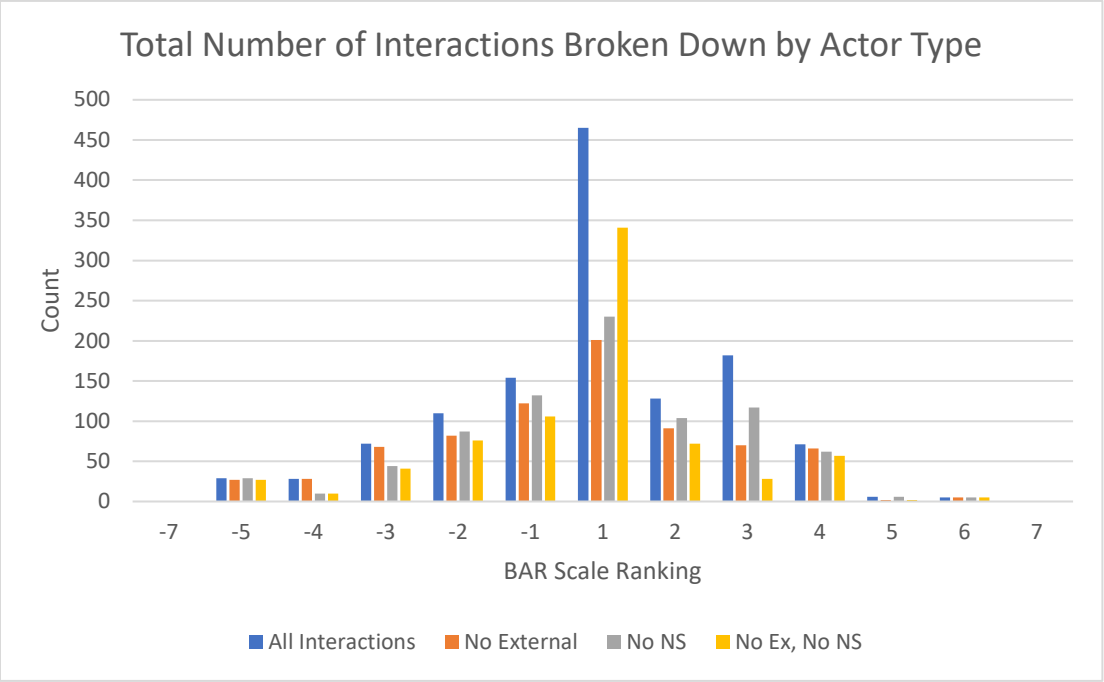
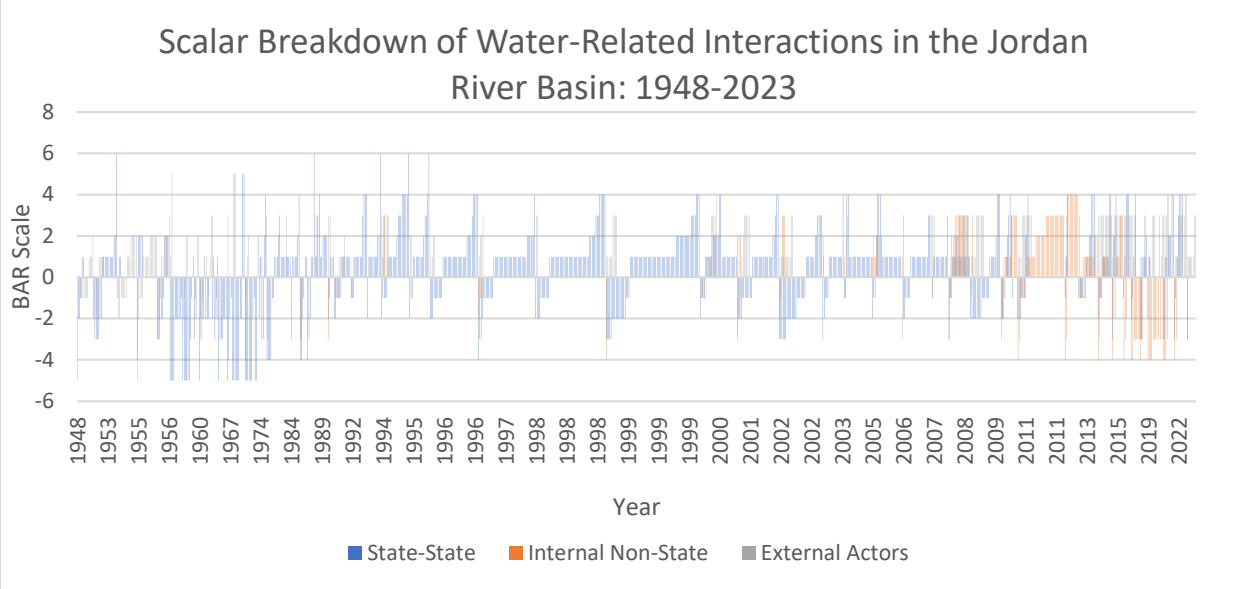


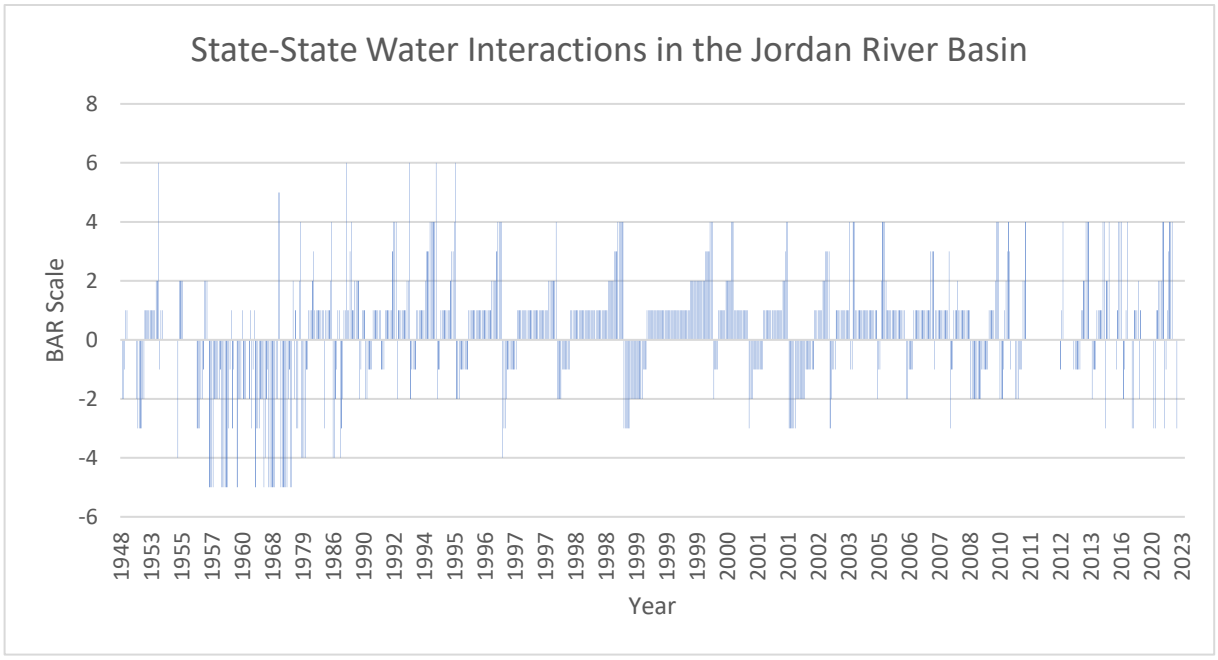
Figure 30: Multi-scalar patterns of conflict and cooperation in the Jordan river basin: 1948-2023.



The graph in Figure 29 shows the importance of non-state/external actors in informing patterns of conflict and cooperation in the basin, especially at low intensities. When we take out non-state/external actors, we see that there is less cooperation than when these actors are involved. It also shows the

importance of external actors in promoting higher forms of cooperation (level 4) and that higher intensity conflict tends to still occur only between state actors. Cooperation occurs between a larger diversity of actors than conflict. The contrast between what conflict and cooperation look like in Figure 30 compared to what these patterns look like when the analysis is limited to the state-to-state level is striking (Figure 31).

Figure 31: State-state water interactions in the Jordan river basin.



Comparing Figures 30 and 31, we see the latter is missing important periods of cooperation in the 1950's and significant bursts of conflict and cooperation that have occurred in the last 20 years. In the 1950's, external actors, mainly the US and the UN, intervened in water disputes between the riparian countries of the Jordan basin, and the US played a particularly important role in bringing the countries together in an attempt to create a unified development plan for the basin. As Figure 30 indicates, the activity of local non-state actors picked up in the 2000's. These actors have played a major role in shaping the dynamics of conflict and cooperation in the basin, one that would be missed by an analysis that limits the sample size to one that only includes state actors. Much of the cooperation that occurred post-2010 is due to the efforts of organizations such as EcoPeace, who have worked to use the environment and water resources in particular as a tool for peace through the implementation of awareness campaigns and youth programs. Non-state actors have also been involved in significant

periods of conflict, both with each other and with state actors. This trend is most apparent in conflicts that involve the local-level destruction of Palestinian water infrastructure by both Israel settlers and the Israeli Defense Force (IDF) and widespread attempts by the Israeli state to prevent Palestinian water resources development in the West Bank (see Figure 33).

Expanding the scope of analysis to include external and non-state actors can expose "hidden" elements of conflict and cooperation that are crucial to informing broader patterns of hydropolitics in the basin. This juxtaposition is especially apparent when comparing timelines of conflict and cooperation that are specific to a particular country-dyad.

Figure 32: Multi-scalar breakdown of Israeli-Jordanian water interactions.

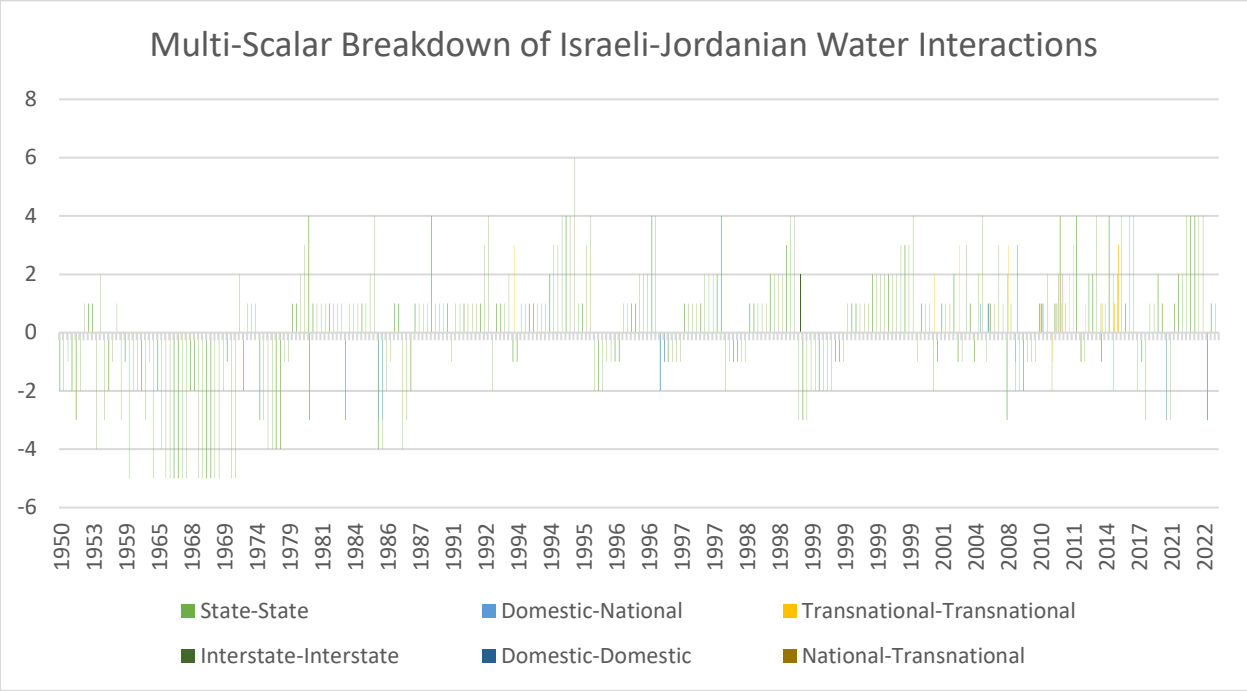
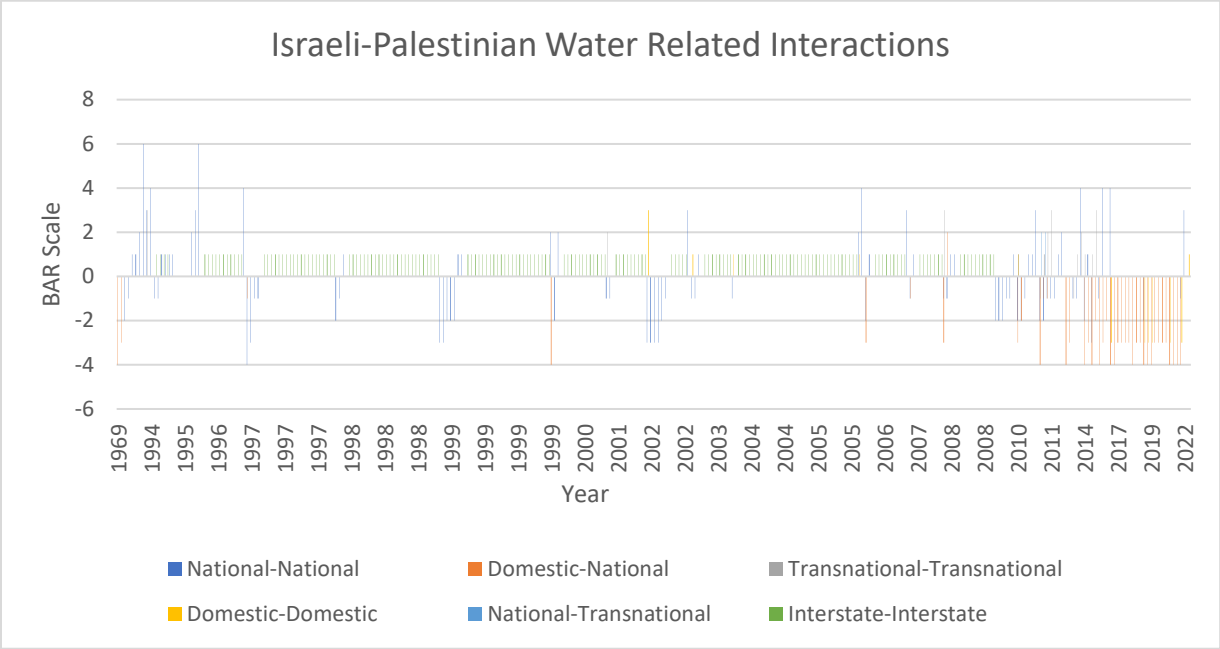


Figure 33: Multi-scalar breakdown of Israeli-Palestinian Water Interactions.



The above two graphs convey several key take-home messages. First is that water conflict and cooperation between Israelis and Jordanians is confined mostly to the realm of the state. Of the 319 interactions that took place between Israel and Jordan, 278 of them occurred between state actors. This observation reflects the long history of interstate cooperation between Israel and Jordan, formalized by the signing of the peace treaty in 1994 but conducted clandestinely for decades prior. Cooperation between Israelis and Palestinians has primarily taken place within the auspices of the JWC, while conflict has involved non-state actors to a greater extent, especially at the domestic level. As seen in Figure 33, few interactions of any kind have occurred at the national level. These are important findings for two reasons. First, they highlight the role of non-state actors in shaping hydropolitical dynamics between Israelis and Palestinians and the ongoing nature of cooperation occurring within the framework of the JWC, which represents the only formal cooperation mechanism in place between the two actors. Very few interactions occur between national-level representatives. Interactions that do occur at the formal state level are often reflective of broader power asymmetries between Israelis and Palestinians and perpetuate the former's control of the latter (Selby, 2013). Second, this observation challenges conventional wisdom that the signing of the Oslo II Accords, which created the Israeli-Palestinian JWC, established an allocation regime of West Bank water resources, was a truly cooperative endeavor and a sign of good things to come (e.g. Katz & Fischhendler, 2011). As seen in Figure 33, most of the Israeli-Palestinian interactions from 2016 onward were conflictive in nature and took place at the domestic

level involving at least one non-state actor. Approaching the analysis of transboundary water interactions from a multi-scalar perspective highlights how the reality of conflict and cooperation on the ground is often strikingly different from that spelled out on paper.

I have so far discussed general patterns in conflict and cooperation in the Jordan river basin, with an emphasis on the importance of taking a multi-scalar perspective to this discussion. But what explains these patterns? In other words, why do the graphs look the way they do? How are trends in water conflict and cooperation explained by what's happening in the water sector and by parallel processes in broader political relations between states? How do internal dynamics within a country influence its transboundary water policies? What factors, both internal and external, contributed to the creation of an environment conducive to cooperation post-1990? Relying primarily on the interactions database presented earlier and the peer-reviewed literature, and supplemented by interview data, the rest of this chapter will attempt to answer these questions.

The Role of the Domestic Sphere in Explaining Water Conflict and Cooperation in the Jordan River Basin

Israel

As the largest water consumer in the basin and the state with arguably the most resources to engage in extensive hydraulic development, it is prudent to take some time to discuss how Israel's internal politics and water policies have influenced its hydropolitical relations with other basin states. Central to the history of water conflict and cooperation in the Jordan river basin is the importance of discourse in determining how water is perceived and the implications of this on both domestic and interstate water policies. The power in discourse lies in its ability to "structure what is accepted as true by a given social group and what is claimed wrong or not considered at all," (Ide & Fröhlich, 2015, p.661). Discourse is perpetuated through verbal speech acts, writings, symbols, and through non-verbal practices that structure individuals' perceptions and interpretations of reality. In the Foucauldian sense, discourse is a form of embodied power that can shape the nature of reality itself by determining what is perceived as the "truth."

From an Israeli perspective, one can discern two water discourses that have significantly shaped its internal water policies and its hydropolitical relations with its neighbors. The first of these is a discourse of water abundance that was constructed as part of broader Zionist efforts to encourage immigration to Palestine and lasted well into the 1950's (Alatout, 2008a, 2009). This narrative of water

abundance was in part perpetuated by a Zionist ethos of agriculture that emphasized the central role of agriculture in ending the Jewish diaspora and returning to the Promised Land in the most literal sense (Lipchin, 2007). Working the land would allow for economic self-sufficiency and would tie Jewish workers to their land, at once sanctifying both the farmer and ownership of the land. Early narratives of water abundance supported the Zionist cause of turning Palestine into the Jewish national home by promoting the idea that a large Jewish presence in Palestine was not only technically possible, but that it was politically and historically legitimate as construed in Judeo-Christian narratives of Palestine as a land of abundance (Alatout, 2009). Furthermore, and perhaps with the most significant implications on the nature of water conflict and cooperation in the basin today, early Zionist narratives of abundance hastened the coalescence of a Jewish-settler identity in which water played and continues to play a central role in the political expression of this identity and in building the Jewish nation-state.

The ethos of agriculture that was in part spurred by the linking of agricultural development to the success of the Jewish nation-state directly contributed to the periods of high-intensity conflict seen throughout the 1950's and 1960's in Figure 27. In 1951, Israel began work on a massive development project that would see Hula Lake and the surrounding marshlands in the far north of the country converted into agricultural land. Strictly speaking, the project was conducted entirely within Israel's national borders, but part of the drainage work infringed on the demilitarized zone (DMZ) Israel shared with Syria. The initial goal of draining the wetlands was to deepen the bed of the Jordan to increase flow to the Sea of Galilee (Sosland, 2007). In 1953, the beginning of construction on the National Water Carrier (NWC) near the B'not Yacov bridge, also close to the DMZ, provoked another set of skirmishes with Syria. Failing to reach a satisfactory resolution to the question of Israeli development in the DMZ, intermittent conflict between Israel and Syria lasted from 1951 to 1958. This conflict was composed of no less than 23 separate interactions, almost half of which involved protracted violence and border skirmishes. Upticks in high-intensity conflict in the 1960's (see Figure 27) can primarily be attributed to construction of the NWC and Arab attempts to divert from the Jordan to prevent the project from being completed. To fulfill Ben-Gurion's vision of "mak[ing] the desert bloom" and bring agriculture to the arid southern part of the country, an extensive network of canals and pipes had to be constructed to carry water out of the Jordan basin and into the Negev. Construction of the NWC, which was completed in 1964 and runs 130 kilometers south from the Sea of Galilee, was vehemently opposed by Israel's neighbors – Jordan and Syria in particular. Between the construction of the NWC and the Arab response to it – the construction of the Arab Diversion Plan to divert the headwaters of the Jordan river – and the construction of Jordan's East Ghor Canal – which began a few years after the NWC and runs roughly

parallel on the east bank of the Jordan – the 1960's contained the highest concentration of violent conflict interactions on record (Figure 27).

High-intensity conflict interactions took place with increasing frequency between Israel and its Arab neighbors in the 1950's and 1960's. Yet, if water was perceived as abundant within Israel, why did Israel, for its part, frequently engage in armed conflict over water resources? The answer to this question lies in a shift in the internal water discourse from one of water abundance to one that emphasized scarcity. Whether water in the land of Palestine was abundant or scarce was a question that had divided hydrologists and other scientific experts since the Mandate period. The shift to a discourse of water scarcity in the mid-1950's was the result of a techno-political process that involved advances in hydrological science and political favoritism towards a centralized state (Alatout, 2008b). A narrative of water scarcity demanded that scarce resources be managed under a tight regime of state control, legitimized the abrogation of private water rights under the Water Law of 1959, and spurred construction of the NWC. This shift is also attributed to a desire by decision-makers to "modernize" the nation-state by redefining Jewish identity away from its Zionist emphasis on agricultural development to one on industrial development (Alatout, 2008b). Ideological debates aside, the growing water scarcity discourse spurred massive development projects such as the NWC, instigating a number of conflicts between Israel and its Arab neighbors in the 1960's as I explained above. The perceived scarcity of water also contributed to its securitization, a process that was also influenced by increasing water conflict between Israel and its neighbors and the development of a siege mentality amongst the Israeli public (Bar-Tal, 1998). The securitization of water within Israeli society continued to help fuel patterns of water conflict until the 1990's.

Israeli water policy has also been heavily influenced by the dominance of agriculture. The emphasis on agricultural development was at once ideological and practical; agricultural expansion provided food and space for incoming immigrants and was an effective way of establishing control over areas not yet settled by Jews, particularly on the frontier. Water policies such as the provision of subsidies to farmers, import tariffs, and water pricing based on quality instead of quantity favored rapid agricultural development with little regard to regulating water use (Lipchin, 2007). The high value attributed to agriculture and its role in the state-building process is also evident in the original placement of the Office of the Water Commissioner under the Ministry of Agriculture (Feitelson, 2002). Despite agriculture making up a small proportion of the labor force and GDP, agricultural favoritism continues to dominate Israeli water policy because of the ideological importance attached to it. The

importance attached to agriculture has helped elevate the importance of water in the public eye and has, along with a discourse of water scarcity, contributed to the development of a zero-sum game mindset that fuels Israeli-Arab and Israeli-Palestinian water conflict. After Israel occupied the Golan Heights and the West Bank in 1967, thereby taking under its control most of the water resources of the Jordan basin, the threat to water supply faded and water slipped off the public agenda (Feitelson, 2002). The effects of this de-securitization are evident in the uptick of cooperation and relative decline in conflict in transboundary water interactions in the basin post-1967 (Figure 27).

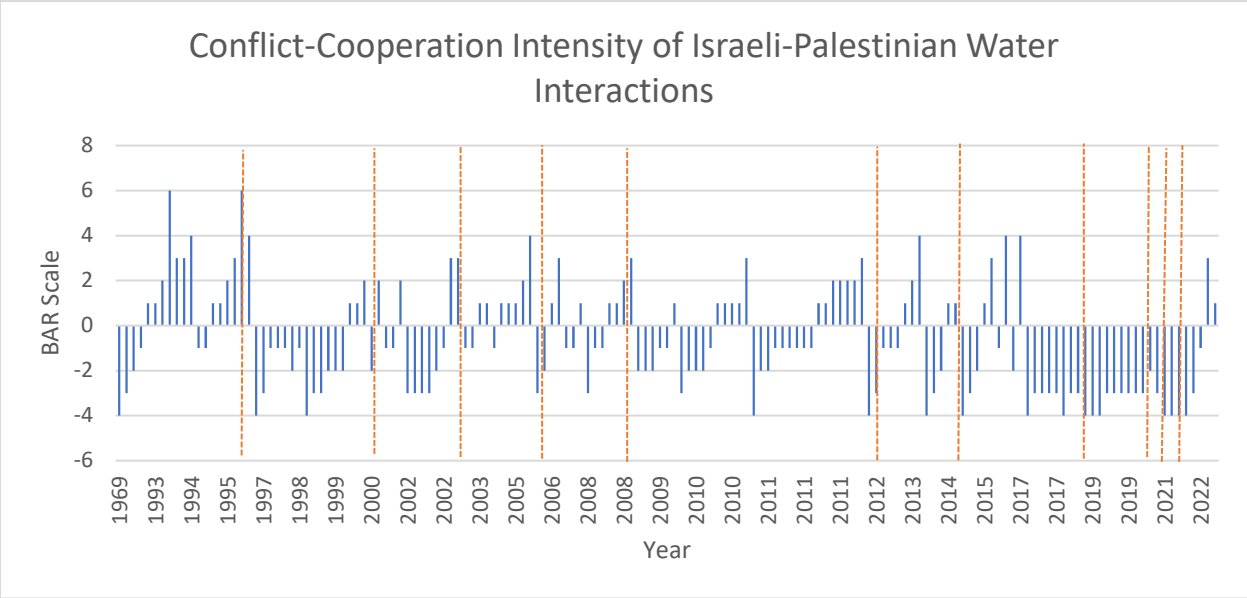
Shifts in Israeli political leadership and trends in water conflict and cooperation. From a domestic perspective, another factor shaping the nature of water conflict and cooperation in the post-1967 period, especially between Israel and the Palestinians, was the respective policies of the Labor and Likud parties on West Bank settlement. As the dominant political party in Israel until the election of Likud in 1977, Labor's "land for peace" policy precluded the construction of settlements in Arab-majority areas of the West Bank. A strong Middle East economy which enabled Palestinians to find high-paying jobs outside the West Bank and Israeli assistance in modernizing Palestinian agriculture also helped offset negative impacts from Israeli restrictions placed on Palestinian water access and use (Sosland, 2007). The lack of interactions over water that took place between Israelis and Palestinians during this period attest to these dynamics (Figure 33).

After 1977, the Likud Party came to power and remained in office through 1992. During this time, Likud-led governments pursued a more aggressive policy of West Bank settlement, including establishing settlements in heavily populated Palestinian areas, and restricting Palestinian water use in favor of increasing water supply to Israeli settlements. In 1982, West Bank water systems were placed under the control of Mekorot, increasing the visibility of an Israeli presence in the West Bank and further increasing Palestinian restrictions on water access and use (Sosland, 2007). Growing Palestinian unemployment and Likud's settlement policies increased Palestinian awareness of the inequalities between Israeli and Palestinian water distribution. One would expect that these factors would combine to result in more conflictive Israeli-Palestinian interactions post-1977. However, as seen in Figure 33, there are hardly any recorded Israeli-Palestinian water interactions until the 1990's. Why is this the case? The answer to this question involves a complex array of factors, including underreporting of Israeli-Palestinian interactions prior to Israeli recognition of the PLO in 1993 and the creation of the PA as the vehicle for Palestinian national expression. Furthermore, extreme power asymmetries have largely prevented Palestinians from engaging in any sort of effective action against Israeli water policies.

While I will address the latter in chapter 6, I will discuss later in this chapter how the peace process has shaped Israeli-Palestinian water relations.

It is interesting to compare fluctuations in Israeli-Palestinian water conflict and cooperation with shifts in the ruling party in Israel. The influence of Labor and Likud policies, described above, on Israeli-Palestinian water interactions are most apparent in the mid-1990's. Figure 34, below, reproduces the timeline of Israeli-Palestinian water interactions with vertical red lines indicating an Israeli election year. Cooperation dominated these interactions (mostly due to the peace process, as I describe below) until 1996, when Israeli elections yielded a surprise victory for Benjamin Netanyahu and the Likud Party. Interviewees who were involved in water negotiations during the peace process attest to these dynamics, noting that the pace of negotiations with Palestinians in particular slowed down after Likud returned to power in 1996 (Participants 4 and 7, personal communication, June 5, 2023 and August 2, 2023). At the same time, Israeli-Palestinian water interactions became more conflictive until 1999, coinciding with Israel's next election in which the Likud Party lost to Ehud Barak's One Israel, a coalition of Labor with several other more centrist parties. Most of the interactions between 1996 and 1999 involved Palestinian accusations of Israel not implementing Article 40 in the Oslo II agreement and the destruction of Palestinian water infrastructure by the IDF. Water interactions once again became more conflictive around 2002, coinciding with the outbreak of the second Intifada and the subsequent comeback of the Likud Party in the 2001 prime ministerial elections. Since 2001, a right-wing political party has remained in power in Israel with few interruptions through the present day. While my intent in highlighting the similarities in trends between Israeli internal politics and Israeli-Palestinian water cooperation is not to say that the nature of interactions over water are dictated solely by regime shifts within Israeli politics, it would be an oversight to not acknowledge these trends.

Figure 34: Conflict-cooperation intensity of Israeli-Palestinian water interactions and changes in ruling Israeli party.



The return of water to the Israeli public agenda. The political climate within Israel is not the only factor to have influenced patterns of water conflict and cooperation in the Jordan river basin. Water once again became an issue on the Israeli public agenda in the early 1990's due to a combination of two factors: a prolonged period of drought and the peace process. Water levels in the Sea of Galilee dropped for the first time near the 213m "red line" by 1990 after three years of below average rainfall (Markel, 2014). This marked the beginning of a period almost 17 uninterrupted[43] years from 1992-2009 in which water levels dropped below the red line and the amount of water pumped exceeded the amount available. As a result, low water levels in the Sea of Galilee were an almost daily news item for many years, bringing the issue of water scarcity back to the public eye.

The start of the Middle East peace process and the inclusion of water as one of the topics for multilateral negotiations had a profound effect on the internal Israeli water discourse, which in turn influenced patterns of water conflict and cooperation. The positive atmosphere of the peace process helped add a human rights perspective to Israeli-Palestinian relations as the idea that all people should have the minimum amount of water needed for domestic purposes gained popularity in the Israeli

[43] During the wet years of 2002-2004, water level in the Sea of Galilee was able to recover somewhat (Markel, 2014).

public (Coskun, 2009). The establishment of this perspective coincided with two important internal developments in Israel – the re-election of a Labor government in 1992 and a growing awareness of deteriorating water quality and the importance of joint groundwater management in addressing these issues. Large-scale acceptance of the idea that without a stable Palestinian water supply and joint management of water resources there could be no peace are reflected in various speech acts from top-level decision-makers.[44] At a practical level, this shift in discourse led to the high levels of cooperation that are seen throughout the 1990's between Israel and the Palestinians (Figure 33) and Israel and Jordan (Figure 32) that culminated in the creation of bilateral institutionalized frameworks for cooperation.

Jordan

Jordan is one of the most water scarce countries in the world and is almost entirely dependent on water resources that originate outside its borders. Less than 100 m^3 of water are available per capita annually, well below the threshold of 500m^3/person per year (UNICEF, 2022) and the capital city of Amman receives deliveries of freshwater only once a week. Jordan is also very dependent on foreign aid to assist in the development of its water sector; over 15% of the interactions involving Jordan between 1948-2023 involved the provision of foreign aid to the Jordanian water sector. Almost half of this aid came from the United States. Key to understanding water conflict and cooperation dynamics from a Jordanian perspective are two elements: a Jordanian discourse of water scarcity that is defined in terms of water security and national security, and a dominant view among elite decision-makers in Jordan at the time of the peace process that peace with Israel was necessary because of the U.S. aid that would come along with it.

The dominant water discourse within the Jordanian government frames water scarcity as a supply issue (Participant 24, personal communication, January 23, 2024). Due to a growing population (including a growing influx of refugees), unfair water sharing agreements with Syria and Israel, climate change, and natural aridity, there is not enough water to meet demand (Hussein, 2019). As a result, the main policy solutions pursued by the government are designed to increase supply. Importantly for Jordan's hydropolitical relations with its neighbors, these solutions have included the construction of the al-Wahda Dam with Syria and construction of the Red Sea-Dead Sea Conveyance Project (RSDSC) with

[44] See for example, "for us, it is obvious that if the Palestinians do not have enough water, we shall not have peace," (Yosef Ben-Dor in Rouyer, 2000, p.145) and "since water knows no boundaries, joint management makes good sense and is probably inevitable," (Uri Shamir in Rouyer, 2000, p.145).

Israel.[45] The RSDSC would have provided Jordan with much needed desalinated water from the Red Sea while using the resulting brine to help replenish Dead Sea levels. From a Jordanian perspective, it was hailed as "the only sustainable solution to solve the water scarcity issue," (Al Hamidi, 2012) because desalination was seen as the only way to bring more freshwater to Jordan (Hussein, 2017b). The RSDSC was further seen as an attractive project because it could help alleviate the strain on water resources caused by Syrian refugees who were mainly housed in camps in the north of the country. Cooperation with Israel was therefore seen as the main way to help improve the water situation in Jordan. This attitude is reflected in the high frequency of cooperative interactions between Israel and Jordan. Looking at Figure 32, we can see that there are two concentrated periods of cooperation between Israel and Jordan – the first during the peace process in the 1990's and the second starting after the announcement of the RSDSC project in 2002 and lasting, with few interruptions, until the project was shelved in 2021. Indeed, 53 of the 74 interactions between Israel and Jordan in this time period were cooperative, and almost 40% of these cooperative interactions related to the RSDSC.

A history of water cooperation between Jordan and Israel can also be partly explained by political shifts, both externally and within Jordan itself, that made the institutionalization of cooperation and the formalization of relations during the peace process feasible. As I will discuss later this chapter, factors such as the signing of the Declaration of Principles between Israel and the PLO and a desire to build stronger relations with the U.S., were also integral to shaping dominant patterns of cooperation between Israel and Jordan, especially during the 1990's. From an internal Jordanian perspective, the opportunities presented by an Israeli-Jordanian peace treaty were too good to pass up.[46] First, cooperation with Israel would help alleviate water scarcity within Jordan, as the peace treaty included numerous water provisions outlined in Chapter 3. The water cooperation embodied in the peace process would also set a precedent for future cooperation with Israel over water matters. However, cooperation with Israel alluded to benefits that extended beyond water. Mainly, the Kingdom could

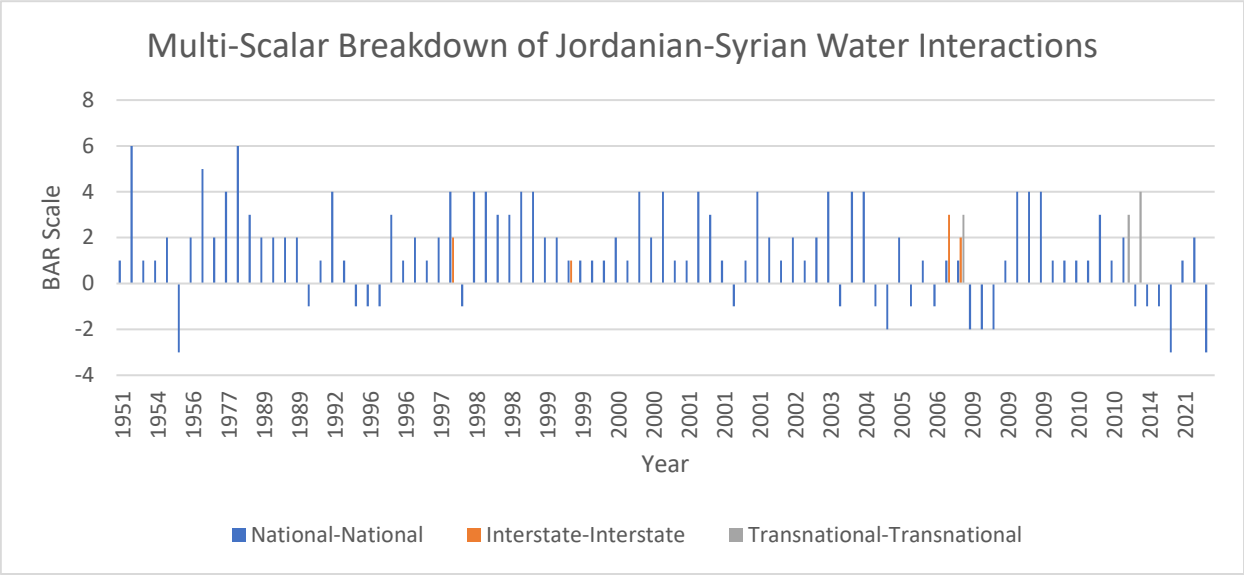
[45] Although a MoU was signed between Israel, Jordan, and the Palestinians regarding the launch of the RSDSC and the project was designed to involve all three countries, in practice the RSDSC was initially launched between Israel and Jordan due to political conflict between Israel and the PA and strong criticism about the project from Palestinian civil society.

[46] While cooperation with Israel was generally accepted at the government level, to this day large segments of Jordanian society do not support the Israeli-Jordanian peace treaty and feel Jordan was not allocated a fair amount of water under the treaty. The influence of these dissenting opinions has gained momentum in recent years, and is perhaps best exemplified by mass protests in 2021 and 2023 protesting both against the Israeli-Jordanian peace treaty and the Green Blue Deal signed between the two states in 2021. In November 2023, Jordan withdrew from the deal, which would have provided it with desalinated water from Israel in exchange for solar energy, bowing to mounting internal pressures and Israel's war in Gaza.

anticipate more economic and military support from the U.S. after signing a peace agreement with Israel (Jägerskog, 2003) and such an agreement could help bring much anticipated stability to the region (Haddadin, 2002). Finally, the extensive history of clandestine water cooperation between Israel and Jordan made the formalization of such relations easier and more viable.

Aside from cooperating with Israel, Jordan also has an extensive history of cooperation with Syria, as shown in Figure 35.

Figure 35: Multi-scalar breakdown of Jordanian-Syrian water interactions.



Of the 100 interactions that have taken place between Jordan and Syria, 80% have been cooperative. Most of these interactions have taken place in the context of joint development projects – the Maqarin Dam and later the al-Wahdah Dam – that would increase Jordan's water supply and help resolve its water scarcity problem. Jordan and Syria had long been at odds over water withdrawals from the Yarmouk river, which runs along their shared border for 40 kilometers, with Jordan often accusing Syria of withdrawing excessive water upstream. In 1987, Jordan and Syria signed an agreement that lay the framework for the construction of the al-Wahdah Dam and gave Syria 75% of the hydropower generated in addition to 140mcm of water annually from the Yarmouk and permission to build 24 small dams upstream (Agreement Concerning the Utilization of the Yarmuk Waters, 1987). While these were seen as drastic concessions by some elite decision-makers within Jordan (so much so that the JVA president resigned), Jordan's water crisis was perceived as so severe that cooperation with Syria in construction of the dam was seen as a last resort. As a result, cooperation with Syria has been the

dominant course of action for Jordan, even if official opinion within Jordan would suggest a different narrative.

Palestine

The history of water relations between Israel and Palestine is not as cooperative as the set of relations described above. In many ways, the Palestinian discourse over water runs parallel to the Israeli one. Within Palestinian society, water has been securitized and linked to the creation of a national identity. Water is linked to Palestinian identity due to its connection to territory that is seen as being rightfully Palestinian (Fröhlich, 2012). The Israeli other is portrayed negatively because they do not grant Palestinians water that they do not only depend on for basic functions and economic growth, but to which they are entitled. This mindset has led to the development of a siege mentality that in many ways mirrors the Israeli one described above, and is reflected in the protracted patterns of low-to-medium-intensity conflict seen in Figure 33. Palestinian perseverance in the face of occupation and the intertwining of water with identity has manifested in the myth of the fellah, a Palestinian peasant who works to sustain the land even under the worst of circumstances (Fröhlich, 2012). The myth of the fellah is kept alive by the everyday people who continue to protect their land and their livelihoods under occupation in the hope that one day the land, and its water, will be theirs.

The Palestinian discourse also emphasizes the scarcity of water. From a Palestinian perspective, however, water scarcity is entirely political. The existing natural resources provide enough water at least to maintain or improve standards of living. It is Israeli control over water resources through its ability to veto Palestinian water infrastructure projects and restrict Palestinian access to water that are the causes of water scarcity in the West Bank. This belief is reflected in statements made by top decision-makers; for example, in a 2021 interview with Al-Jazeera, the director-general of strategic planning at the PWA Adel Yassin stated that “the problem is not a shortage of water but the occupation’s control of our water,” (Najib, 2021). This theme came out in interviews I conducted with Palestinian engineers and NGO workers, who stated that “water is available. It is not available in enough quantities perhaps, but it is not equally shared. It is not fairly distributed. It is politically manipulated,” (Participant 13, personal communication, September 20, 2023). In addition to this scarcity discourse, which has the effect of

securitizing water, competing Israeli and Palestinian discourses regarding water needs and water rights, respectively, further contribute to patterns of prolonged, low-intensity conflict.[47]

While the idea that water scarcity in the occupied Palestinian territories is due solely to Israeli control is widespread, it is not the only perspective. An alternative discourse criticizes Palestinian mismanagement of water resources and attributes at least some degree of responsibility for water scarcity and pollution internally (Fröhlich, 2012). For example, existing Palestinian water laws created at the national level do not take into account existing local-level institutions for water management and import Western ideals that are met with resistance both by rural populations and from within the government itself. The 2014 Water Law, which mentions integrated water resources management and wastewater reuse and creates a Water Sector Regulatory Council, has not been implemented due to power struggles with Israel and within the PA itself and because it does not capitalize on local institutions that have been successfully functioning for decades (Trottier, 2019). Furthermore, the WBWD, which is responsible for managing wells and purchasing bulk water from Mekorot and distributing it, routinely does not receive feed from village councils and municipalities that it supplies water to, rendering it unable to pay its bill to Mekorot (Trottier, 2019). As a result, unlicensed well drilling is prevalent and wastewater discharge and water abstraction are not centrally regulated, creating fertile ground for conflict both within Palestinian society and with the Israelis.

Interstate Relations and Interstate Hydropolitics

The internal discourses and policy preferences discussed earlier this chapter are far from the only elements that have shaped the trajectory of water conflict and cooperation in the Jordan river basin. As I discussed earlier in this chapter, one of the chessboards at which states interact with each other, both concerning water and other matters, is the international arena. In this section, I will discuss how broader interstate relations between states can influence their hydropolitical relations. For the sake of clarity, I organize my discussion around the same time periods as I discussed hydropolitical relations of the Jordan basin in chapter 3: 1948-1967, 1967-1994, 1994-2005, and 2005-present.

1948-1967: Cold War Dynamics and Arab Nationalism

[47] From a Palestinian perspective, the explicit recognition and delimitation of Palestinian water rights has always been a priority at the negotiation table. This contrasts with the Israeli perspective, which favors a technical approach based on defined water needs, in determining allocations (see, for example, Shuval, 2007; Tal & Rabbo, 2010)

At the basin scale, patterns of water conflict and cooperation throughout the 1950's and 1960's were underscored by Cold War politics and the spread of Arab nationalism, both of which directly contributed to escalations in water conflict and the build-up to the 1967 War. Like other parts of the world, the Middle East fell victim to Cold War superpower rivalries and became a theater through which the United States and the Soviet Union competed for power. Believing that the Middle East was a power vacuum with strategic resources and that the spread of Communism could be prevented by improving standards of life in the region, the United States enthusiastically supported facilitating a settlement to the Arab-Israeli conflict and reaching a solution to the "Palestine Problem" (Lowi, 1993). In addition, instances of conflict between Israel and Syria in the Huleh Valley and the DMZ made clear to the United States that water must be considered alongside other issues in the Palestine dispute (Lowi, 1993). To this end, the Americans sponsored a number of possible development schemes for the Jordan basin detailed in Chapter 3. In the most successful of these initiatives, the Johnston Plan, allocations from the Jordan River were agreed upon at the technical level by both sides but officially rejected by the Arabs for political reasons. Nonetheless, the Johnston negotiations were responsible for a brief spurt of cooperation in a period that was otherwise dominated by high-intensity conflict (see Figure 27, 1953-1955), and the allocations for Jordan and Israel served as the basis for the allocations established in the peace treaty between the two countries.

The Arab-Israeli conflict during this period was shaped by the growing Soviet-American rivalry, with Soviet-backed Egypt and Syria on the one hand and Western backed nations such as Israel and Jordan on the other. This had the effect of contributing to patterns of high-intensity water conflict between Israel and its Arab neighbors. The Soviet Union publicly supported the Headwater Diversion Project, which involved diverting the headwaters of the Jordan River in Syrian and Lebanese territory, and saw in it the potential to unify the Arab world against Western influence (Safran, 1981). This support significantly guided Egypt and Syria, who relied on Soviet arms and political support, towards a course of conflict with Israel over the waters of the upper Jordan. Additionally, Soviet arms sales to Arab countries and unwillingness on the part of the United States to provide assurances to Israel on the water issue pushed Israel towards a policy of self-reliant military action against the Headwater Diversion Project (Sosland, 2007). The diversion project itself was the Arab reaction to Israeli plans to launch its National Water Carrier, and was seen as "an outright attack on one of Israel's means of livelihood," (Oron, 1960, p.208-209) by the Israelis. Similarly, the NWC was perceived by the Arabs as an existential threat to the Palestinians and an extension of Zionist imperialism. The Headwater Diversion Project was the subject of a series of summit conferences in 1964 among Arab heads of states, the result of which

was the establishment of a joint military command with the sole purpose of defending the diversion works from Israeli aggression and the establishment of the PLO and its military wing, the Palestine Liberation Army (PLA) (Lowi, 1993). Together, the NWC and the Headwater Diversion Project were the subject of dozens of conflict events between 1961 and 1967 (Figure 27), most of which involved active conflict between the Israeli and Arab militaries using weapons sourced from the United States and the Soviet Union, respectively.

Cold War dynamics were not the only element shaping the nature of water interactions between 1948 to 1967. During this same time Arab nationalism (Pan-Arabism) reached its zenith. The champion of Arab nationalism was Egypt's Gamal Abdel Nasser, the army general who had a led a coup toppling the Egyptian monarchy in 1952. Under Nasser's charismatic leadership, a program of state unification and pan-Arabism was pursued, resulting in the unification of Egypt and Syria under the United Arab Republic from 1958 to 1961 (Milton-Edwards, 2011). One of the fundamental tenants of Arab nationalism, which has its roots in the centuries-long occupation of Arab lands by the Ottoman Empire, was the idea of an Arab unity that would transcend national boundaries, many of which were artificially imposed by colonial powers, across the Middle East. Central to achieving this dream of Arab unity was the "national cause" of "liberating Palestine from Zionist imperialism," (Lowi, 1993, p.124). During the 1950's and 1960's, preventing Israel from completing the NWC and "stealing" water that was seen as rightfully Arab became a goal that individuals and politicians from all Arab states could rally behind. As Syria (supported by the Soviet Union) sought to increase Pan-Arab sentiment across the region in light of a decline in Egyptian influence, it conducted periodic attacks on Israeli farmers and water infrastructure along the border in the years leading up to 1967. Indeed, Israel's NWC fanned the flames of Arab nationalism by presenting a "threat to the very existence of the Arabs as a nation," and representing "aggressive expansionist interests," (Lowi, 1993, p.133). After a Syrian coup in 1966 in which a more anti-Israel government led by Salah Jadid gained power, these attacks intensified (Sosland, 2007). The struggle to keep Jordan River water out of Israeli hands can therefore be viewed as a central pillar of Arab nationalism as it evolved throughout the 1950's and 1960's. It is no coincidence that Pan-Arabism was declared dead by prolific writers such as Ajami (1978) in the aftermath of the 1967 War, in which Israel seized control of nearly the entire Jordan River system.

1967-1994: Clandestine Cooperation

Israel's victory in the 1967 War dramatically altered both hydropolitical relations and broader international relations within the Jordan river basin. Gaining control over most of the waters of the Upper Jordan, Israel found itself in a newly acquired upstream riparian position on the Jordan river at the expense of Lebanon and Syria.[48] The Arab goal of keeping water out of Israeli control so as to slow down its socioeconomic growth, which had motivated much of the Arab-Israeli water conflict during the 1950's and 1960's, was rendered moot. Instead, the new geopolitical realities of the basin necessitated a basic level of cooperation, at least from the Jordanian perspective. Indeed, with Israel supplanting Syria's position along the Jordan river, most of the water conflict now centered around Israel and Jordan. In addition, Israel's occupation of the West Bank meant it now was responsible for supplying a growing Palestinian population with water. On the Yarmouk river, Jordan's aim of developing the waters of the river to support its growing water demand was complicated by unchecked Syrian abstraction. While the hydropolitical relations in this era culminated with the mixed results from the peace process, in the decades prior to this they played against a background of turbulent political relations overshadowed by events such as Black September, the decline of pan-Arabism, and the Gulf War. This section discusses how broader political developments such as these may have impacted patterns of water conflict and cooperation in the Jordan basin.

Turbulent Israeli-Jordanian relations. One of the most direct examples of how broader politics has influenced patterns of water conflict and cooperation can be found by examining the nature of Israeli-Jordanian water interactions and broader politics in the late 1960's. In the aftermath of the 1967 War, Israel gained control over the West Bank and an estimated 600,000 Palestinians (Israel Defense Forces, 1967). In response to the occupation, Palestinian *fedayeen* fighters, most of whom were affiliated with the PLO, carried out attacks against Israel from the Jordanian side of the Jordan Valley. Between 1967 and 1970, the PLO conducted a systematic campaign against Israel while simultaneously working to build a "state within a state" in Jordan (Sosland, 2007, p.97). At the same time, Jordan was expanding the East Ghor Canal in the Jordan Valley to strengthen its economy by providing more water for irrigation. Israel's strategy during this time regarding the PLO centered around provoking Jordan to do something about the terrorist attacks being launched from its territory by destroying Jordanian

[48] It is important to note that the Hasbani river remained under Lebanese control, a fact that would become a point of contention between Israel and Lebanon in the early 2000's. Additionally, Syria retained its upstream position on the Yarmouk river relative to Israel and Jordan.

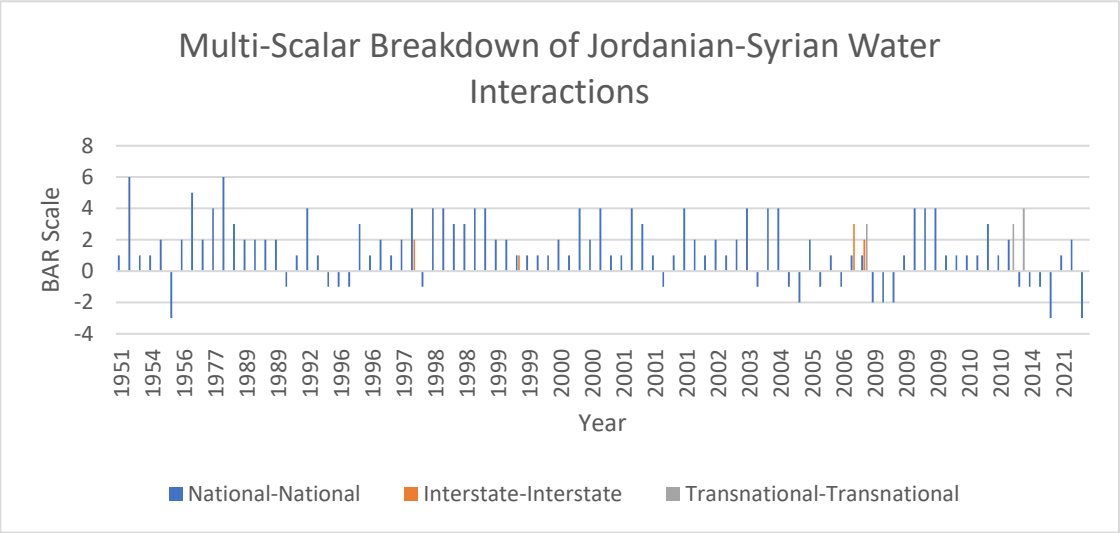
farmland and attacking the East Ghor Canal. Israel bombed the East Ghor Canal at least eight times during this period (see Figure 31).

In retaliation, the PLO made occasional strikes on Israeli water infrastructure in the Jordan Valley. Israel-Jordan water relations remained deadlocked in a vicious cycle of high-intensity conflict until 1970, when King Hussein of Jordan expelled the PLO and destroyed their political and military bases in what became known as Black September (Sosland, 2007). As a result, Israel and Jordan began to secretly cooperate over shared water resources in the 1970's, beginning a legacy of cooperation that would have ramifications two decades later during the peace process.

Underpinning the Israeli-Jordanian water cooperation that slowly emerged in the decades leading up to the signing of the peace treaty in 1994 were a number of policy preferences, some shared and some not. For one, both Israel and Jordan realized that a secure and stable Jordan Valley would be 9beneficial to them both (Sosland, 2007). In the late 1960's, both countries were focused on expanding their respective water carriers in the Jordan Valley to strengthen agricultural development. The intense guerilla campaign waged between Israel and the PLO during this time period, described above, demonstrated the devastating consequences that continued instability in the region would have. In Jordan, almost 55,000 people fled the Jordan Valley and crops critical to the Jordanian economy were threatened as a result of Israel's continued attacks on the East Ghor Canal (Khouri, 1981). Israel, meanwhile, suffered dozens of casualties and some settlements near the border were unable to pump water for weeks as a result of attacks by the PLO (Sosland, 2007). A more stable, peaceful Jordan Valley that would support socioeconomic development in both countries therefore became a mutual goal. In addition, cooperating over water issues had the potential to bring further benefits to both parties. For its part, Israel placed high priority on developing friendly relations with an Arab country that, geographically speaking, acted as a buffer between it and more hostile states to the east. Jordan, on the other hand, perceived that cooperating with Israel would help strengthen its relations with the United States (Jägerskog, 2003). Motivated by these factors, Israel and Jordan embarked on a course of near-constant water cooperation beginning with the picnic table talks in 1979. As seen in Figure 31, this cooperation was only sporadically broken by conflict, mostly regarding water allocations from the Yarmouk river, for the next several decades.

Jordan-Syrian relations. Most hydropolitical analyses of the Jordan river basin focus on the water conflict between Israel, Jordan, and Palestine, perhaps rightfully so as almost half of the interactions in this basin occurred between these three actors (Figure 26). However, it is impossible to

develop a complete picture of water conflict and cooperation in the basin without considering the interactions between the two top consumers of water from the Yarmouk river – Syria and Jordan. A quick glance at the graph of Jordanian-Syrian water interactions reproduced below shows that the hydropolitical relationship between the two riparians has been mostly cooperative. A closer look, however, reveals that almost no interactions over water took place between 1956 and 1989. What could have contributed to this gap and what led to a resumption of hydropolitical relations in the late 1980s?



Jordan and Syria have a history of turbulent political relations, one that has been significantly shaped by factors such as American support of the former and Soviet support of the latter during the Cold War and Jordan's history of cooperation with Israel. Water relations between the two have historically been closely linked to fluctuations in their broader political relations. The 1980's were a particularly volatile time in Jordanian-Syrian relations. During the early years of Hafez al-Asad's rule, Syria's internal political arena was characterized by fierce opposition from the Muslim Brotherhood. In 1979, Jordan allowed the Muslim Brotherhood to operate within its borders in response to continued pressure from Syria to join the anti-Western and anti-Israeli Tripoli Bloc. Asad responded by mobilizing troops on the border and threatening to invade Jordan (Lowi, 1993). Around the same time, the Iran-Iraq War broke out, with Syria supporting the former and Jordan the latter. This deterioration in political relations explains the pause in Jordanian-Syrian water interactions from 1977 until 1987 (Figure 35). King Hussein's 1985 visit to Damascus marked the beginning of renewed political goodwill, a transformation in relations that was buttressed by a public apology for supporting the Muslim Brotherhood and Jordan's abandonment of bilateral talks with Israel (Hussein, 2017a). Two years later,

Syria and Jordan signed an agreement on constructing the al-Wahdah, or Unity, Dam near the location of the Maqarin Dam project that had been scrapped some years before. This time around, the atmosphere of renewed political relations helped to keep talks about the dam on track. In addition, the al-Wahdah Dam agreement was seen as beneficial by both parties; Jordan received a partial solution to its water scarcity problem and Syria's upstream use[49] on the Yarmouk, previously without Jordanian approval, was formally legitimized.

Changes in regional politics. Between 1967 and 1994, two major phenomena unfolded on the regional and global stage that influenced the nature of the Arab-Israeli conflict and, as a result, the Arab-Israeli water conflict: the end of the Cold War and the decline of Pan-Arabism. I have explained above how the Middle East was a theatre in which Cold war superpower struggles played out by proxy. Prior to its collapse, the Soviet Union acted as a patron towards Middle Eastern states such as Egypt and Syria. After its collapse, not only did these states lose an important benefactor, but the United States became the only superpower in the region. This had a major effect on the Arab-Israeli conflict, as states that were previously aligned with the Soviet Union had to moderate their extreme anti-Israeli and anti-American positions (Jägerskog, 2003). In the wake of the Gulf War, the United States was able to leverage its position as the sole superpower in the region to convene the Madrid peace process, further changing the dynamics of the Arab-Israeli conflict by weakening radical anti-Israeli sentiment.

The rise of Arab nationalism in the 1950's and 1960's had a marked influence on water conflict between Arabs and the Israelis and the broader political conflict within which these dynamics played out. Pan-Arab rhetoric espoused by leaders such as Egypt's Nasser and Iraq's Saddam Hussein suggested that the Arab *umma*, or community, took precedence over the formation of individual nation-states. The defeat of the Arabs in 1967 tarnished the image of radical power offered by the pan-Arab vision and it became apparent that Arab leaders were pursuing personal political agendas behind the mask of Arab nationalism. Even the Palestinian cause, long at the center of inter-Arab relations, was no longer a unified front that all Arab countries could stand behind. Some states, such as Syria and Jordan, took it upon themselves to champion the Palestinian cause directly rather than indirectly through supporting the PLO (Sela, 1998). The most striking example of an Arab nation emphasizing state sovereignty over pan-Arab ideals in the context of the Arab-Israeli conflict is found in the peace deal Egypt's Anwar al-

[49] Between 1967 and 1980, Syria built 26 dams on the Yarmouk without Jordanian consent (Haddadin, 2009).

Sadat made with Israel in 1979, a deal that was made without first consulting other Arab leaders (Rubin, 1998). Realpolitik it seemed, and not ideology, featured heavily in Arab foreign policy.

The start of the peace process. In 1991, the Middle East peace process opened at the Madrid conference against a political backdrop that was shaped by a legacy of tumultuous events that had occurred within the past decade, including the assassination of Anwar Sadat, Israel's invasion of Lebanon and its aggressive West Bank settlement policies, the collapse of the Soviet Union, and the end of the Gulf War. It is therefore no small miracle that representatives from Israel, Syria, Lebanon, Jordan, and the Palestinians responded positively to an invitation from the United States and the Soviet Union to come to Madrid and engage in peace talks along a bilateral and a multilateral front. As described in chapter 3, the main breakthroughs of the peace talks were the signing of the Israel-Jordan peace treaty and the three Israeli-Palestinian agreements – the Israeli-Palestinian Declaration of Principles in 1993, the Gaza-Jericho Agreement (Oslo I) in 1994, and the Israeli-Palestinian Interim Agreement on the West Bank and Gaza Strip (Oslo II) in 1995. These documents, particularly Oslo II, ended Israel's complete control over the West Bank (and its water resources) and established the foundations for Palestinian self-government, including over water. Prior to 1995, Israel and the Palestinians had interacted very infrequently over water (see Figure 33), and most of these interactions occurred within the framework of the Madrid process.

After Oslo II was signed, which recognized Palestinian water rights in the West Bank, developed an allocation regime for water from the Mountain Aquifer, and established an institutional framework for cooperation under the JWC, Israeli-Palestinian water interactions occurred much more regularly. However, as seen in Figure 33, these agreements did not lead to much cooperation outside of the context of the JWC and did little to increase the Palestinian water supply. As I will discuss in chapter 6, the Israeli-Palestinian water agreements are the product of significant power asymmetries that are reflective of broader political realities that maintain the status quo at the expense of Palestinian development. For now, it is important to keep in mind that while the peace process did jumpstart Israeli-Palestinian water relations, it did not mark the beginning of an era of cooperation.

1994-2005: Maintaining relations amongst lingering conflict

Hydropolitical relations in the years following the signing of the Oslo I and II agreements and the Israel-Jordan peace treaty largely followed the status quo that had been established in years before. No big breakthroughs were made in terms of how to resolve water scarcity issues in Jordan or the West

Bank and conflict for the most part was limited to low-intensity, verbal accusations that one party or another was not upholding their end of the bargain. Outside of water, political relations also hit a standstill. The assassination of Yitzhak Rabin in 1995 and the beginning of the second intifada in 2000 contributed to the ultimate demise of the peace process (Participant 4, personal communication, June 5, 2023). Interestingly, interactions involving non-state actors, both within the basin and from without, began to occur more frequently during this time period (see Figure 30). Violent conflict between Israel and Lebanon over the Wazzani Springs in the early 2000's was only narrowly avoided thanks to mediation from the United States, the EU, and the UN. Furthermore, an increase in activity by domestic-level non-state actors suggests that pro-environmental discourse began to gain importance amongst the general public, providing an opportunity for NGO's and other groups to expand their influence and fill in the gaps between what was (or was not) being accomplished at the interstate level. Additionally, the relatively more stable and optimistic political climate post-Oslo enabled various actors to more effectively carry out their work. With the immediate threat of war at least temporarily diminished, people could afford to think about issues such as water and the environment and how they might stand to benefit by cooperating over these resources.

Despite the fact that political relations more or less ground to a halt after then-Israeli Prime Minister Ariel Sharon visited the Temple Mount in 2000, sparking a wave of Palestinian protests and five years of sporadic violence, work on water continued. This happened largely because of the involvement of third parties, such as the United States, who had been instrumental in facilitating technical cooperation over water within the framework of the multilateral working groups formed at the beginning of the Madrid process.[50] Perhaps more influential, however, was the desire of the parties themselves to continue work on the water front. Recognizing that the technical projects they had been engaging in under the framework of the peace process were providing mutual benefits to help them better manage their water resources, cooperation over water persisted at the technical level between the Israelis and the Arabs, even when broader political relations were at a standstill (Participant 4, personal communication, June 5, 2023). The technical projects on water that continued between Israel

[50] Recall that under the framework of the peace process started in Madrid in 1991, peace talks were held along a bilateral and a multilateral track. Talks on the bilateral track were held between Israel, and each of its Arab neighbors with the goal of resolving past conflicts and establishing peace treaties. On the multilateral track, talks were held over five main issues of top priority to the parties – refugees, economic development, arms control, the environment, and water – facilitated by external actors. The United States was the gavel holder of the water talks.

and Jordan and Israel and Palestine during the Intifada can be seen in the persistence of low-level cooperation displayed on Figures 32 and 33.

A focus of technical cooperation between Israel, Jordan, and Palestine in the early 2000's was the Red Sea Dead Sea Conveyance project I described in chapter 3. In 2002, the governments of Israel and Jordan announced a project that had the potential to save the shrinking Dead Sea and provide additional water to the two countries (Hussein, 2017b).[51] Aside from being motivated by a Jordanian water discourse of water scarcity, as I describe above, the RSDSC was also politically motivated. The RSDSC was also intertwined with broader regional and global discourses at the time promoting the importance of environmental protection and regional cooperation. In the past half-century, a number of global conferences such as the United Nations Conference on Environment and Development held in Rio de Janeiro in 1992 have elevated the importance of environmental protection onto national policy agendas around the globe. These conferences themselves were the products of a growing concern amongst the public about environmental degradation and preservation and the environmental consequences of practices such as tourism and war (van der Heijden, 2014). At the regional level, there was also the idea that a regional cooperation project such as the RSDSC could be mutually beneficial for everyone involved and bring peace and stability to the Middle East while providing extra water to a water scarce region (Participant 18, personal communication, January 23, 2024). While different countries had different priorities in pursuing the RSDSC, the project still produced a fair amount of cooperative activity during a time in which political relations were at a virtual standstill. In 2005, shortly after the end of the Intifada, the Palestinians joined and a feasibility study agreement was signed between Israel, Jordan, and Palestine, marking a high point of cooperation against a background of lingering conflict (see Figure 32 and 33).

2005 – Present: Changing Patterns Amidst Changing Scalar Dynamics

Water interactions from 2005 onwards became much more diverse in terms of the actors who were involved (Figure 30). During this time period, 42% (n=180) of all interactions involved a non-state actor, with most of these (n=151) involving at least one actor from within the basin. This increase in activity by non-state actors is due partly to the enabling environment provided by a relatively stable political environment. The Jordan river basin for the most part escaped the instability that plagued the

[51] Embroiled in the midst of the Intifada, the Palestinians were not originally part of the project when it was announced in 2002, but joined in 2005 shortly after the Intifada's end.

rest of the region after the Arab Spring protests that began in 2011. The exception to this might be best seen when looking at Jordanian-Syrian interactions, which have generally taken a turn for the worse since the start of the conflict in Syria in 2011 (Figure 35). In the first five years of the Syrian crisis, demand for water in Jordan has risen by 21% while annual per capita share of water has dropped by 16% (Namrouqa, 2016). According to the Jordan National Water Strategy, both changes can be at least partly attributed to the influx of Syrian refugees into Jordan (and a rise in the cost of electricity), over 1.4 million of whom sought refuge in Jordan. Several of the Jordanian-Syrian interactions after 2011 involved expressions of concern from Jordanian officials about the impact of Syrian refugees on the country's scarce water supply, while in 2018 Jordan temporarily cut off the water supply to a refugee camp and in 2022 the government of Syria rejected Jordan's request for an extra 30mcm of water (see Figure 35, also MEM, 2022).

Nonetheless, the Jordan river basin as a whole did not experience large-scale political upheaval like the rest of the Arab world experienced during the Arab Spring. Thanks to this more stable political environment, organizations such as EcoPeace were able to expand the work they had started in the decade prior. The election of a new Israeli government in 2021 that wanted to improve relations with Jordan, as well as the normalization of relations between Israel and several Arab countries in the American-led Abraham Accords further contributed to sustained water cooperation, especially between Israel and Jordan (Participant 17, personal communication, January 18, 2023). However, flareups of instability and violence did occur sporadically during this time period, particularly between Israelis and Palestinians in 2008, again in 2014 during Israel's war on Gaza, and at the end of 2023 with the start of the ongoing war in Gaza. In addition, Israel's continued settlement policy in the West Bank, fueled in part by the government's belief that it must maintain a continued presence in the Jordan Valley in light of the regional instability caused by the Arab Spring[52] (Keinon, 2011), has further contributed to escalations in the Israeli-Palestinian water conflict (Figure 33).

The role of non-state actors in shaping conflict-cooperation dynamics. Much of the cooperation seen in Figure 30 that has occurred since 2005 can be attributed to local organizations that advocate for cooperation over shared natural resources, such as EcoPeace, the Arava Institute for

[52] In a March 2011 speech to IDF soldiers stationed in the Jordan Valley, Netanyahu stated that "our security border is here, on the Jordan River, and our line of defense is here," (Keinon, 2011). While Netanyahu's policy of retaining a security presence along the Jordan River, which would likely be the eastern border of a future Palestinian state, is nothing new, it is significant that he reiterated that the perception of the Jordan Valley serving as Israel's "insurance policy" is "doubly true" in light of the instability plaguing the Middle East.

Environmental Studies, and Blue Peace Middle East. As reflected in Figure 33, non-state actors can promote cooperation over water resources even as broader political conflict hinders action at the governmental level. Of particular interest to my dissertation is the work carried out by EcoPeace, who have established themselves as a major player in shaping patterns of water conflict and cooperation both at the local and regional scales. Placing the Middle East's water crisis at the center of many projects they do, EcoPeace brings "together Jordanian, Palestinians, and Israelis to create shared solutions, taking a bottom-up approach to educate local constituents, as well as a top-down approach to advance vital policies," (EcoPeace, n.d.). By highlighting self-interests and mutual gains that can be procured from cooperation and attaching a sense of ownership to shared solutions, EcoPeace is able to craft an understanding of water realities that leads to a shift from blaming to realizing that joint action needs to be taken (Participant 19, personal communication, January 29, 2024). In doing so, they have contributed to an overall increase in the frequency of cooperative water interactions in the Jordan basin, especially from 2001 onwards (Figure 30).

In 2001, EcoPeace launched the Good Water Neighbors (GWN) program to increase awareness of the water problems shared by Palestinians, Jordanians, and Israelis. Two main goals of the GWN program are to improve cross-border cooperation by focusing on shared water resources and the need to protect them and to utilize these shared interests to foster long-term trust-building that could lead to peace (EcoPeace, 2007). The GWN project capitalizes on the trust and dialogue developed by cross-border partnerships and mutual dependencies on scarce water resources to advance a peaceful vision for the future of the Jordan river basin. Despite a rocky start that coincided with the violence precipitated by the Second Intifada, as of 2012 the GWN program consisted of 28 communities that are separated by political borders but united by their dependency on shared water resources (EcoPeace, 2012). The main components of the project include engaging youth to become local leaders that promote environmental awareness, identifying environmental challenges that partnered communities have indicated as being priority initiatives, and facilitating meetings between local leaders to develop cooperative solutions to these identified challenges (Djernaes et al., 2015). The GWN project has largely been lauded as a successful way to create meaningful dialogue and encourage cooperation between neighboring communities that otherwise may never have come into contact with one another. Optimistic views of the project are prevalent even amongst participants, with a recent external evaluating finding that, of those surveyed, 95% stated that the project helped to develop trust and cooperation between partnered cross-border communities (The Butterfly Effect, 2014).

Although a full catalogue of the activities undertaken by the GWN program is beyond the scope of this dissertation, much of the cooperation in the early 2000's that occurred between the Israeli-Palestinian and the Israeli-Jordanian dyads is related to these activities. For example, in the early 2000's, a series of MoU's were signed by the mayors of various partnered Israeli, Jordanian, and Palestinian communities to demonstrate their commitment to working with their cross-border neighbors to reach shared solutions to shared water problems (EcoPeace, 2007). This activity is reflected in the patterns of low-to-medium intensity cooperation that took place around this time in Figure 30. Moving beyond the GWN program, EcoPeace has continued to advance cooperation over water resources in the region. This includes activities such as holding audiences with the Israeli Knesset in 2011, publishing the Jordan River Covenant in 2013 as part of a faith-based approach to peace, hosting the International Conference on Protecting Groundwater held in 2014, and publishing of the 35-year Regional NGO Master Plan for Sustainable Development in the Jordan Valley in 2015.

In its most recent achievement, EcoPeace coined the idea for a Middle East "Green Blue Deal" (Project Prosperity) in which steps toward achieving regional climate security and cooperation could be made through the creation of a water and renewable energy exchange between Israel, Palestine, and Jordan. In November 2021, Israel, Jordan, and the UAE signed a declaration of intent for a water-renewable energy exchange involving the production of solar power in Jordan and desalinated water in Israel; one year later, a MoU to continue feasibility studies for the project was signed at the United Nations Climate Change Conference (COP27) (Jordan Times, 2022). The involvement of the UAE as an outside investor is crucial and made possible by the normalization of relations between the UAE and Israel in September 2020 as part of the Abraham Accords. While further progress on the Green Blue Deal has been put on hold due to the ongoing war in Gaza[53], the signing of the MoU in 2022 marked a significant step forward in higher-level cooperation between Israel and Jordan (Figure 32). Notably, the Palestinians have not so far taken part in formal negotiations regarding the Green Blue Deal. The reason for this is unclear; some sources report they have opted out in protest over the UAE normalizing

[53] Shortly after the war started, Jordan announced it won't proceed with the Green Blue Deal. Several reasons possibly explain Jordan's decision. For one, mass protests in Jordan against the Green Blue Deal that had been ongoing since the signing of the MoU placed significant pressure on the government. Second, given its large Palestinian population, Jordan has geopolitical reasons to support Palestinians and not cooperate with Israel, particularly during times of violent conflict. There is also fear among some Jordanians that what is happening in Gaza may happen in the West Bank and push the Palestinian population in the West Bank into Jordan and the perception that the Green Blue Deal would simply keep Israel's hand on the tap and give it further leverage over Jordan in the event political relations between the two countries deteriorated (Participant 18, personal communication, January 23, 2024).

relations with Israel and others claim that Jordan did not want them to participate because doing so would cause political problems that would delay the project (Participants 17 and 18, personal communication, January 18, 2024 and January 23, 2024).

Of course, the involvement of non-state actors does not always lead to cooperation. While cooperation was becoming more common between Israel and Jordan and throughout the basin as a whole between 2005 and 2023, the same cannot be said when Israeli-Palestinian interactions are isolated (Figure 33). Of the 146 interactions that occurred during this period, 70 (47.9%) were conflictive. While low-level cooperation persisted through 2008 in the form of JWC meetings, water conflict has generally increased in frequency between Israelis and Palestinians in the past 20 years. It has also increased in intensity; of the 49 Israeli-Palestinian interactions in the events database with a BAR scale ranking of -3 or higher, 38 of them took place after 2005 (see Figure 33). What explains this increase in conflict frequency and intensity? Part of it is due to an increase in reporting of conflict events and media bias towards reporting conflict over cooperation, as discussed in chapter 3. It is also explained by Israel's continued settlement policy in the West Bank and the adoption of a new strategy targeting Palestinian water infrastructure to pave the way for the expansion of Israeli settlements.[54] Destruction of Palestinian wells, pipes, pumps, water tanks, and other infrastructure is carried both by Israeli authorities (the IDF) and by settlers, as reflected both in my events database and the one created by Weinthal and Sowers (2019).[55] As a result, Palestinians continue to lose access not only to water, but also to land and energy, directly undermining Palestinian livelihoods and contributing to a spiral of conflict that fuels stark power and resource disparities that will be discussed in more detail in the next chapter.

[54] For a systematic account of the targeting of Palestinian environmental infrastructure in the West Bank and Gaza, see Weinthal and Sowers (2019). The authors construct a database that includes 982 instances in which state and non-state actors targeted infrastructure in the Palestinian territories between 2006 and 2017. They argue that the destruction of civilian infrastructure is a form of "slow violence" in which the adverse impacts of restrictions on infrastructure development, destruction of infrastructure by settlers and state agencies, and expropriation of natural resources all accumulate over time," (Weinthal & Sowers, 2019, p.321).

[55] Although Gaza is not part of the Jordan river basin and so is excluded from the scope of my analysis, it is important to mention that the destruction of Palestinian infrastructure in Gaza is mostly perpetuated by conflict between Israel and Hamas. Weinthal and Sowers (2019) note that the destruction of water infrastructure in Gaza sharply increased during cycles of violence between Israel and Hamas in 2008-2009 and again in 2014, estimating that there were over 80 instances in which water infrastructure was targeted in 2014 compared to under 10 the year before. The targeting of water infrastructure has sharply increased since the start of the Israel-Hamas War on October 7, 2023, with the PWA estimating that 85% of water and sewage facilities in Gaza have been damaged due to the conflict (WAFA, 2024).

Conclusion

To answer research question 1 – how are hydropolitics in the Jordan and Euphrates-Tigris river basins explained at multiple scales - this chapter analyzed factors that shaped patterns of water conflict and cooperation in the Jordan basin, both originating from within the states themselves and from within international relations more broadly. To aid my analysis, I presented a database of water-related interactions that took place in the Jordan river basin between 1948 and 2023. While it would be impossible for such a database to include every single interaction that took place during this time period, it nevertheless presents a comprehensive account of water conflict and cooperation. My database includes interactions that took place between domestic and transnational actors as well as between representatives of national governments to provide a more in-depth picture of what shapes water conflict and cooperation and how these dynamics change over time.

Internal pressures that shape patterns of water conflict and cooperation in the Jordan basin include competing hydropolitical discourses that link water as central to identity and state expansion in Israel and Palestine and a discourse that emphasizes supply-side solutions to water scarcity in Jordan. Internal pressures such as shifts in the ruling party in Israel and an inefficient water governance in Palestine that overlooks local forms of management that have been in place for centuries also shape patterns of conflict and cooperation. From an international relations perspective, it is evident that, generally speaking, periods of broader political conflict coincide with periods of water conflict. Throughout the 1950's and 1960's, high-intensity conflict prevailed as the riparians engaged in frequent border skirmishes and political tensions ramped up prior to the 1967 War. Cold War dynamics and the spread of Arab nationalism also contributed to the widening schism between Arabs and Israelis. The 1967 War significantly altered the hydropolitical reality of the basin; as a result of Israel's occupation of the Golan Heights, Syria lost its upstream position on the Jordan river and directed its attention to its relations with Jordan over the Yarmouk river. Until the start of the peace process in 1991, most of the water interactions in the basin took place between Israel and Jordan as they negotiated allocations from the Yarmouk and came into conflict over how to allocate water and how to maintain the riverbed to ensure each country was receiving the appropriate amount of water. The expulsion of the PLO from Jordan in 1970 marked the start of a warmer period of international relations between Israel and Jordan and the beginning of a more cooperative relationship over water, as evidenced by Figure 33. Israel and Palestine did not engage in many water interactions until the start of the peace process primarily because of Israel's complete control over West Bank water resources prior to the signing of the Oslo

Accords. While Israeli-Palestinian interactions were mainly cooperative in the context of the peace process, and cooperation has continued to occur at irregular intervals at the interstate level, conflict has prevailed, especially when non-state actors are brought into the analysis (Figure 33).

While water cooperation has tended to occur against a backdrop of warmer political relations in the Jordan river basin, and conflict has tended to be more frequent when political relations worsen, the involvement of non-state actors and states from outside of the region complicates this general pattern somewhat. This is best demonstrated by the persistence of water cooperation against the backdrop of an unraveling peace process that began in the early 2000's with increased involvement by non-state and external actors. For example, even as the 2nd Intifada was raging and political relations between Israel and the PA ground to a halt, talks were being consistently held over the Red Sea Dead Sea Conveyance Project, which originally started between Israel and Jordan and was joined by Palestine in 2003. Including non-state actors in the analysis also highlights the rich contribution they make to the management of transboundary waters and the role they play in continuing to promote cooperation even when little movement is happening at the interstate level. High levels of cooperation initiated by non-state actors such as EcoPeace persisted between 2008 and 2015 even as water interactions at the interstate level slowed down or briefly paused altogether. A few years later, Israel and Jordan, with the support of the UAE, signed an MoU to advance plans for the implementation of Project Prosperity, a cooperative endeavor that was conceptualized and promoted as a way to achieve regional climate security by EcoPeace.

A multi-scalar approach to hydropolitical analysis helps fill in the missing pieces to the puzzle of what shapes water conflict and cooperation. Now that I have demonstrated the utility of taking such an analysis in the Jordan river basin, the following chapter will turn to an examination of water conflict and cooperation in the Euphrates-Tigris basin.

Chapter 5b: Tracing patterns of water conflict and cooperation and their domestic and international drivers in the Euphrates-Tigris river basin

This chapter will present an overview of transboundary water interactions in the Euphrates-Tigris river basin and chart the multi-scalar nature of these interactions and changes in conflict and cooperation over time. The ET basin, like the Jordan basin, has been a popular case study for hydropolitical analysis. A long history of uncoordinated hydraulic development and tense political relations have contributed to a long-standing water conflict between Iraq, Iran, Syria, and Turkey. Yet, cooperation, at least at the technical level, has persisted against this backdrop of hostility, and the linking of security issues with water has opened the door to new opportunities for cooperation. The ET basin also has an extensive history of non-state actor activity, particularly in the last 20 years. Initiatives such as the Euphrates Tigris Initiative for Cooperation, Blue Peace Middle East, and Save the Tigris have promoted capacity building and dialogue over water's potential to act as a tool for peace. From within the basin and abroad, transnational activist networks have campaigned against the construction of large dams that pose threats to the region's rich ecological and cultural heritage. Furthermore, in recent years non-state actors have contributed to escalations in water conflict as control over water infrastructure became a point of contention in the broader conflict against ISIS.

In the first section of the chapter, I present a database of multi-scalar water interactions I compiled.[56] Next, I analyze how key issues in international relations such as Ba'ath party rivalry between Syria and Iraq, Ba'athist agrarian policies, the Kurdish question, and regional conflicts such as the Gulf War have impacted hydropolitical dynamics. The role of non-state actors in this basin such as anti-dam activist networks, epistemic communities, and terrorist groups in shaping the nature of transboundary water conflict and cooperation is also discussed. I conclude the chapter by offering final thoughts on water conflict and cooperation dynamics in the basin.

As in the Jordan river basin, a plethora of stakeholders live and work in the Euphrates-Tigris river basin who shape patterns of water conflict and cooperation. Table 16, below, provides a non-exhaustive list of these stakeholders broken down by the spatial scale at which they operate:

Table 16: Stakeholders in the ET basin. Author's own compilation.

Scale	Actor Type	Example

[56] The full database is available online here.

Transnational	International	Intergovernmental organization	United Nations, Arab League, EU
		Civil society initiative	Save the Tigris
		Regional initiative	BluePeace
		Transnational advocacy network for Ilisu Dam	European NGOs (e.g. Berne Declaration, Kurdish Human Rights Project)
		Transnational Corporations (TNCs)	TNCs funding and constructing Ilisu Dam (e.g. Balfour Beatty, Impreglio); Export Credit Agencies
		Epistemic communities	Euphrates-Tigris Initiative for Cooperation
		Illicit groups	ISIS
Interstate (Transboundary)		Public sector	Riparian states, Joint Technical Committee
National	Domestic	National authority	Riparian states, Ministry of Water Resources

Regional		Autonomous government	Kurdistan Regional Government
		Illicit groups	Islamic State of Iraq and Syria (ISIS)
		Coalition groups/military organizations	Syrian Democratic Forces
Local		NGO	Waterkeepers Iraq, Humat Dijlah
		Civil society initiative	Initiative to Keep Hasankeyf Alive

Immediately apparent in Table 16 is the diversity of stakeholders who interact with water and shape patterns of water conflict and cooperation at different scales. Compared to the Jordan river basin, the ET basin has many more transnational actors who are involved in water interactions and less so who work at the local and national scales. This attests to the on-the-ground reality in much of the basin in which control by the national government has been contested or supplanted by various factions, such as in much of northern Syria and Iraq at the peak of ISIS' power and in the Rojava[57] region of Syria, where the Syrian Democratic Forces (SDF) are the de-facto military and political power. Additionally, the high number of transnational actors in the ET basin may be explained by a history of authoritarian rule in

[57] Also known as the Autonomous Administration of North and East Syria, Rojava is a de-facto autonomous region in Syria that encompasses the areas of Afrin, Jazira, Euphrates, Raqqa, Tabqa, Manbij, and Deir ez-Zor. Importantly, most of the Euphrates basin in Syria lies in the Rojava area. Unlike Iraqi Kurdistan, which is also an autonomous region, Rojava is not officially recognized as such by any state governments.

some parts of the basin and ongoing political conflict which would have made it difficult for local organizations and civil society to proliferate. Another notable observation from Table 16 is the relative absence of stakeholders external to the basin. Involvement by third party actors has mainly been limited to the provision of aid from states such as Germany and Kuwait, while the Arab League has occasionally intervened in water disputes to help Syria and Iraq reach a fair settlement with Turkey. Extensive activist networks have members who are not physically located in the basin such as Save the Tigris, but many of these campaigns also have a significant presence in the basin. Other activist campaigns, such as the Initiative to Keep Hasankeyf Alive, are more local in nature, both in their goals and geographic origin of their members. This reality also attests to the preference of the riparians to limit the involvement of external actors in their hydropolitics.

Presenting the Water Interactions Database for the Euphrates-Tigris Basin

The remainder of this section presents trends in conflict and cooperation in the Euphrates-Tigris river basin, based on a database of water-related interactions that I compiled. The database draws on media articles reporting water-related events that took place between 1948 and 2023. As before, all articles were collected from the Nexis Uni and BBC Monitoring databases. The database includes interactions that occurred between state actors as well as those involving non-state actors and actors from outside of the basin. Between 1948 and 2023, 838 documented interactions over water took place in the ET river basin (see Figure 36). Most of these interactions took place between three country dyads: Iraq-Turkey, Syria-Turkey, and Iraq-Syria (see Figure 37).

Figure 36: Timeline of water-related interactions in the ET river basin: 1948-2023.

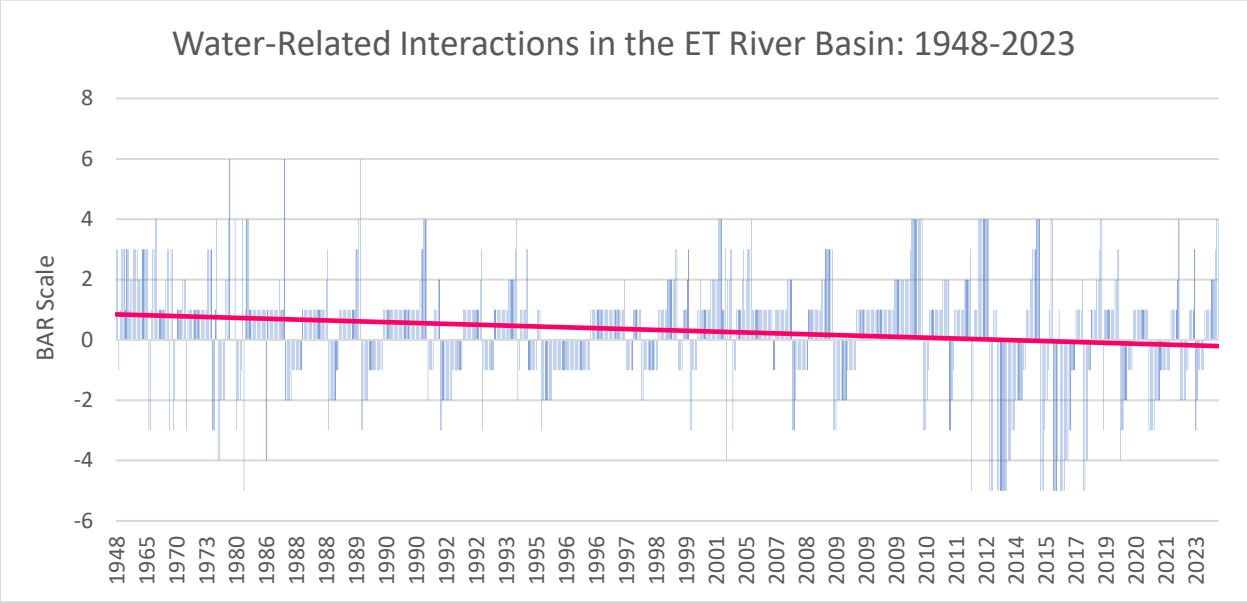
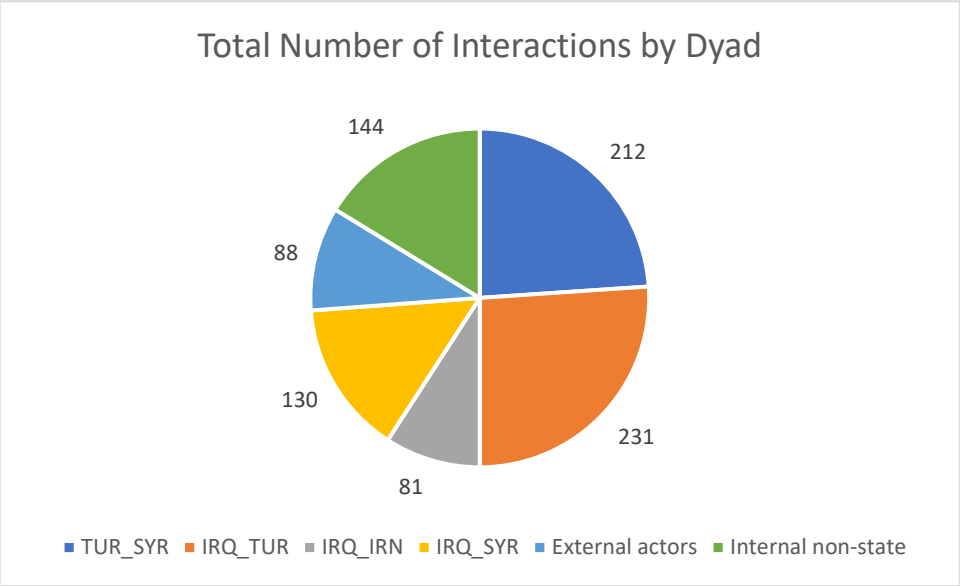


Figure 37: Total number of interactions in the ET basin by actor-dyad.



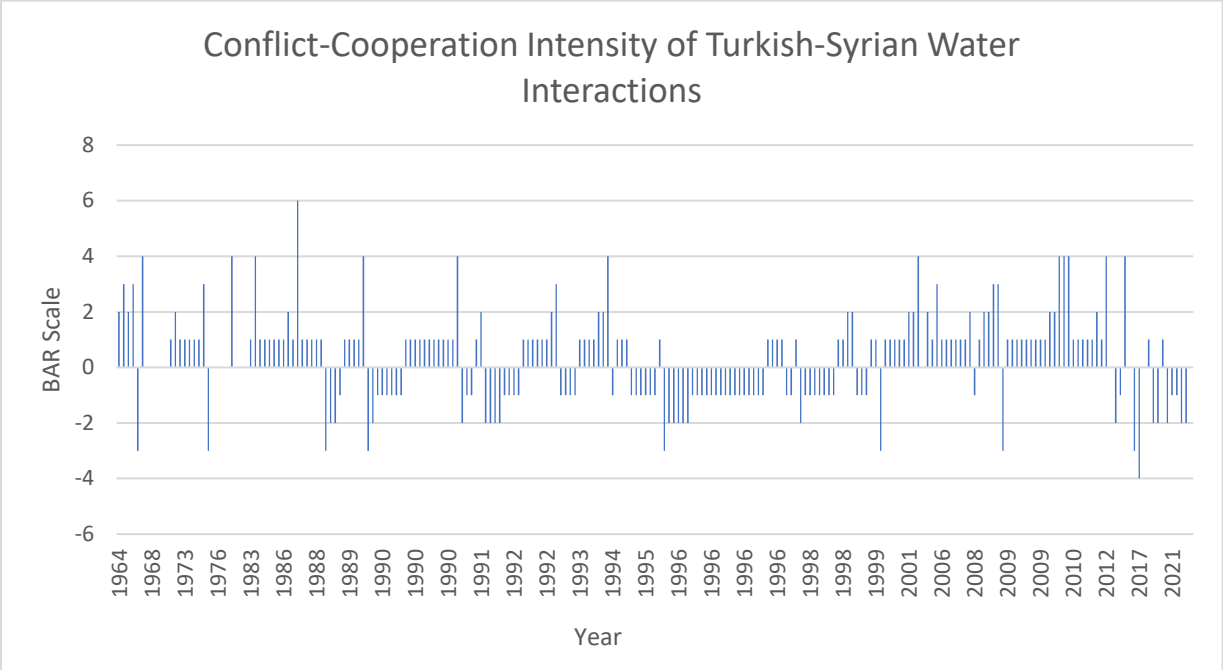
As seen in Figure 37, a significant number of interactions (n=81) also occurred between Iraq and Iran. These interactions mostly occurred over the Shatt al-Arab, which forms the border between the two countries for 50 miles before discharging into the Persian Gulf. This stretch of river has served as a significant bone of contention between Iraq and Iran; 35.9% of Iraq-Iran interactions centered around ongoing disputes regarding sovereignty over parts of the river, which forms Iraq's only access point to the Persian Gulf and therefore is of great strategic importance to that country. Indeed, these struggles over sovereignty directly contributed to the outbreak of the Iraq-Iran War in 1980 and yielded devastating economic, humanitarian, and environmental consequences on the region (see Pipes, 1983 for a detailed explanation of how the Shatt al-Arab dispute contributed to the war).

As seen in Figure 36, the ET basin has experienced alternating patterns of conflict and cooperation over the past seven decades, with a general trend towards conflict. Until 1964, the riparian states of the ET basin did not interact over water, electing instead to focus on internal nation-building programs in the post-independence period and pursuing unilateral hydraulic development in support of these goals. The relatively high level of cooperation that persists throughout this period on Figure 36 is due to contributions from external donors in support of water development programs. As unilateral development accelerated, cooperation became less frequent and conflict began to emerge as Turkey announced the start of construction on the Keban Dam in 1966 and Syria began building Tabqa Dam in 1968. In the 1970's and 1980's, alternating patterns of conflict and cooperation persisted as Turkey and

Syria continued their dam building programs. In 1971, Syria and Iraq began talks on the use of Euphrates river water, and the following year Turkey, Syria and Iraq agreed that a tripartite Joint Technical Committee (JTC) should be formed to discuss technical issues relating to dam construction. Although the JTC was not formally established between all three riparians until 1983, numerous tri-lateral meetings were held in 1972 and 1973 to visit various project sites and discuss how to fill the Keban and Tabqa Dams while meeting downstream irrigation needs (see Figure 36). During this time, interactions were mostly limited to state actors within the basin. An important exception is Saudi Arabia's mediation in a 1975 dispute between Iraq and Syria that erupted when the latter and Turkey began to impound the Tabqa and Keban Dams; as described in chapter 4, violent conflict was averted because of Saudi Arabian involvement. Ongoing border disputes between Iraq and Iran over the Shatt al-Arab also contributed to patterns of conflict during the 1960's and 1970's. While the Algiers Agreement was signed in 1975 with an intended goal of resolving this dispute, Iraq abrogated the agreement when it invaded Iran in 1980.

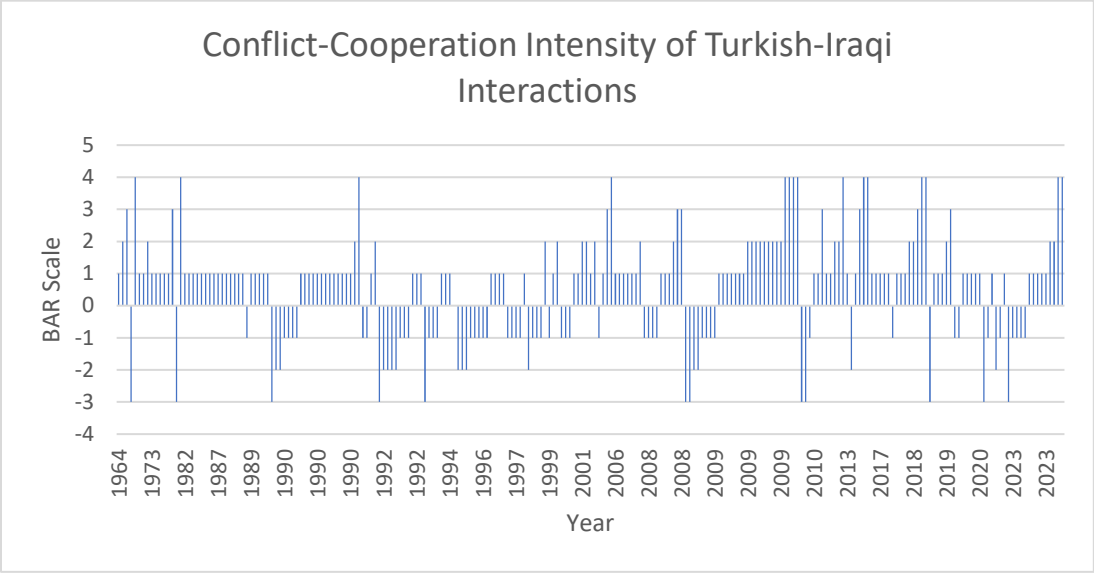
Water interactions continued to fluctuate between low levels of conflict and low-to-medium levels of cooperation throughout the 1990's. The signing of the Adana Protocol between Turkey and Syria in 1998 marked a turning point in hydropolitical relations between the two riparians. As the below graph of Turkish-Syrian water interactions shows, cooperation persisted until the outbreak of the Syrian civil war in 2011.

Figure 38: Timeline of Turkish-Syrian water interactions.



Hydropolitical relations between Turkey and Iraq, on the other hand, continued to fluctuate more until the early 2000's, at which point they began to trend towards cooperation as the political situation in Iraq improved (Figure 39).

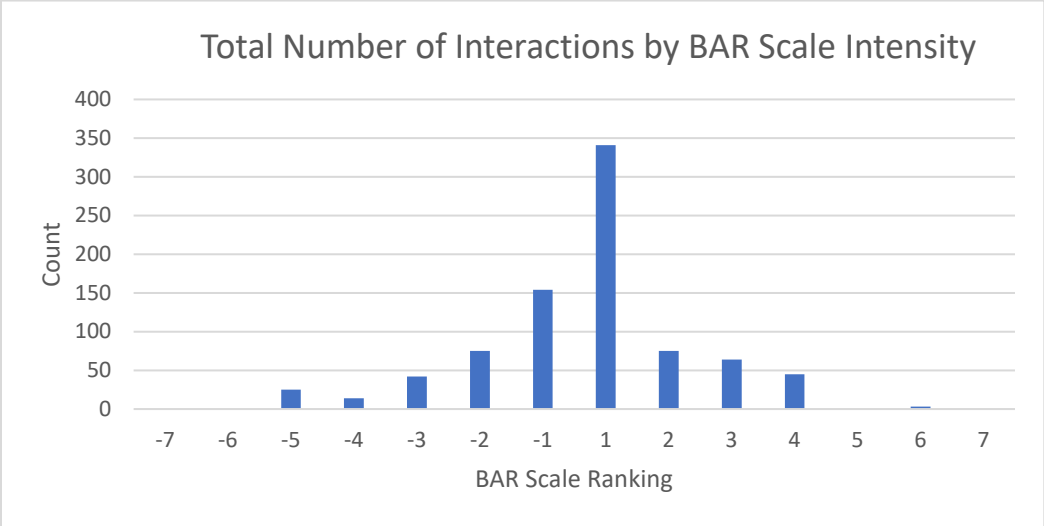
Figure 39: Timeline of Turkish-Iraqi water interactions.



Even though Figure 36 shows that water interactions in the ET basin are trending towards conflict, low-intensity cooperation has tended to prevail since 1948. The findings displayed in the below graph broadly reflect those from the Jordan basin case study presented above and those recorded at a global scale by Wolf et al. (2003a). Several observations from Figure 39 are worth mentioning. Proportionally, there is a slighter higher prevalence of interactions that had a BAR Scale ranking of -5 in the ET basin (3.0%) than in the Jordan basin (2.7%). This observation attests to the close linkages between water conflict and broader political conflict in the ET basin, where water was weaponized by different factions to advance military aims. However, as in the Jordan basin, less high-intensity cooperation interactions (a ranking of 4 or higher) have occurred in the ET basin than what Wolf et al. (2003a) reported at the global level, while the ET basin has more levels of high-intensity conflict (a ranking of -4 or greater). Finally, the overall smaller number of water interactions that have occurred in the ET basin (n=838) compared to the Jordan basin (n=1,077) partially reflects the preference of the hegemonic riparian in the ET basin – Turkey – to proceed with water resources development unilaterally. As I discussed in chapter 2, hydro-hegemony theory posits that transboundary water arrangements are dictated by power relations between actors. As the riparian possessing both a superior geographic position upstream in the basin and relatively larger reserves of material and

discursive power, Turkey has historically been able to pursue its preference for unilateral development with minimal opposition.

Figure 40: Total number of interactions in the ET basin by BAR scale intensity.



The increasing involvement of non-state actors in the hydropolitics of the ET basin has challenged Turkish hegemony in the basin. It is therefore important to unmask how and when non-state actors are involved in water interactions.

Figure 41: Total number of interactions in the ET basin broken down by actor type.

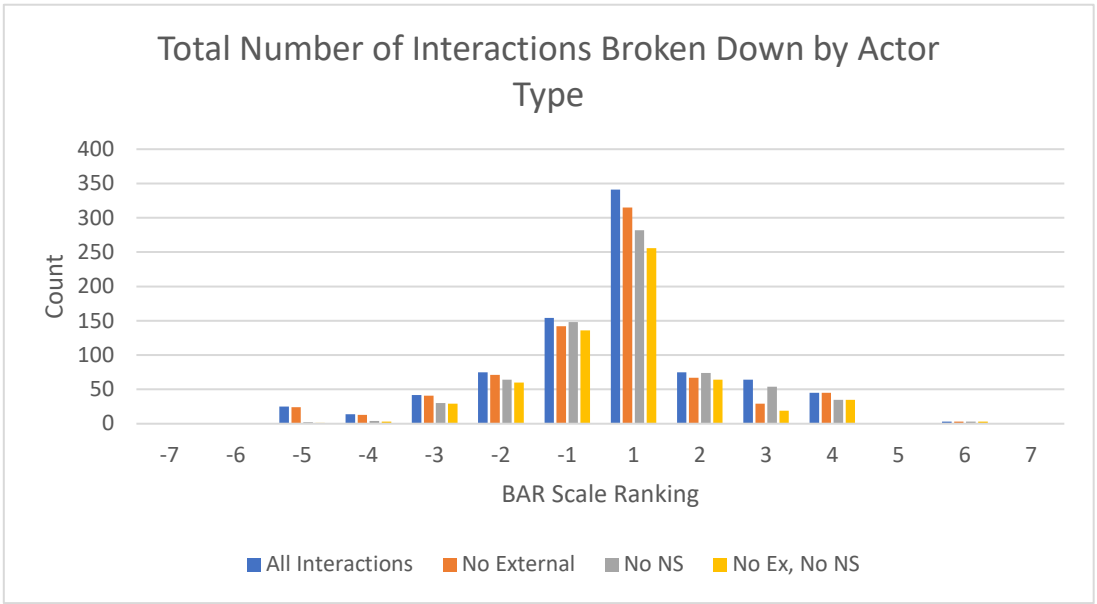
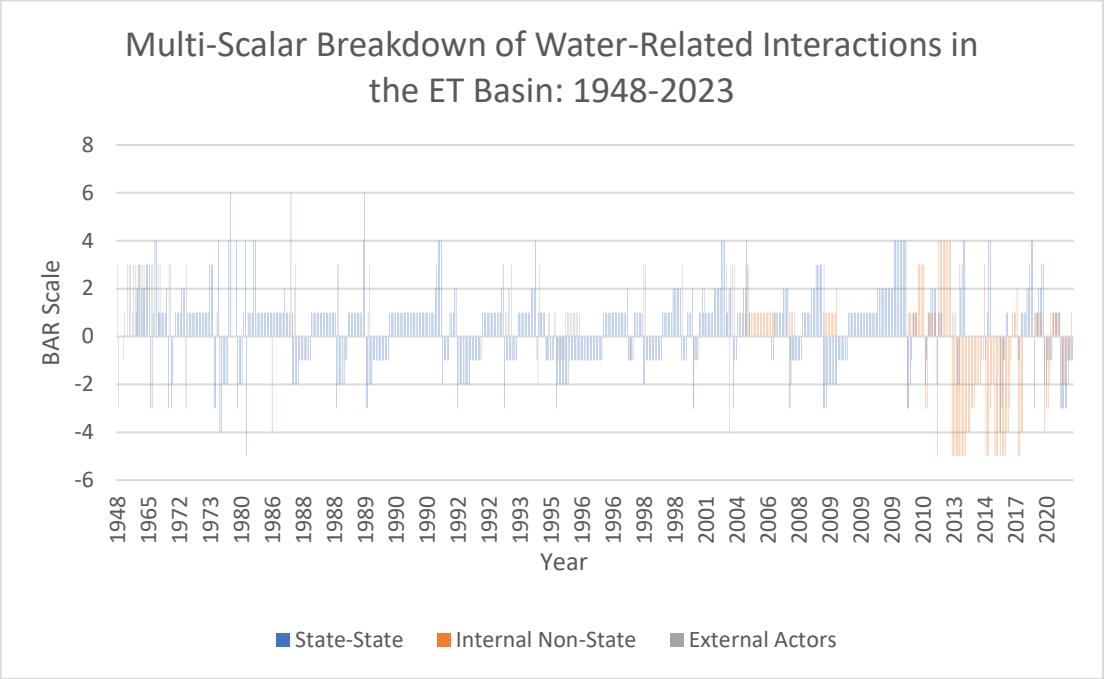
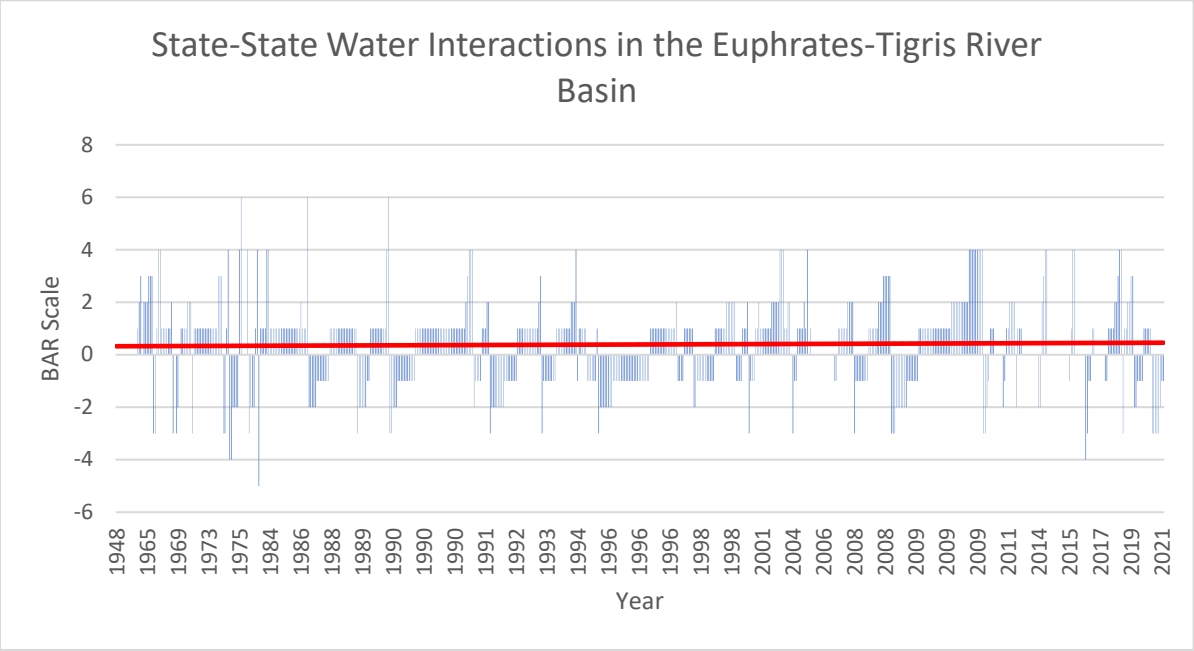


Figure 42: Multi-scalar breakdown of water-related interactions in the ET basin: 1948-2023.



The graphs in Figures 41 and 42 show the importance of non-state/external actors in informing patterns of conflict and cooperation in the basin, particularly at low intensities of cooperation and highly conflictive interactions. Similar to the Jordan river basin, less cooperation occurs when non-state and external actors are taken out of the equation. In contrast to the Jordan basin, higher intensity conflict has occurred almost exclusively in situations involving non-state actors. This observation reflects the dynamics of conflicts with ISIS in Syria and Iraq and the rise of various rebel groups in Syria such as the SDF. In contrast, higher levels of cooperation tend to only occur between state actors. Both conflict and cooperation occur between a diversity of actors. The contrast between what conflict and cooperation look like in Figure 42 compared to what these patterns look like when the analysis is limited to the state-to-state level is striking (see Figure 43).

Figure 43: State-state water interactions in the ET river basin.



In the ET basin, interactions involving an external actor comprised 10.5% of total interactions, while in the Jordan basin interactions involving an external actor accounted for 27.9% of total interactions. Interactions involving at least one non-state actor from within the ET basin, however, accounted for 17.1% (n=143) of all interactions in the basin, a slightly higher proportion than interactions of the same type in the Jordan river basin. Most commonly, these interactions (n=78, 54.5%) related to work carried out by civil society organizations such as the Euphrates-Tigris Initiative for Cooperation (ETIC) and environmental activist networks such as Save the Tigris. Organizations such as these play an important role in drawing attention to the detrimental environmental and social impacts from the construction of large dams in the basin and have periodically brought people together from across political and sectoral boundaries in conferences and capacity building workshops. While not strictly a civil society organization, Blue Peace Middle East has also established a growing presence in the basin and has worked against a backdrop of violent conflict in Syria and Iraq to advocate shared waters as a tool for peace.

Other interactions (n=57, 39.9%) involving non-state actors to the basin were conflictive and captured fighting between state or rebel forces and ISIS in Syria and Iraq and between Kurdish armed groups such as the Syrian Democratic Forces (SDF) and the PKK and the Turkish and Syrian armies.

Fighting between the various factions embroiled in the conflicts in Syria and Iraq was included in the database when it involved water resources, either as a weapon or as a strategic military target. For example, ISIS temporarily seized control of large dams such as Tabqa Dam in Syria and the Mosul and Fallujah Dams in Iraq. While in control of these dams, ISIS frequently weaponized water by cutting off water supplies to key cities and threatening to destroy water infrastructure (Daoudy, 2020). The dams held by ISIS were eventually recaptured by Kurdish forces allied with American and Iraqi security forces. Water was also weaponized several times between 2018 and 2021 in Kurdish-controlled northern Syria by Turkish forces, who conducted attacks on smaller water infrastructure and cut off water supply to areas such as Afrin and Hasaka to push back Kurdish forces (see Figure 42). A period of lower-intensity conflict also occurred during this time period as the Turkish government and Syrian Kurdish media traded verbal blows over who was responsible for the water crisis in the Kurdish-held areas of Syria.

Comparing Figures 42 and 43, we can see that the latter is missing significant periods of conflict that have occurred between 2012 and 2023. Limiting an analysis of water interactions to interstate relations has the effect of making it seem like more cooperation is happening than really is. Indeed, when a linear trendline is added to Figure 43, it appears that hydropolitical relations are either remaining constant or trending slightly towards cooperation. However, as seen in Figure 36, this clearly is not the case as conflict between state and non-state actors in the basin intensified over the past decade. Aside from informing significant patterns of conflict, non-state actors have also made important contributions to cooperation in the basin. Beginning in 2005, NGO's, epistemic communities, and other civil society initiatives became active. Among the first of these was ETIC, an epistemic community of academics and other experts from Syria, Iraq, and Turkey who worked to enhance dialogue around water resources by hosting study tours and capacity building workshops until conflict in Syria forced a halt to their activities. Other, similar work conducted by Blue Peace Middle East and advocacy platforms such as Save the Tigris has continued to persist throughout periods of recent political instability, albeit at a smaller scale. While I will dive into more details about the work of these organizations later in this chapter, for now it is sufficient to emphasize that a multi-scalar approach to hydropolitical analysis is necessary to capture these "hidden" elements of basin conflict and cooperation.

In a manner similar to the Jordan river basin case study, the remainder of this chapter will turn towards a discussion of the different factors that have shaped patterns of conflict and cooperation in the ET basin. This will include first an analysis of internal drivers of conflict and cooperation, such as hydraulic development policies in each state, Turkey's path to accession in the EU, and so-called Kurdish

question as it relates to Turkey's GAP. Attention will then be turned to how broader political relations may have influenced water interactions, with emphasis placed on factors such as the Iran-Iraq War, inter-Ba'ath party rivalry between Syria and Iraq, the international implications of the ongoing struggle for Kurdish statehood, and the impacts of the Syrian civil war on water relations.

The Role of the Domestic Sphere in Explaining Water Conflict and Cooperation in the Euphrates-Tigris River Basin

Turkey

The hydraulic mission. An understanding of what shapes patterns of water conflict and cooperation in the ET basin would be incomplete without consideration of the drivers of Turkish hydraulic development. Turkey's extensive dam building program, which has been a central source of tension between it and downstream riparians for decades, is motivated by its hydraulic mission. Central to the hydraulic mission is the idea that "not a single drop of water should reach the sea without being put to work for the benefit of Man," (Molle et al., 2009, p.332). Behind this conviction to harness nature is the perception that hydraulic development will lead to increased political stability and socioeconomic development; in other words, expanding irrigation, hydropower, and flood control capabilities through the construction of infrastructure is essential to state development. The hydraulic mission is therefore a form of ideology constructed by the elite to attain certain political, social, and economic goals (Conker, 2014). Of particular relevance to this dissertation is the emphasis placed on large dams as symbols of state progress (e.g. Allouche, 2005).[58] From the United States to South Africa to China, dams have long been viewed as the result of man's victory over nature and as visible reminders of the power the state wields. Turkey is no exception to this. Former President and Prime Minister Süleyman Demirel claimed "the GAP symbolises the progress of Turkish technique, engineering and labour, and also shows determination of the nation. With these aspects, the GAP is a masterpiece of [the] republic of Turkey getting its power from the Turkish nation," (Demirel, 1994, p.3, translated by Conker, 2014, p.208). At the inauguration of the Atatürk Dam in 1992, then-President Turgut Özal stated that "we have been able to overcome our inferiority against the West … This dam is a symbol of our oneness and integrity (translation by Conker, 2014, p.208). The very name of the centerpiece of GAP – Atatürk Dam, after the

[58] A comprehensive discussion of the hydraulic mission as a paradigm driving water resources development is beyond the scope of this dissertation. For a more detailed overview of the term and a discussion of the importance of hydraulic development in the consolidation of state power, see Conker, 2014, Molle et al., 2009, Turton & Meissner, 2002.

republic's revered founder Mustafa Kemal Atatürk – attests to the national pride and symbolism placed by the Turkish nation in the country's dam building program.

While Syria and Iraq have certainly pursued hydraulic missions of their own, particularly during periods of extensive development in the 1960's and 1970's, I pay special attention to the role of the hydraulic mission in shaping Turkish water development given the significant influence this has had on shaping patterns of water conflict and cooperation in the ET basin. In the early days of the republic, reducing socioeconomic disparities between the urban centers and rural areas was seen as central in realizing national unity (Conker, 2014). A dominant discourse among the Turkish political elite has long emphasized the role of hydraulic development in promoting both stability at home and influence abroad. Turkey's proposal of several water for peace initiatives, such as the Peace Pipeline Project and plans to sell Israel water from the Manavgat river on the southwestern coast detailed in Chapter 4, attest to the international dynamics of Turkey's hydraulic mission. These initiatives played an important role in shaping the nature of water interactions in the Middle East, especially in the Jordan river basin, where much of the cooperation involving actors external to the basin in the 1990's and early 2000's was due to these initiatives (Figure 30).

Turkey's hydraulic mission is also closely linked to stability and prosperity closer to home. Beginning with Turgut Özal's tenure as Prime Minister from 1983 to 1989, and then as President until his death in 1993, Turkey embarked on a strategy of more active foreign policy engagement with the Middle East, with an overall goal of preparing the country to serve as a bridge between the West and the Middle East (Conker & Hussein, 2019). To that end, water was seen as one avenue through which tense relations with neighboring countries such as Syria could be transformed. Hydraulic development, and more specifically, the GAP, was also seen as the ticket to becoming a dominant regional power. With Iraq and Syria consumed by political instability since 2003 and 2011, respectively, the strategic and economic benefits offered by the GAP would help position Turkey as a major power both within the basin and within the Middle East.

Turkish accession to the EU. As part of its long journey to obtaining membership in the EU, Turkey must implement all measures contained within the Water Framework Directive (WFD), the central piece of legislation that provides guidelines for the management of European waters. To achieve aims of protecting the aquatic environment, promoting sustainable water use, and mitigating the effects of floods and droughts, the WFD mandates that member states establish national monitoring systems, create a reliable database of water inventory data, incorporate principles of public participation in

decision-making, and create management plans for all river basins within the country, even transboundary ones (WFD). Of particular relevance to Turkey's transboundary water policy is the WFD's requirement for coordinated management across state boundaries in transboundary basins, which at the minimum requires member states to "endeavour to ensure the appropriate coordination with the relevant non-member states" in instances in which a transboundary basin extends outside of the EU (Article 1.35). Given the rocky nature of Turkey's transboundary water interactions with Iraq and Syria, fulfilling this part of the WFD mandate will be challenging. However, recent trends towards cooperation in Turkish-Syrian and Turkish-Iraqi relations at the turn of the century (see Figures 37 and 38) suggest that efforts are being made on the Turkish side to increase cooperation with fellow riparians. In 1999, Turkey was declared a candidate country and accession talks began in 2005. As seen in Figures 38 and 39, a period of vigorous cooperation with Syria and Iraq began around this time.

A series of bilateral MoU's signed between Turkey and Syria and Turkey and Iraq in 2009 reflect Turkey's commitment to pursuing cooperation with fellow riparians and the integrated approach to water resources management emphasized in the WFD. Unlike previous agreements signed between the countries which have narrowly focused on single issues such as water allocation, the scope of cooperation defined within the MoU's is much broader. In the 2009 MoU between Turkey and Iraq, the two countries agreed to cooperate to improve "the quality of inland, coastal, and drinking water and treatment and discharge of domestic and industrial wastewater in a healthy manner," (Article 2a) and to exchange information to "prevent environmental pollution arising from energy production and consumption," (Article 2d). In 2014, another MoU was signed with more specific water clauses. Significantly, Turkey pledged to "release equitable and reasonable river waters to Iraq" on the basis of the status of water resources and water use in the agricultural, domestic, industrial, and municipal sectors (Article 2a). This language reflects clauses contained in the WFD which spell out one of the Directive's goals as ensuring that member states contribute to "the provision of the sufficient supply of good quality surface water and groundwater as needed for sustainable, balanced and equitable water use," (Article 1e). The scope of water cooperation between Turkey and Syria was similarly broadened by the 4 MoU's signed in 2009, in which the countries pledge to undertake various activities such as "knowledge exchange in the field of water resources protection against pollution," (Cooperation agreement in the field of environmental protection between the Government of the Republic of Turkey and the Government of the Syrian Arab Republic, 2009, Art. 4) and "setting up emission standards and transition to Environmental Quality Standards," (Memorandum of Understanding in the field of remediation of water quality between the Government of the Republic of Turkey and the Government

of the Syrian Arab Republic, 2009, Art. 2). Drought management was another area of focus in one of the MoU's, in which Syria and Turkey agreed to exchange information and data for the purposes of determining hydrological conditions, improving irrigation techniques, and reducing the loss and improving quality of drinking water (Memorandum of understanding between the Government of the Republic of Turkey and the Government of the Syrian Arab Republic in the field of efficient utilization of water resources and combatting of drought, 2009, Art. 2).[59]

GAP and the Kurdish Question. The so-called Kurdish question has both a domestic and international component and has important implications for domestic Turkish hydraulic development and patterns of transboundary water conflict and cooperation within the basin. In this section, I will focus on the domestic aspect of the Kurdish issue and give greater attention to the international dimension later in this chapter. The Kurds have traditionally inhabited areas in southeastern Turkey, northern Iraq, northern Syria, and northwestern Iran, which together comprise historical Kurdistan. Turkey has the largest Kurdish population with Kurds comprising around 19% of the total population (CIA World Factbook, n.d.). Most of this population lives in Southeastern Anatolia, where they are the ethnic majority, although Istanbul also has a large Kurdish population of about 2 million. Despite being the largest ethnic minority in Turkey, Kurds are not classified as such by the Turkish government. Indeed, as part of a systematic effort to deny the existence of a Kurdish ethnicity, the use of Kurdish language was banned in public and private spheres was banned between 1980 and 1991 and Kurds were classified as "Mountain Turks" until the 1980's (Baser, 2015).[60] The continued struggle for Kurds to be recognized as a distinct people continues to be viewed as an act of separatism affiliated with the PKK (Karakoç & Sarigil, 2020), with whom Turkey has been engaged in a decades-long conflict.

While a detailed overview of the conflict between the Turkish government and the PKK is beyond the scope of this dissertation, a brief description is merited given the extent to which this conflict has influenced Turkey's treatment of its Kurdish population and its foreign policy towards Syria and Iraq, which in turn have both influenced domestic and transboundary Turkish water policy. Since before the establishment of the Turkish Republic in 1923, Kurdish nationalists have intermittently clashed with the Ottoman and then the Turkish governments. Under the Ottoman Empire, Kurds

[59] Interestingly, the WFD has several clauses mandating member states to take concrete steps to ensure the provision of drinking water of adequate quantity and quality (see articles 7 and 16 for examples).
[60] Since lifting the Kurdish language ban, the Turkish government has made limited progress in advancing the cultural-linguistic rights of Kurds, including launching a Kurdish-language TV channel. However, Kurdish remains prohibited as a language of instruction in schools

enjoyed semi-autonomous status due to the empire's emphasis on cultural heterogeneity. In contrast, the Turkish Republic established in 1923 emphasized Turkish ethnic identity as the backbone of the nation-state, alienating the Kurds and catalyzing a series of bloody revolts between 1923 and 1938 (Bilgen, 2018c). The conflict emerged in its current form in 1984 when the PKK, led by Abdullah Öcalan, began to wage an insurgency against the Turkish state with the goal of obtaining greater cultural and political rights and eventually establishing an independent Kurdish state (CFR, 2023). Since the start of the conflict, more than 40,000 people have died, the majority of whom were Kurdish civilians (Eder, 2016). Both sides have been accused of committing human rights abuses throughout the conflict. During the 1990's, the large-scale destruction of Kurdish villages by the Turkish government led to mass displacement and migration from southeastern Turkey to urban centers (Jongerden, 2010). Peace talks that began in 2013 broke down two years later amidst tensions over Turkey's bombing campaign against Kurdish forces in northern Syria, with renewed fighting reaching its deadliest levels since the arrest of Öcalan's arrest in 1998 (Palmer & Holtz, 2023). Since the breakdown of peace talks, the conflict between Turkey and the PKK has expanded into a regional one, with Turkey establishing military bases in northern Iraq to conduct campaigns against PKK forces there and conducting several military interventions in northern Syria to push back the Syrian branch of the PKK, the Democratic Union Party. During this campaign, water infrastructure in northern Syria has been targeted, whether directly or unintentionally, numerous times by Turkish forces, contributing to the extended period of conflict from 2018 onwards depicted in Figure 42.

The "Kurdish question", which has been variously defined as a human rights issue, a terrorism problem, and an ethnic-identity conflict has occupied a large, and often prioritized, space in Turkish domestic and foreign policy (Ünver, 2015). As a result, it has also played a significant and controversial role in shaping regional hydropolitics. The relationship between GAP and the Kurdish question is particularly relevant to this dissertation. It is perhaps no coincidence that the GAP region is also a Kurdish majority region and the historical center of PKK power.[61] In the following paragraphs, I discuss various ways in which GAP has been related to the Kurdish question, drawing on the existing literature and anecdotal evidence from interviews. Before doing so, I want to note the purpose of this discussion is not to identify which narrative is right and which is wrong, but rather to shed light on the various ways

[61] Estimates suggest that approximately 12 million Kurds live in southeast Turkey, comprising over 85% of the population (https://www.institutkurde.org/en/info/the-kurdish-population-1232551004).

in which GAP has been viewed vis-à-vis the Kurds and provide context for the ways in which GAP has helped shape the hydropolitics of the ET basin at multiple scales.

The securitization of GAP and the elevation of water to a national security issue has shaped the relationship between Turkey, the Kurds, and water at multiple scales. At the local and regional scales, the GAP has been perceived as part of a broader program of "de-Kurdification" in which the building of dams (and the national pride they invoke), expansion of infrastructure, and implementation of projects designed to invigorate the social and economic aspects of society would instill a sense of Turkish identity within inhabitants of the region. The destruction of Kurdish heritage, such as the submergence of the historical city of Hasankeyf under the floodwaters from the Ilisu Dam, and the forced displacement of tens of thousands of Kurdish villagers, are oft-cited examples of GAP as a means for the erasure of Kurdish identity (Participant 6, personal communication, July 31, 2023; see also Kurt, 2013; Hatem & Dohrmann, 2013).

Other narratives, especially amongst Turkish political elites, promote GAP as a remedy to the Kurdish question and the conflict with the PKK. The idea was that the introduction of modern agricultural techniques, economic integration, the elimination of regional disparities, and the overall improvement in quality of life would reinforce loyalty to the state and eliminate the poverty and harsh living conditions that fueled Kurdish secessionist movements (Bilgen, 2018c). This framing of GAP as an end-all solution to the Kurdish issue is evident in statements by Turkish politicians who have explained GAP as a tool for the "realization of the greatest development move in Southeast Anatolia and … draining of the source of terrorism (Türkiye Buyuk Millet Meclisi, 2000, p.348). Similarly, the Minister of Interior in the early 1990's emphasized that by acknowledging the social and economic aspects of counterterrorism through the implementation of GAP projects, "the claim of interregional growth inequality and regional underdevelopment, which [was] used to cloak the real objective of terror, [would] be debunked," (Turkiye Buyuk Millet Meclisi, 1993, p.470). These speech acts are reflected by statements in GAP policy documents that make a strong case for the idea that GAP would contribute to the development of the southeast and eradicate the poverty and underdevelopment perceived as fueling terrorism.

However, from the Kurdish point of view, GAP is seen more as an elaborate bribery scheme to buy Kurdish loyalty to the state, with Kurdish farmers in Şanliurfa province pointing out how their villages are promised better infrastructure only if they vote for the Justice and Development Party (AKP), the ruling party in Turkey (Participant 11, personal communication, August 19, 2023). Interrogating

these claims in light of arguments that GAP is seen as having significant regional and national electoral payoffs underscores the political motivation behind implementation of many GAP projects. Additionally, narratives that highlight the apolitical nature of GAP and point out how Kurds would benefit from the expansions in irrigated agriculture brought by GAP (see Bilgen, 2018c) are called into question by observations from Kurdish landowners who have yet to receive a drop of GAP water and continue to rely solely on groundwater to irrigate their fields (Participants 11 and 12, personal communication, August 19, 2023). At the same time, however, it is important to keep in mind that GAP has brought tangible benefits to residents across Southeast Anatolia – many of whom are Kurdish. The relationship between GAP and the Kurdish question is clearly complex and controversial and the security dimension of GAP has been constructed over time in parallel with the evolving dynamics of the conflict between the Turkish state and the PKK.

Nonetheless, there are undeniable links between GAP and Turkish national security concerns. In the wake of attacks conducted by the PKK on the Atatürk Dam in 1984, dam construction was domestically promoted as a way of fighting back against Kurdish insurgents by blocking rebel movements (Warner et al., 2014). Indeed, the discourse surrounding the construction of the Ilısu Dam just north of the Iraqi border in the 1990's highlighted the role of the dam in the "war on PKK terror" (Warner et al., 2014, p.474). At the international level, the linkage of the Kurdish question with water enabled downstream Syria to negotiate water allocation agreements with Turkey in the 2000's. Water, security, and the Kurdish question have also been central elements of focus in Turkish-Iraqi relations. For example, ongoing Turkish dam construction near the Iraqi border has spurred numerous threats, and sometimes even hostile action, from the PKK (Moore, 2015). More recently, water and the PKK dominated high-level talks between Turkey and Iraq in April 2024 during Turkish President Erdoğan's visit to Baghdad (Abdul-Zahra & Fraser, 2024).

The implications of the Kurdish question on hydropolitics in the ET basin have also taken on a transnational dimension, as European-based Kurdish activists from organizations such as the Kurdish Human Rights Project were among the first to voice opposition to the construction of the Ilisu Dam (KHRP, 1999). Since then, domestic and transnational activist networks such as the Initiative to Keep Hasankeyf Alive, have framed the Ilisu Dam as a human rights issue due, in part, to its perceived role in repressing Kurdish identity (Warner, 2012). In doing so, these activists have themselves securitized the GAP and have demonstrated that the role of the Kurdish question in shaping Turkish water strategy extends beyond conventional security concerns.

Syria

Internal water policies. International reports on the state of water resources in Syria often attribute water scarcity to a rapidly growing population and increasing urbanization and economic development (e.g. BMZ, 2004; FAO, 2003). However, most of these reports overlook the fact that agriculture is by far the largest water consumer, accounting for 90% of all water consumption prior to the outbreak of war (Aw-Hassan et al., 2014). The emphasis placed on water-intensive agriculture by the Ba'ath party has contributed to the construction of a water scarcity discourse within Syria (Barnes, 2009). This focus on agricultural expansion harkens back to the rural roots of the Ba'ath Party. The Ba'ath Party itself, which came to power in 1963 after a tumultuous period involving a series of military coups and a failed experiment in unity with Egypt, had a majority of members from countryside towns and villages. Key to the development of this rural base was agrarian socialism; to this end, large-scale development projects such as the Tabqa Dam that would expand irrigated agriculture were prioritized.

Prior to the emergence of the Ba'ath Party in 1963, Syria had no dams. By 2008, there were 165 dams throughout the country with the primary purpose of providing water for irrigation (FAO, 2008a). The rapid construction of dams after the Ba'ath Party came to power highlights the importance attached by the regime to pursuing the hydraulic mission. Central to the Syrian hydraulic mission was improving the rural economy through the expansion of agriculture and attaining food security. Soviet views of hydraulic development became popular among the elite thanks to a history of Soviet support and influence. As a result, large-scale dams and irrigation projects were seen as the only solution to agricultural development (Springborg, 1981). Similar to views held by Turkish policy-makers, the prevailing view among the Syrian elite was that the development of water resources and agricultural expansion were inextricably linked to the well-being of the state. As former Minister of Industry Nureddin El-Rifai claimed

> The Syrian Euphrates project is Syria's future. The Euphrates region is the new Syria, and Syria will not be able to stand on its own feet and to ensure a stable and prosperous economy in future unless it is capable of benefiting from its share of the Euphrates water," (Bari, 1977, p.235).

Agricultural expansion was also seen as necessary for achieving food security. In light of global oil price increases in 1973, there was growing concern that Western grain producers would raise their prices to cull the influence of oil-producing countries such as Syria (Barnes, 2009). Attaining self-sufficiency in food production would circumvent these issues but required significant expansions in irrigated land and

large reservoirs to store water. Since 1985, the amount of irrigable land in Syria has more than doubled due to both increased groundwater exploitation and large-scale irrigation projects.

As in Turkey, large dams in Syria also carry political connotations. The construction of large dams such as Tabqa Dam and Tishrin Dam demonstrated the state's capabilities as a modern techno-economic power. Naming the reservoir created by Tabqa Dam, the largest in the country, after Hafez al-Asad exemplifies the reverence attached to such hydraulic development projects. Furthermore, dams and the reservoirs they created were strategic. They enabled political control of water resources. As I have already briefly noted, dams were major sites of violent conflict between ISIS, rebel, and regime forces in northern Syria (see Figure 42), as various factions sought to advance military aims by securing control of water and infrastructure. Seizing control of a large dam also carried significant symbolic importance due to water's great livelihood value and the perceived links between hydraulic infrastructure and state power.

A historically fragmented system of water management in Syria is another important internal pressure shaping the country's transboundary water interactions. This weak and fragmented system has contributed to water scarcity within the country and has persisted despite the national importance attached to water resources development and the central role of water within Ba'ath development ideologies. A major issue with the institutional framework for the management of water resources is the duplication of activities (Kibarologu, 2002). Prior to 1982, there was no single agency responsible for coordinating water management; rather, the work was distributed across ministries such as the Ministry of Agriculture and Agrarian Reform, the Ministry of Public works, and the Ministry for the Euphrates Dam. In 1982, the Ministry of Irrigation was established to lead water sector activities and assumed responsibility for hydrological surveys and water resources development. It was also made responsible for agricultural water development, making the administrative boundaries between the Ministry of Irrigation and Ministry of Agriculture unclear. In 2012, a Ministry of Water Resources was established to replace the Ministry of Irrigation and attempt to streamline water management within the country (Daher, 2022). Since then, the Ministry of Water Resources has assumed responsibility for all water resources activities including supplying water to different sectors and implementing wastewater treatment services. The Ministry of Agriculture continues to retain authority over developing and reform the agriculture sector.

Water pricing and a lack of modern irrigation contribute to water scarcity, driving water conflict. Following Ba'athist policies favoring agricultural development and the attainment of food security,

agricultural water use is almost entirely subsidized. This drives the cultivation of water-intensive crops and does nothing to encourage farmers to limit or conserve their water use. Fees charged for urban water use do not reflect costs of production and often go unpaid due to a prevalence of broken and malfunctioning water meters. The lack of modern irrigation systems in much of the country also contributes to water scarcity. It is estimated that irrigation water efficiency in the country is between 30%-40%, meaning that over half of the water used in irrigation is lost (Fader et al., 2016; Yigezu et al., 2013). Switching to more efficient drip irrigation systems could save up to 56% of the water used while even just making improvements in existing conveyance systems could result in saving as much as 22% of the water used (Fader et al., 2016).

Conflict and drought in Syria. A sizeable literature has examined the extent to which climate change, and drought in particular, played a role in triggering the onset of civil war in Syria in 2011 (e.g. Gleick et al., 2014; Kelley et al., 2015; Femia & Werrell, 2012). Because interstate relations between Syria and its neighbors, including interactions over water, largely halted or increased in conflict intensity after the outbreak of the war, a brief examination of the potential climate change-drought-conflict link in Syria is warranted.

Climate change has often been referred to as a "threat multiplier" in the sense that its impacts can interact with existing political, economic, environmental, and social stressors to exacerbate security risks and accelerate conflict (Goodman & Baudu, 2023). In the Syrian context, the argument is that years of drought exacerbated pre-existing drivers of conflict such as social unrest, unemployment, and economic marginalization that led to the outbreak of war. From 2006-2009, and again in 2011, Syria suffered from an intense drought that affected up to 3 million people and caused the yields of important crops such as wheat and barley to drop by 47% and 67%, respectively (ACSAD, 2011). By 2010, Syria's urban population had reached 13.8 million, increasing by 50% in an 8-year period and helping fuel the widespread unemployment and inequality associated with the spread of civil unrest in Syria's population centers (Kelley et.al., 2015). Characterized by poor infrastructure, crime, corruption and overcrowding, many of Syria's urban areas were unequipped to handle the economic and social consequences linked with large-scale urban migration. As a result, urban unemployment increased and large groups of migrants, mostly young men, were left frustrated with the inefficiency of the Syrian government. Contributing to vulnerability to drought and the associated conflict risk was a history of government mismanagement of water resources, large subsidies for farmers growing water intensive crops such as cotton, and a reliance on inefficient irrigation systems.

It is important to note that the climate change-conflict link in the Syrian case is contested. For instance, a closer examination of the remote sensing data used to support this argument reveals no evidence of a long-term drying trend in Syria as a whole (Selby et al., 2017). Furthermore, while it is clear that agricultural failures due to drought drove rural-to-urban migration in the years prior to the war, what is not clear is the scale at which this migration happened and to what extent migration can be attributed to drought and to other factors. Migration to urban centers from rural areas such as Hasaka had been happening long before conflict broke out, partially due to seasonal labor migration and partially because of economic liberalization policies that intensified after Bashar al-Asad became President (al-Hindi, 2011; Selby et al., 2017). Finally, many studies that do advocate the climate-change conflict thesis in Syria do not present statistical evidence of correlation between climatic and conflict variables (e.g. Kelley et al., 2015), nor do they provide on-the-ground evidence of the links between migration and conflict through personal testimony from affected Syrians (e.g. Femia & Werrell, 2012; Gleick, 2014). This is not to say that climate change and associated drought did not have anything to do with the ongoing conflict in Syria, but rather emphasizes the difficulties with fleshing out causalities in the climate change-conflict thesis and the importance of understanding the broader political and socioeconomic context in which these dynamics play out.

Iraq

Internal water mismanagement. Similar to Syria, water mismanagement within Iraq has contributed to water scarcity within the country, shaping the nature of its transboundary water interactions with Syria and especially with Turkey. A turbulent history of war, authoritarian rule, and foreign military intervention have led to an underdeveloped and disorganized water governance framework, while years of violence and economic sanctions have damaged infrastructure and prevented its modernization. Furthermore, water historically has not been a decision-making priority due to a lack of technical and financial capacity (Participant 8, personal communication, August 11, 2023). Under the rule of Saddam Hussein, all water-related regulations came from the Presidency, and public investments in the water sector to improve irrigation technology and domestic and industrial use were predictably redirected to the military (Kibaroğlu, 2002). To help avoid the rise of another authoritarian regime, decentralization processes were put in place in 2003 after the ousting of Saddam Hussein; this decentralization extends to Iraq's water governance structure. Problems with how decentralization was implemented make governorates and local authorities dependent on the central government due to a lack of human capacity, resources, and decision-making power (Von Lossow et al., 2022).

The Ministry of Water Resources, established in 2008, is responsible for the overall development of water resources regulating surface and groundwater use, and establishing sources and uses of water (FAO, 2008b). As in Syria, the absence of a national water law contributes to fragmented water management. Contributing to tensions over water are deficiencies in the implementation of a water allocation framework, a role that under the existing legal framework falls to the Ministry of Water Resources (von Lossow et al., 2022). In practice, water is allocated based on historical practice that favors provinces with higher water demands, typically those with high agricultural activity (von Lossow et al., 2022). Not only does this result in inefficient usage, it also can contribute to the development of tensions between provinces if an upstream province is receiving more water than a downstream one. For example, the Kurdistan region of Iraq has an advantageous geographical position upstream on the Tigris River relative to the rest of the country and also houses two of Iraq's largest dams. Southern governorates such as Basra, on the other hand, are more vulnerable to the severe water quantity and quality issues resulting from water use upstream. These tensions contribute to dissatisfaction amongst the Iraqi public with both Turkish developments upstream, which has resulted in significant reductions in the flow of the Tigris and Euphrates in Iraq, and with the Iraqi government who are seen as inadequately responding to the water crisis.

Vulnerability to climate change. Iraq is the fifth most vulnerable country to climate change (UN Environment, 2019). Increasing temperatures, decreased rainfall, and intensifying droughts and sandstorms are contributing to rapidly dwindling water resources. Compounding these issues are inefficient government policies and the building of dams upstream in Iran and Turkey. It is therefore no surprise that climate change is perceived as one of the two most significant challenges to Iraq's water resources, alongside upstream development (Participants 8 and 16, personal communication, August 11, 2023 and September 27, 2023).[62] However, climate change may also serve as motivator for cooperation, as I will discuss in Chapter 7.

Interstate Relations and Interstate Hydropolitics

The domestic considerations described above are hardly the only issues that have shaped the history of water conflict and cooperation in the ET basin. Similar to the Jordan basin, hydropolitics in the ET basin has been closely connected with patterns of broader political relations. The securitization of water resources by the three main riparians has intertwined the fate of water resources with national

[62] Interviewees were divided over which of these challenges presented a more significant threat.

security considerations so that the two are often viewed by policy-makers as one and the same.[63] As I have alluded to in the paragraphs above, this is particularly true in the case of ongoing conflicts with armed Kurdish groups, both within and across country borders. Other flashpoints in international relations that have had an influence on the trajectory of water conflict and cooperation include the Iran-Iraq War, the Gulf War, the Syrian civil war, and the increasing of involvement of non-state actors in transboundary water issues.

1960-1980: Unilateral development and increasing conflict

Prior to the 1960's, water cooperation prevailed in the ET basin. This was mostly due to activities by external donor countries such as Germany and the Soviet Union who provided funding for the construction of dams (see Figure 42). Busy focusing on establishing state hydrocracies and improving water supply to urban and rural populations, transboundary waters were mainly limited to the domestic policy agenda and little interaction occurred among the states regarding them. As the states began to expand their hydraulic development programs due to the internal pressures discussed in the preceding section, interactions over transboundary waters increased as the uncoordinated nature of development in the basin led to disagreements about water use.

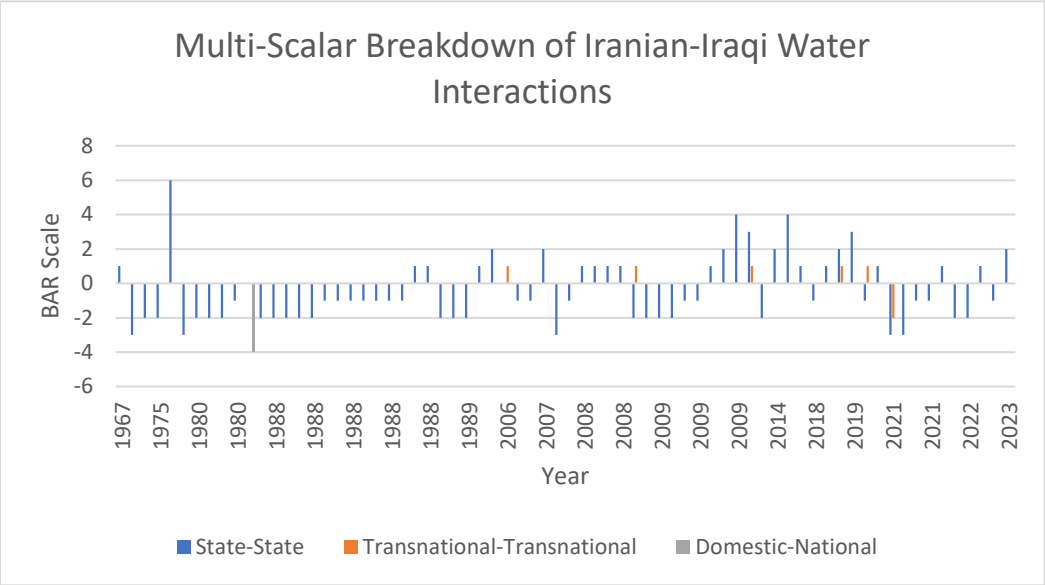
Contributing to the increase in conflictive water interactions beginning in 1966 and extending through 1980 was the rise to power of the Ba'ath party in Syria and Iraq. A series of military coups led to the seizure of power by the Ba'ath party in 1963 in both Syria and Iraq. The Ba'ath party, which was founded in Syria in 1947, advocated for Arab unity based on economic and social justice. The rise to power of the Ba'ath party affected transboundary water interactions in a few ways. First, the ideology of pan-Arab unity and Arab nationalism espoused by the Ba'ath party changed how Turkey was viewed by the Syrian and Iraqi regimes. As a member of NATO and playing host to a number of US military bases, Turkey was viewed as a close Western ally and therefore regarded with some degree of suspicion (Dolatyar & Gray, 2000). These feelings of suspicion carried over to the water realm, where aggressive development policies pursued by upstream Turkey were viewed as a power grab. Second, as I have already discussed, Ba'athist policies that promoted food security and elevated the prestige of agriculture contributed to unsustainable water use and water scarcity, particularly in Syria. Third, rivalry between Ba'ath party factions in Syria and Iraq contributed to increase tensions between these countries, both

[63] For example, one interviewee noted that while water previously had not occupied a high priority spot on the Iraqi national political agenda, it was now viewed as a security issue by the Iraqi government (Al-Lami interview).

water related and otherwise. After a military coup in 1966 deposed members of the party's National Command in Syria and replaced them with members of the party's Military Committee and Regional Command, the Ba'ath party split into a Syria-dominated movement and an Iraqi-dominated movement (Seale, 1988). At the root of the rivalry between the two factions was a power struggle between Hafez al-Asad (who came to power in 1970) and Saddam Hussein (who came to power in 1968) and increasing nationalist sentiments oriented around the nation-state rather than pan-Arabism. This power struggle contributed to increasing distrust between the Syrian and Iraqi regimes, which in turn affected hydropolitical relations that had previously been overwhelmingly cooperative. When the two states faced a water crisis in 1975, precipitated by drought and the simultaneous filling of the Keban and Tabqa Dams, they had the perfect excuse for declaring war and would have come to blows had it not been for Saudi Arabian mediation (Figure 42).

The time between 1960-1980 also saw increasing water conflict between Iraq and Iran, which directly contributed to the outbreak of the Iran-Iraq War in 1980 (Figure 44). Recall that Iran contributes to about 10% of the Tigris flow through various tributaries and the Shatt al-Arab (formed at the confluence of the Euphrates and Tigris rivers) forms the border between Iran and Iraq for the last 50 miles of its course. Dam construction by Iran on tributaries to the Tigris river have posed a significant concern to Iraq, which is directly downstream (Chomani & Bijnens, 2016; Keynoush, 2021). However, sovereignty over the Shatt al-Arab has been the largest bone of contention between Iraq and Iran as the river is Iraq's only access point to the Persian Gulf and is an important transport route for Iranian crude oil (Climate Diplomacy). After years of disputes concerning borders and sovereignty over the Shatt al-Arab, the two countries signed the Algiers Agreement in 1975, in which Iraq recognized Iran's sovereignty over half of the river in exchange for an end to Iran's support of Kurdish rebels. Tensions between Iran and Iraq over the river came to a head in 1979, just prior to the start of the Iran-Iraq War, when Iraq withdrew from the agreement, which was largely seen as a humiliating concession within Iraq (Climate Diplomacy). Iraq's withdrawal from the treaty fanned the flames of budding tensions over broader territorial disputes and fears that the Iranian revolution would foster rebellion among Iraq's Shi'a majority. The start of the Iran-Iraq War shortly after continued to have a detrimental effect on Iranian-Iraqi water relations; over the next decade, only two of the 19 documented water interactions were cooperative (Figure 44). Both of these interactions were in the context of dredging the Shatt al-Arab for navigation, an issue that Iran had long refused to discuss with Iraq.

Figure 44: Multi-scalar breakdown of Iranian-Iraqi water interactions.



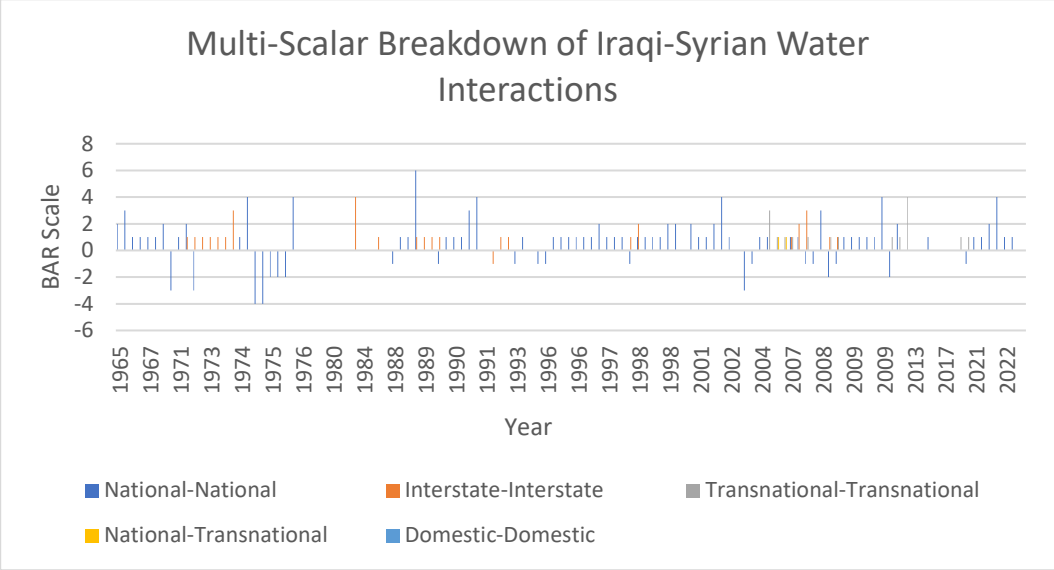
1980-1998: Strained relations over strained waters

Iraq-Syria water relations. Between 1980 and 1998, political tensions continued to insinuate themselves into all aspects of water interactions between the riparians of the ET basin. From 1980 to 1988, the Iran-Iraq War wreaked havoc on the region and on Iranian-Iraqi water relations. The war also impacted water relations between other riparians. Competition between rival Ba'ath party factions in Syria and Iraq led the former to take the side of Iran during the war. As a result, Syria closed its border to Iraq in 1982 and cut Iraqi oil pipelines, forcing Iraq to become dependent on Turkey as its only oil outlet (Çarkoğlu & Eder, 2001). Syrian support for the US-led coalition against Iraq during the Gulf War led to a further deterioration in political relations, and diplomatic and commercial ties with Iraq were cut until 1997. Subsequently, water interactions between Syria and Iraq also ground to a halt.

Between 1980-1988, only eight water interactions occurred (Figure 45). However, two observations about the nature of Syrian-Iraqi relations during this time must be made. First is that interactions picked up in the 1990's. Second is that the majority of interactions (82.5%) during the 1980's and 1990's were cooperative. How is it that interactions over water persisted, quite positively, while the two countries were on opposite sides in two regional conflicts and political relations had, for all intensive purposes, stopped? This phenomenon perhaps attests to the necessity for cooperation stemming from increasing development upstream in Turkey (Kibaroğlu & Scheumann, 2013). All but a

few of the interactions between Syria and Iraq in this time period related to exploitation of the Tigris and Euphrates river by Turkey as part of its GAP. Furthermore, over half of the interactions involved some degree of technical cooperation, suggesting that limiting discussions to technical issues, such as discussing methods for allocating water, was a fruitful way of sustaining dialogue. The establishment of the Joint Technical Committee (JTC) in 1983 between Iraq, Syria, and Turkey provided a platform for the riparians to engage in dialogue even when broader political relations were frozen. The JTC met 16 times before negotiations were suspended due to disagreement over whether the Tigris and the Euphrates should be considered separately or as a single system (Kibaroğlu, 2002). However, even after the JTC stopped meeting, Iraq and Syria continued to conduct talks at the highest political level, indicating that reaching a solution to the question of aggressive upstream development was critical (see Figure 45). Indeed, in 1989[64], Iraq and Syria signed an agreement allocating Iraq 58% and Syria 42% of the water from the Euphrates river that passes through the Syrian border with Turkey (Law No.14 of 1990, Art. 1).

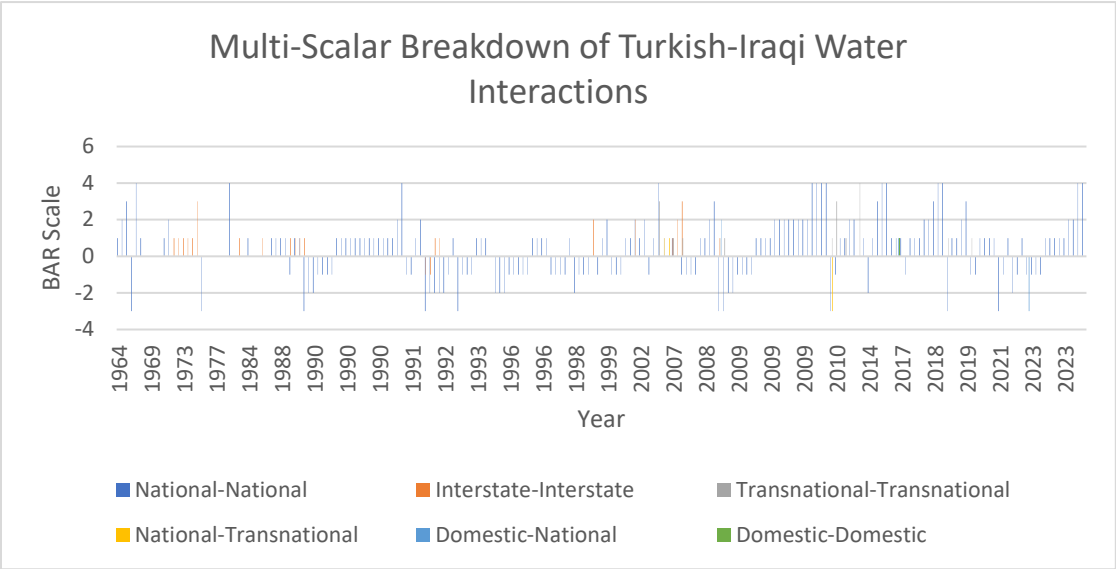
Figure 45: Multi-scalar breakdown of Iraqi-Syrian water interactions.



Turkish-Iraqi water relations. The effects of the Iraqi-Syrian rift were not limited to the water interactions of these two countries. As Figure 46 shows, water cooperation between Iraq and Turkey actually increased during this time, especially during the early 1990's. Cooperative interactions constituted just over half (51.9%) of all interactions between Turkey and Iraq between 1980 and 1998.

[64] The Joint Minutes were signed in 1989 and ratified in 1990

Figure 46: Multi-scalar breakdown of Turkish-Iraqi water interactions.



While some of this increased cooperation is due to meetings that took place at the interstate level within the framework of the JTC (see red lines on Figure 46), cooperation also increased between the national-level governments. Why would Iraq cooperate with the very entity whose development practices were the central object of joint protests with Syria and were a principle cause of Iraq's severe water crisis? The answer lies in mutual trade and security dependencies. Prior to the escalation in hostilities between Syria and Iraq during the Iran-Iraq War, Iraq exported just under half of its petroleum exports to Syria, equivalent to about 900,000 barrels a day (Washington Post, 1982). When Syria closed its border to Iraq in 1982, the latter became dependent on Turkey as its only oil outlet. Lacking large oil reserves, Turkey depends heavily on Iraq as one of its main oil suppliers (the other being Russia). This mutual dependency contributed to patterns of sustained Iraqi-Turkish water cooperation throughout the 1980's, and has continued to promote water cooperation to this day (Participant 8, personal communication, August 11, 2023). After Iraq invaded Kuwait in 1990, economic sanctions halted all Iraqi oil exports and severely damaged the Turkish-Iraqi trade relationship.

Turkish-Iraqi water relations were also shaped by shared security issues. In the aftermath of the Gulf War, the prospect of increased attacks by the PKK from northern Iraq greatly concerned Turkey (Çarkoğlu & Eder, 2001). Against a backdrop of increasing power struggles between rival Kurdish factions and the lack of a stable government in the region, Saddam Hussein launched a bloody campaign against the Kurds in northern Iraq. This campaign displaced approximately 1.5 million Kurdish refugees into Turkey and Iran. Creation of a "safe haven" above the 36th parallel for humanitarian purposes gave the

PKK a stable base from which they could conduct attacks against Turkey. It is perhaps no coincidence that the conflictive nature of water interactions between Iraq and Turkey sharply increased during this turbulent period (Figures 39, 46). Political relations between the two countries further soured when Turkey sided with coalition forces during the Gulf War and severed economic ties with Iraq. As a result, Iraq began to ally itself more with Syria on the water front, particularly in opposition to GAP and construction of Ataturk Dam. For example, Iraqi-Turkish water talks were suspended in 1993 and between 1993 and 1997, Iraq asked for Arab League support in presenting a united Arab front against Turkish water aggression (see the database of water-related interactions in the ET basin).

Turkish-Syrian water relations. The Kurdish conflict is one of the most significant shapers of patterns of water conflict and cooperation between Turkey and Syria. The influence of the Kurdish conflict on Turkish-Syrian water relations is most apparent in the 1990's. Throughout the 1980's and 1990's, Syria acted as a home base for the PKK and its leader, Abdullah Öcalan, who conducted numerous attacks against Turkey from Syrian soil. As attacks by the PKK, supported by the Syrian regime, intensified in the late 1980's, water conflict also became more frequent. It was against this backdrop that the water and security issues were linked for the first time. In 1987, Turkey and Syria signed an agreement in which Turkey pledged to maintain an annual average flow of 500m^3/sec at the Turkish-Syrian border. A mutual security accord was signed in parallel obligating both sides to prevent activities harming the other from originating in its territory and to extradite criminals responsible for such activities (Kibaroğlu & Scheumann, 2013). The water-security linkage continued throughout the 1990's as Turkey used its position upstream on the Euphrates as leverage over Syria and reduced flow whenever Syrian support for the PKK intensified. The increasing frequency of water conflict in 1995 and after corresponds to an intensification of Turkey's conflict with the PKK (see Figure 38; Palmer & Holtz, 2023). Intensification of both conflicts continued until 1998, when Turkey threatened Syria with military action if it did not do something about Öcalan and the PKK. Not wanting war, Syria signed the Adana Protocol, in which it formally ceased support for the PKK. Öcalan was subsequently expelled from the country and captured by Turkish security forces in Nairobi. The signing of the Adana Protocol ushered in an era of renewed Turkish-Syrian water cooperation that lasted until the outbreak of the civil war in 2011 (see Figure 38).

1998 – Present: The Increasing Influence of Non-State Actors on Water Conflict and Cooperation

As evidenced in Figure 42, non-state actors did not become heavily involved in water interactions until the early 2000's. In the first decade of the 2000's, a stabilizing political situation

throughout the basin brought about by the ousting of Saddam Hussein and the warming of Turkish-Syrian relations after signing the Adana Protocol created opportunities for the involvement of NGO's and other non-state actors in water interactions. The generally positive effect that organizations such as ETIC and transnational advocacy networks had on the nature of water interactions in the basin is shown in Figure 42. Just one of the 47 interactions that involved non-state actors from the basin between 2000 and 2010 was conflictive, and this interaction involved conflict between Turkish forces and PKK clusters based in northern Iraq. The outbreak of war in Syria in 2011 dramatically changed how non-state actors interacted with water in the basin. Of the 95 interactions involving non-state actors from the basin between 2011 and 2023, 58 (61.1%) involved conflict, usually at a high intensity. The sharp increase in conflict in the basin overall, and in interactions involving non-state actors specifically, is due to two broader political conflicts: conflict between state or rebel forces and ISIS and conflict between Turkish forces and Kurdish and Kurdish-affiliated coalition groups in Syria such as the SDF and its primary military arm the Kurdish People's Protection Units (YPG). While cooperative interactions did occur thanks to the work of organizations such as Save the Tigris, the scope and impact of such cooperation was more limited. In this section, I will dive into a greater examination of these dynamics.

Civil society and transboundary waters. The end of the Cold War presented an opportunity for people from other countries to learn from and work with each other on pressing issues such as water (Participant 5, personal communication, July 24, 2023). However, due to a volatile political situation in the basin until the early 2000's, forming such transnational ties proved difficult, and hydropolitical relations remained almost exclusively in the purview of the state.

The Euphrates-Tigris Initiative for Cooperation was one of the first and most active civil society organizations in transboundary water issues in the ET basin. ETIC is most accurately described as an epistemic community, which are networks of experts with an authoritative claim on knowledge about a particular issue who work together to influence policy about that issue (Haas, 1992). Established in 2005 by scholars and professionals from Syria, Turkey, and Iraq to promote technical, social, and economic cooperation and development in the ET basin, ETIC is a track II effort not affiliated with any state government. To advance its goal of increasing cooperation between the riparians, ETIC employed a unique approach that extended beyond the water rights debate at the center of much of the interstate conflict in the basin to focus on issues relating to environmental protection, gender equity, and grassroots participation in decision-making (Kibaroğlu, 2008).

The organization's first activities in 2005 and 2006 focused on convening sessions at international conferences such as the World Water Forum to explain the initiative and grow its network (Participant 5, personal communication, July 24, 2023). As ETIC's network grew and it obtained funding from donors such as FAO and USAID, it began to host capacity-building workshops with experts from all the basin states (including Iran). These activities included a dam safety workshop in 2006, a stakeholder workshop on Technical Cooperation for Regional Development in 2007, and the launch of a four-year project in 2009 on collaborative planning and knowledge development in the ET basin to build confidence among practitioners and establish a data bank for the basin, among other objectives (ETIC, n.d.). As evidenced in Figure 42, ETIC engaged in many cooperative initiatives during the first decade of the 2000's. While their work did not directly influence interstate water relations, which were already quite cooperative during this period, their work was significant in that it brought together stakeholders (including government officials) from all riparians to work together in the same room at a time when most water interactions were conducted bilaterally. After war broke out in Syria in 2011, a major challenge ETIC faced was a lack of Syrian participation, and ongoing conflicts in both Syria and Iraq, along with a lack of governmental support, has rendered a temporary halt to ETIC's programming (Participant 5, personal communication, July 24, 2023).

BluePeace Middle East. One actor that is continuing to implement activities to promote cooperation in the basin, even against the broader context of ongoing violent conflict, is Blue Peace Middle East.[65] Blue Peace is a regional non-governmental initiative that works with water experts, politicians, academics, journalists, and youth to promote water as a tool for peace in the ET basin and throughout the Middle East as a whole. Although Blue Peace is a track 1.5 initiative due to the involvement of government officials in some of its programming, it is a regionally owned platform and decisions made by its members are unofficial (Participant 9, personal communication, August 15, 2023). The initiative was launched in 2010 by country representatives from Iraq, Jordan, Lebanon, and Turkey with initial programming focused on technical issues such as implementing agricultural projects to build common dialogue. Unlike ETIC, Blue Peace has continued to function even as violence engulfed much of Iraq and Syria due in large part to substantial government support and financial support from diverse donors (Participant 5, personal communication, July 24, 2023).

Transnational advocacy networks. The third set of non-state actors that have influenced patterns of water conflict and cooperation in the ET basin in the last 25 years are transnational advocacy

[65] https://bluepeaceme.org/en.

networks. Transnational advocacy networks form around issues perceived as problematic by certain groups and include "those relevant actors working internationally on an issue who are bound together by shared values, a common discourse, and exchange of information and services," (Keck & Sikkink, 1998, p.217). In the ET basin, the Ilisu Dam was (and continues to be) perceived as problematic by many stakeholders and was the focal point of numerous networks and advocacy groups. Completed in 2018, Ilisu Dam is on the Tigris river along the border of Mardin and Şırnak provinces in southeast Turkey, not far from the Iraqi border. With an operating capacity of 7.5 billion m^3, the reservoir created by the Ilisu dam accounts for approximately half of the Tigris' annual flow (Warner, 2012). Opposition to the dam is centered around the dam's ecological and humanitarian implications. Scientists and environmental activists worry about the downstream impacts that flooding caused by the dam will have on endangered species such as the Eurasian otter and the Euphrates soft-shelled turtle (Hockenos, 2019). Other opponents of the dam argue that the dam will precipitate a cultural and humanitarian crisis.[66] The impacts of the dam on the ancient city of Hasankeyf, which dates to the late Assyrian period and houses countless archaeological treasures, is a focal point of activist activity, both within Turkey and abroad. A brief explanation of some of the activities conducted by transnational advocacy networks[67] that have had the greatest impact on water conflict and cooperation in the basin follows.

Networks of anti-dam activists led by a coalition of local Turkish NGOs and international NGOs (INGO) managed to delay construction of the dam and caused several private European funders to back out in the early 2000's (Hommes et al., 2016; Warner, 2012). Ironically, the conflict introduced by the involvement of these organizations was at odds with interstate water interactions, which were actually improving in the 2000's (this pattern again happened in 2008 and 2009, see Figure 42). Unable to secure funding from major institutions such as the World Bank, who require the consent of downstream riparians before funding infrastructure projects, Turkey was forced to bank its hopes on the privatization of the water sector in the mid-90s as a way of funding the Ilisu dam and other GAP projects. This privatization opened the door to private European enterprises such as Balfour Beatty, Impreglio, and Swiss UBS Bank (Warner, 2012). However, privatization also made foreign investors vulnerable to the pressure of INGOs calling for foreign companies to be accountable for their corporate governance practices. Indeed, private European companies such as Balfour Beatty and Swiss UBS Bank pulled out

[66] A detailed account of Ilisu's Dam's many impacts, both positive and negative, is beyond the scope of this chapter. For such an overview, consult, among others, Ilhan (2010), PACE (2001), and Tezcür et al. (2021) for its humanitarian and cultural impacts and Hockenos (2019) and Kitchen and Ronayne (2002) for its ecological impacts.
[67] For more information about the various transnational advocacy networks that have advocated against the Ilisu Dam, and their impacts on its construction, see Eberlein et al. (2010), Hommes et al. (2016), and Warner (2012).

from the Ilisu dam venture shortly after the release of a 2001 environmental impact assessment that failed to meet credit guarantees (Warner, 2012). Furthermore, the portrayal of the Ilisu dam as an ecological and humanitarian disaster by local and international anti-dam activists such as the Keep Hasankeyf Alive Initiative and Friends of the Earth helped internationalize the struggle against the Ilisu dam and even led to the involvement of the European Court of Human Rights when an application against the dam was submitted (Kart & Özerkan, 2006).

The Ilisu project was revived a few years later in 2005 when a consortium of German, Swiss, and Austrian companies formed. Since Turkey was unable to cover costs upfront, these companies applied to their national export credit agencies (ECAs) for export risk coverage (Eberlein et al., 2010). In response to the formation of this second consortium for funding the Ilisu Dam, the Initiative to Keep Hasankeyf Alive was established. Composed of a coalition of activists and 86 organizations, the Initiative to Keep Hasankeyf Alive became the region's biggest civil society platform dedicated to protecting the ecosystems and cultural heritage of southeast Anatolia (Participant 6, personal communication, July 31, 2023). At the same time, the European branch of the anti-Ilisu campaign was also being revived, composed of NGOs such as the Berne Declaration who advocated to ensure that the ECAs funding the Ilisu Dam held themselves and the Turkish government accountable for upholding the highest environmental and social standards to protect the region's environment, culture, history, and people. The pressure exerted by these NGOs and the ECAs on the Turkish government to meet said standards resulted in the withdrawal of export cover for the project and the withdrawal of the German and Swiss companies from the consortium after it became clear that the Turkish government was unable or unwilling to meet its contractual obligations (Eberlein et al, 2010, see Figure 42). As a result, the Turkish government decided to finance construction of the dam on its own, and the impact of advocacy platforms such as the Initiative to Keep Hasankeyf Alive became more limited (Participant 6, personal communication, July 31, 2023).

Not all of the transnational advocacy networks operating in the ET basin have had an exclusive focus on saving Hasankeyf and stopping construction of the Ilisu Dam. For example, Save the Tigris[68] is a civil society advocacy platform that promotes the exchange of knowledge, ecological justice, and water as a tool for peace throughout the ET basin (Save the Tigris, n.d.). Although originally begun with a focus on conducting campaigns against the Ilisu Dam, in the past decade the work conducted by Save the Tigris has become increasingly more regional (Participant 1, personal communication, January 31, 2023).

[68] https://savethetigris.org/

In a manner similar to ETIC, Save the Tigris has brought together activists from all four riparian states to develop a transnational advocacy network that promotes capacity building and awareness about regional water issues. In 2019 and 2020, Save the Tigris hosted the Mesopotamian Water Forum to provide an open space for stakeholders to engage in dialogue about the waters of the basin. It is important to highlight that the Mesopotamian Water Forum brought together actors from all countries of the basin against a broader context in which cooperative water interactions at the interstate level were becoming less frequent. Furthermore, the Forum provided another opportunity for multilateral dialogue in a region where most dialogue over water happens bilaterally.

The weaponization of water in Iraq and Syria. In June 2014, Abu Bakr al-Baghdadi, the leader of the Islamic State of Iraq and Syria, announced the establishment of a caliphate stretching from Aleppo in the west to Diyala on Iraq's eastern border. In capturing this territory, ISIS also gained control over vast swaths of vital water resources on which some 10 million people were dependent (BBC, 2018). The actions of terrorist groups such as ISIS and other armed groups in the basin demonstrate the significant impact that non-state actors can have on patterns of water conflict and cooperation. Between 2014 and 2018, ISIS took part in 32 water interactions[69] in Iraq and Syria, all but two of which involved the use of water as a weapon (see the concentration of orange blocks between 2014 and 2018 in Figure 42). Throughout the fighting in Iraq and Syria, water was weaponized in three main ways: it was used as a military target, it was used as a tool of war, and it was weaponized as a tool of cooperation (Daoudy, 2020). The capture of strategic dams such as Tabqa and Tishrin dams in Syria and Mosul, Fallujah, and Ramadi dams in Iraq enabled ISIS to cut off power and water supplies to key areas such as Raqqa and Mosul. In addition, ISIS used their control of the dams to stall enemy advances by threatening to flood major cities like Baghdad and threatening to destroy the dams themselves. Maintaining control of large dams also enabled ISIS to expand its influence and resources by engaging in cooperation with the Syrian regime. For example, in 2015 ISIS and regime forces reached a deal in which ISIS agreed to supply electricity generated by Tishrin Dam to all regime-held and ISIS-held areas in Aleppo in return for the government continuing to supply the facility and pay its workers (The Syrian Observer, 2015). Recapturing dams from ISIS became a key strategy priority for Iraqi forces and the US-allied SDF, who by 2017 had successfully regained control over the dams once held by ISIS.

[69] While I do not go into detail about these water interactions here, see the interactions database here for more details about each individual interaction.

As I alluded to above, not all of the water interactions involving ISIS were conflictive. Interestingly, there were a few instances in which ISIS engaged in water conflict and cooperation as an actor in water diplomacy. As I described above, ISIS conferred with the Syrian government over the production of hydropower and operation of the Tishrin Dam near Aleppo. It also engaged in dialogue with Turkish authorities about maintaining water flow in the Euphrates. In 2014, Turkey had significantly reduced the flow of the Euphrates into Syria from 400m^3/sec to 150 m^3/sec. In talks with Turkish officials that included the ISIS de facto ambassador to Turkey, agreement was reached for Turkey to restore the Euphrates flow in return for guarantees of its security and safety from ISIS attacks (Speckhard & Shajkovci, 2014). These instances of cooperation emphasize the co-existing nature of conflict and cooperation in the ET basin and highlight the quasi-state functions (e.g. provision of water, engagement in diplomatic negotiations) that ISIS performed as the result of its engagement with water resources.

ISIS was not the only group to utilize water as a weapon and engage in conflictive interactions over water. Between 2013 and 2023, 37 water interactions took place involving non-state actors other than ISIS such as the Free Syria Army (FSA), the SDF, and the Peshmerga (the standing military of Iraq's Kurdistan region). Prior to the defeat of most of ISIS' forces, these interactions involved battles for control of dams held by ISIS. However, by 2017, ISIS had lost 95% of its territory and the Iraqi government had declared its war with ISIS over. At this point, the SDF came into possession of much of the territory in northern Syria that had previously been held by ISIS. Because the SDF is a coalition of various ethnic militias and rebel groups under Kurdish leadership, its control of large chunks of territory in Syria near the Turkish border piqued Turkish fears about revitalized calls for the establishment of an independent Kurdish state. As a result, the Turkish government began an intensive military campaign against SDF-led forces in northern Syria, particularly in the de facto autonomous region of Rojava in northeastern Syria. Virtually all of the conflictive water interactions that occurred from 2018 onwards were part of the wider military conflict between Turkish forces and the SDF. For example, in January 2021, Kurdish media blamed the Turkish army and pro-Turkey Syrian rebels for disrupting water supplies to Hasaka province, cutting the flow of water to over one million people (HRW, 2023). A few years earlier in 2018, Turkey was similarly accused of cutting water supply to Afrin District, bombing a nearby dam and local public water facilities, disrupting access to drinking water for hundreds of thousands of civilians (Reuters, 2018). Including interactions involving non-state actors in hydropolitical analysis highlights the important role that they can play in shaping broader patterns of water conflict and cooperation.

Conclusion

In this chapter I presented a database of transboundary water interactions that took place in the ET basin between 1948 and 2023. The interactions in the database are a representative sample of interactions that took place during this time period and give the reader a holistic understanding of how conflict and cooperation fluctuated over time. To answer sub-research question 1 – how are hydropolitical relations in the Jordan and ET river basins explained by interactions between actors at different scales – I analyzed how patterns of water conflict and cooperation in the basin were influenced by internal factors and by broader international relations. Not only did I include interactions that occurred between national-level actors, I also included interactions that involved domestic and transnational actors to provide a more robust picture of water conflict and cooperation in the basin. To that end, several observations can be made.

As in the Jordan river basin, conflict and cooperation in the ET basin often co-exist. This coexistence can happen in three ways. First, conflict and cooperation can simultaneously occur over different issues. For example, even though the riparians have historically come into conflict over issues relating to water quantity, they also have a history of cooperating at the same time over technical issues, as evidenced by the meetings of the Joint Technical Committee which lasted from 1983 to 1993. Conflict and cooperation can also occur at different scales. Taking a multi-scalar approach to the study of transboundary water interactions helps shed light on how the nature of conflict and cooperation change depending on who is involved. Recall for example that in the Jordan river basin, there has been a predominant pattern of cooperation between Israelis and Palestinians at the interstate level in the last 10 years, but local-level conflicts between Israeli security forces, settlers, and Palestinian villagers are common. Multi-scalar patterns of conflict and cooperation in the ET basin in the last 10 years have demonstrated a flipped pattern; even as cooperation at the interstate level was persisting, high-intensity localized conflicts over water were happening as state military forces and opposition groups such as SDF fought for control over water first with ISIS and then with each other (see Figure 42). Finally, conflict and cooperation can co-exist at the same scale regardless of what the interaction is about. For instance, throughout the 1990's, high-level talks between Turkey, Syria, and Iraq (both bilateral and multilateral) over water allocation demonstrated instances of cooperation but were also frequently interspersed with instances of conflict when the riparians engaged in verbal disputes over the same issue (see Figure 40). Rather than being mutually exclusive phenomenon, conflict and cooperation are very clearly connected through a mutually constitutive relationship.

The purpose of this chapter was to explore what shapes patterns of water conflict and cooperation at different scales. Several observations can be made in this regard. First, the conflict over the Euphrates and Tigris rivers has fundamentally transformed in the past three decades. Until the 1990s, conflict played out within a conventional realist backdrop of state rivalry (Warner, 2012). Unilateral hydraulic development coincided with worsening political relations between Turkey and Syria, who were at odds over Syrian support of Kurdish insurgents, and Syria and Iraq, whose relations had been deteriorating since the Ba'ath party, ruling in both countries, split in 1966 (Kibaroğlu & Scheumann, 2013). Fully engaged in fulfilling its hydraulic mission, Turkey faced opposition from downstream Syria and Iraq over fears that Turkish dams would significantly reduce downstream flow. While technical cooperation occurred between mid-level authorities from all three countries, hydropolitical interactions largely remained limited to the interstate level. Cooperation is more common in Turkish-Iraqi interactions because of a long history of strong bilateral trade relations and because Iraq's preoccupation first with its war with Iran and then its occupation of Kuwait and later invasion by the United States meant that water did not dominate the Iraqi political agenda. In the Turkish-Syrian relationship, however, water was consistently linked with security issues and therefore received more attention. This observation suggests that tensions over Turkish development as part of GAP are not always a primary driver of hydropolitics, despite frequently being cited as such. Instead, other issues such as security may drive water cooperation depending on the broader context.

The privatization of the Turkish water sector in the 1990s invited the participation of new actors in water decision-making, transforming the nature of water conflict and cooperation. Privatization broadened the hydropolitical scene by attracting the attention of transnational actors who opposed Turkish dam construction and called for increased accountability from European investors. Domestically, pushback against dam construction had already been voiced by Kurdish insurgents in the 1980s, and the next two decades saw increasing involvement from anti-dam activists, epistemic communities, and other non-state actors protesting GAP. While interstate negotiations have been constrained mainly to technical issues and have stalled in recent years, cooperation on social, technical, and economic issues has continued in the form of Track 1.5 and Track 2 initiatives established under Blue Peace Middle East and ETIC. Other transnational organizations such as Save the Tigris have also promoted cooperation over water resources by providing spaces for open dialogue and engagement.

A multi-scalar analysis of water conflict and cooperation also highlights how non-state actors contribute to water conflict through the weaponization of water resources. Throughout the course of

the civil war in Syria and the rise and fall of ISIS, water has been used by non-state armed groups to advance their military goals. The capture of large dams in Iraq and Syria by ISIS enabled militants to selectively deprive opposition areas of water and electricity, threaten to destroy water infrastructure, and flood villages. At the same time, ISIS adopted state-like behavior by providing strategic areas with basic services such as water and electricity. The weaponization of water by ISIS, a non-state actor carrying out activities conventionally associated with the state, is an example of how non-state actors may employ different power strategies to contest hegemonic behavior and create new spaces of hydropolitical engagement that themselves reconfigure power relations. Recognizing that power is another factor that influences hydropolitical relations, the following chapter will analyze the role of power in shaping patterns of water conflict and cooperation between actors at different scales.

Chapter 6: The Promotion and Contestation of Hydro-Hegemonic Arrangements

The previous two chapters presented an overview of how transboundary water conflict and cooperation have changed over time in the Jordan and Euphrates-Tigris river basins, with special attention paid to how domestic influences and broader international relations impact these patterns. I demonstrated that water cooperation tends to prevail against a backdrop of warmer political relations and water conflict becomes more frequent as political relations worsen. The inclusion of non-state actors in hydropolitical analysis complicates this general pattern and highlights the co-existing nature of conflict and cooperation as conflicts unfold at one scale while cooperative efforts are undertaken at another. The present chapter seeks to expand on these findings by exploring how water conflict and cooperation are affected by power dynamics. To that end, this chapter answers research sub-question two: how does the interplay of power between actors explain patterns of water conflict and cooperation between actors at different scales? To do so, the analysis of this chapter is structured around two sub-questions:

1. What actions do actors at different scales use to promote or contest hegemonic arrangements?
2. To what extent does the interplay between power and scale explain patterns of transboundary water interactions?

To answer the above questions, I draw on data from interviews conducted with 20 stakeholders from across the Jordan and ET basins as well as from the academic literature and grey literature (e.g. reports published by NGOs, government policy documents). Interviewees came from diverse walks of life and included academics, activists, NGO workers, current and former government representatives, and landowners. As explained in Chapter 1, interviews were coded through a mix of inductive and deductive coding to build a typology of actions used to promote or contest hegemonic arrangements. The Framework of Hydro-Hegemony (Zeitoun & Warner, 2006) and Ana Cascao's (2008) categorization of counter-hegemonic strategies informed my coding process and development of a typology of hegemonic and counter-hegemonic actions which are based on, but by no means limited to, these two frameworks. The different actions used by actors to promote or contest hegemony are rooted in Lukes' (2005) three forms of power – material power, bargaining power, and ideational power. As in previous chapters, I take a multi-scalar approach to the analysis to develop a more nuanced understanding of water conflict and cooperation dynamics and demonstrate the utility of a multi-scalar application of hydro-hegemonic theory.

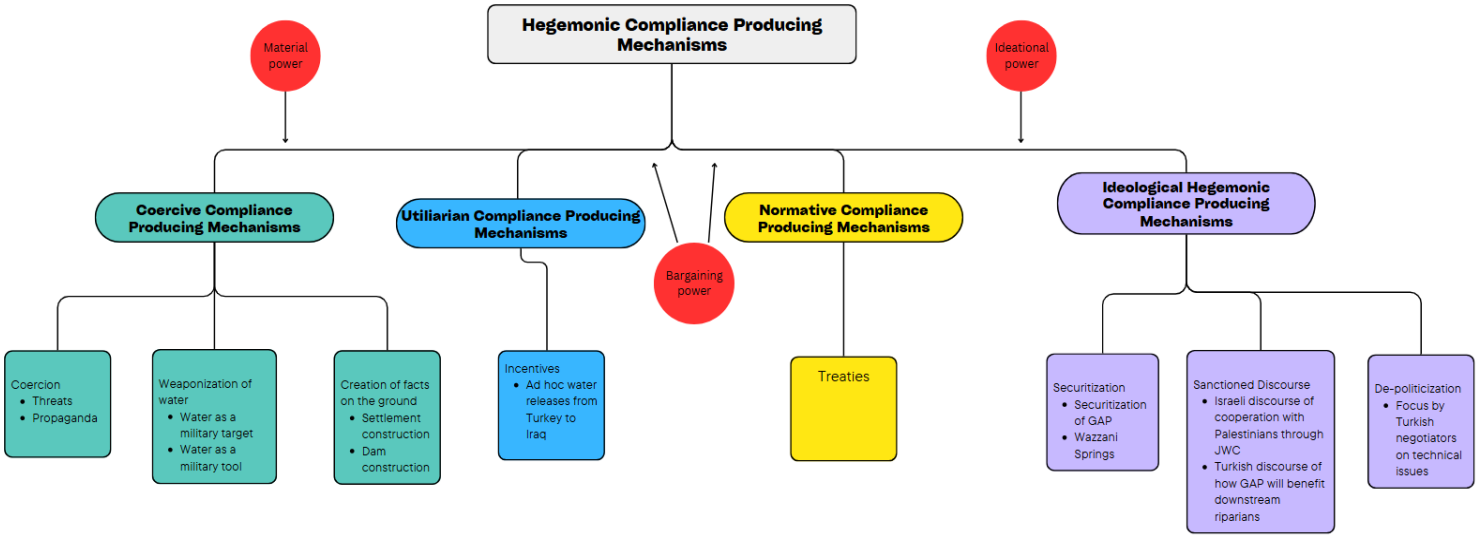
This chapter is structured into six parts. I begin with a brief refresher on hegemony and counter-hegemony as they relate to transboundary water interactions and the different sources of power that underpin the nature of these interactions. In the second part, I discuss the hegemonic compliance-inducing actions used by Israel and Turkey, who are commonly viewed as the hydro-hegemons in each basin. These actions are categorized under four umbrella mechanisms – coercive, utilitarian, normative, and ideological – and include diverse actions such as the weaponization of water, the use of incentives, the signing of treaties, and the dissemination of sanctioned discourse. The third section of this chapter serves as a transition to the section on counter-hegemony by discussing factors that enabled non-state actors to become more involved in water interactions and open new spaces of influence. Given that non-state actors are heavily involved in contesting hegemonic arrangements in both basins, a brief exploration of what enabled their involvement is important. In the fourth section, I discuss the counter-hegemonic actions of resistance used by non-hegemonic actors, both state and non-state. These actions are categorized as coercive mechanisms such as covert action, leverage mechanisms such as advocacy and formation of alliances, and transformative mechanisms such as the promotion of alternatives. Given the potential of transformative mechanisms to enact structural change in a hegemonic order by undermining its legitimacy (Zeitoun et al., 2017), these mechanisms will be dealt with in further detail separately in the next chapter. I conclude with thoughts on the relationship between power and scale and how the use of power has changed over time.

A Refresher on Power and Hydro-Hegemony

Chapter 2 presented a detailed overview of the use of hydro-hegemony theory as a lens through which to analyze transboundary water interactions that occur in the context of asymmetrical power relations. However, given that this chapter draws heavily on hydro-hegemony to identify how hegemons and non-hegemons interact over transboundary waters, a brief refresher is merited. Hydro-hegemony is based on the idea that hegemony results from a combination of force and consent (Zeitoun & Allan, 2008). In a situation where hydro-hegemony exists, the hydro-hegemon exercises and maintains their influence through force (e.g. coercion) and by securing the consent of the non-hegemons. In doing so, the hydro-hegemon exerts significant influence in determining how water flows and whom it flows to. Central to hydro-hegemony is the exercise of the three dimensions of power – material power, bargaining power, and ideational power (Lukes, 2005). Material power refers to material resources such as military and technical capabilities, bargaining power refers to one's ability to set the rules of the game, and ideational power refers to the "invisible" ability to control the thoughts and desires of others.

Through the effective use of power, a hydro-hegemon is able to secure and maintain control and consent. As I explained in chapter 2, Zeitoun and Warner (2006) developed a typology of hegemonic compliance-producing mechanisms to demonstrate that compliance with the hegemonic order is established through the use of four types of mechanisms: coercive, utilitarian, normative, and hegemonic compliance-producing mechanisms. I used this framework to create my own Typology of Actions to Promote Hydro-Hegemony (TAPHH).

Figure 47: Typology of Actions to Promote Hydro-Hegemony.



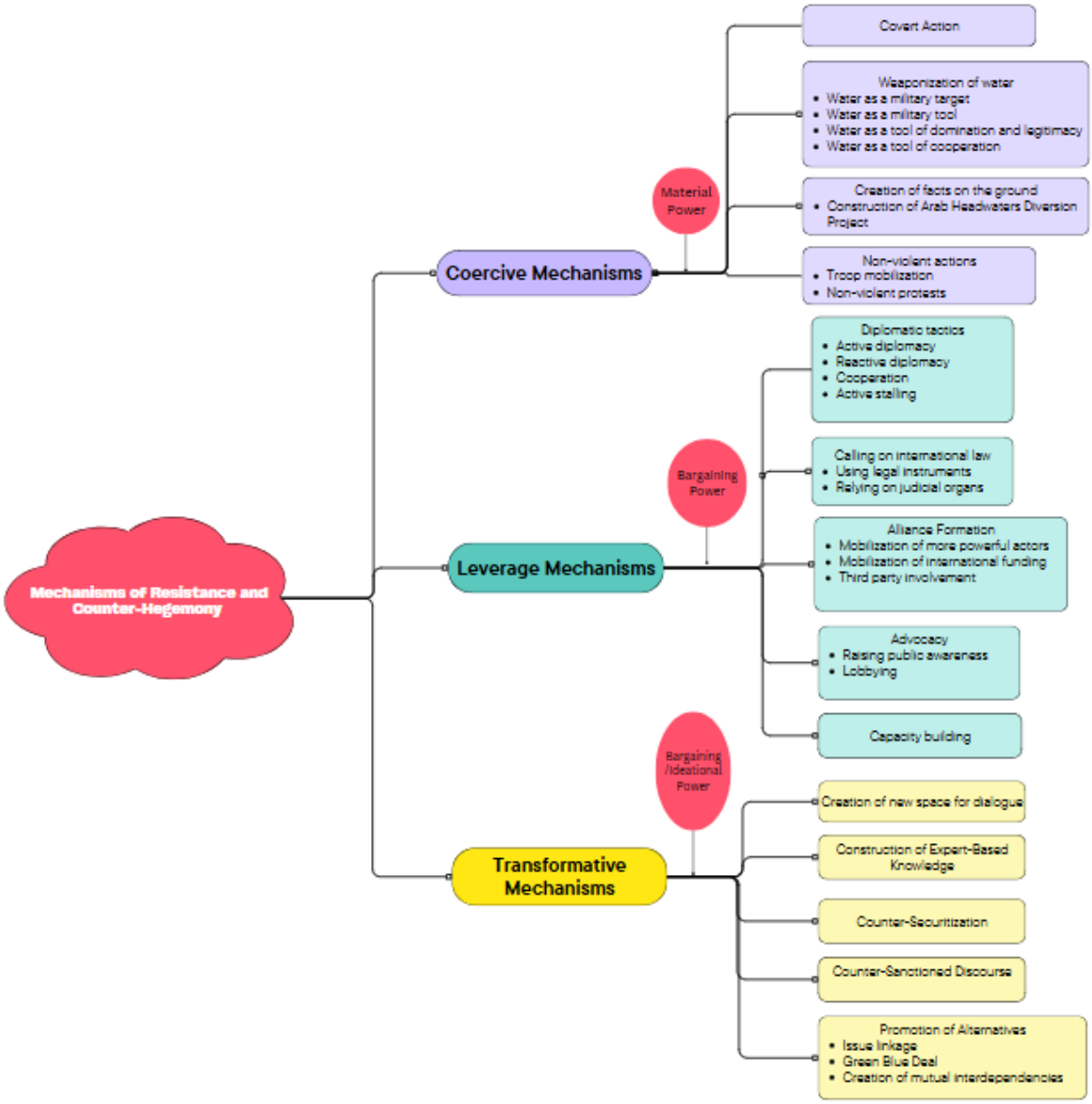
As seen in Figure 47, each mechanism has several associated specific actions that a hegemonic actor can take to secure control and consent. I will explain each mechanism and its associated actions in further detail in the next section; for now, it is sufficient to note the diversity of ways in which hegemony can be exercised and that each type of mechanism is deployed through the exercise of one or more of the different dimensions of power. Power, therefore, is a prerequisite to hegemony. I also want to note that while my own TAPHH, shown in Figure 47, follows the same overarching structure as Zeitoun and Warner's (2006), I have added or modified the specific actions used based on recurring themes that emerged in my review of the literature and analysis of my interview data.[70] For example, the weaponization of water by state and non-state actors was a common thread throughout several interviews and the literature. Therefore, I added it as a separate action under the "coercive compliance-producing mechanism" category and included military force, a separate action under Zeitoun and

[70] See Chapter 1 for a more detailed explanation of how the typology was developed.

Warner's (2006) typology, under this umbrella as the use of military force in relation to water resources in both the Jordan and ET basins involved weaponizing water.

Hegemony can, of course, be contested. When non-hegemonic actors break consent with the hegemonic order, counter-hegemony occurs (Cascão, 2008). As with hegemony, power is central to the exercise of counter-hegemony, in which the goal is to challenge and change the status quo. Much of the work on conceptualizing counter-hegemony was originally carried out by Ana Cascão in the context of Ethiopia's challenges to Egyptian hegemony in the Nile river basin. In analyzing how Ethiopia contests Egyptian hegemony, Cascão (2008) offers a number of counter-hegemony strategies including reactive and active diplomacy, cooperation, the mobilization of international funding, the construction of expert-based knowledge, counter-sanctioned discourse, and reliance on legal principles. Almost a decade later, Zeitoun et al. (2016) developed a general typology of counter-hegemonic mechanisms that include coercive, leverage, and transformative mechanisms. As described in more detail in chapter 1, I used this general typology and Cascão's (2008) observations from the Nile context to build a framework for a Typology of Actions to Contest Hydro-Hegemony (TACHH). However, as these categorizations were derived from an analysis of interstate hydropolitical relations, and thus excluding non-state actors, my typology expands significantly on these foundations (see Figure 48).

Figure 48: Typology of Actions to Contest Hydro-Hegemony.



I will explain each counter-hegemonic mechanism and the actions categorized underneath them in more detail in the fourth section of this chapter. For now, as before, it is important to note the diversity of tactics utilized by non-hegemonic actors. Based on Figure 48, it is apparent that hegemony can be contested in considerably more ways than it is established and maintained.[71] This is especially true when non-state actors, who are able to take action outside the confines of the state and form networks with

[71] It is important to note that this typology is not exhaustive but rather only include those mechanisms and tactics that were observed being utilized in the Jordan and ET basins. Hydro-hegemony may be contested through different means in other basins.

actors from different sectors within and across state lines, are included in the analysis. Indeed, many of the actions shown in Figure 48, such as capacity building, alliance formation, advocacy, and the creation of new spaces for dialogue, are the product of collaboration or network formation between multiple actors.

From a Foucauldian point of view, power is an everyday phenomenon that is embedded in all aspects of social relations (Foucault, 1998). In this sense, it cannot be seen as originating from a particular source but rather is pervasive throughout society. However, there are certain factors that give a hydro-hegemon a competitive advantage (Zeitoun & Warner, 2006). The global order is beset by inequalities stemming from fluctuating political trends and the lack of an international water law that is universally recognized and enforced, bestowing upon actors with unequal opportunities for mobilizing resources to achieve their goals. Chief among these resources are international support and the ability to mobilize funding (Zeitoun & Warner, 2006). Having powerful allies can provide hegemons with sufficient funding for implementing water resources development projects and a favorable political position in the global order. Israeli and Turkish hegemony in the Jordan and ET basins is at least partially attributable to the large amounts (especially in Israel's case) of political and military aid they receive from the United States. That non-hegemonic states such as Jordan and Syria do not have large reserves of both foreign aid and foreign political support is not a coincidence. A hegemon's ability to mobilize its own funding for hydraulic development is also directly linked to its ability to establish and maintain hegemonic configurations in the basin. This is especially clear in the case of Turkey, whose decision to finance GAP with internal coffers allowed it to sidestep donor regulations regarding issues such as environmental protection and population resettlement. Not beholden to external regulations about how to proceed, the options for Turkish hydraulic development are limited only to the depth of the state's pockets.

Hegemonic Compliance-Inducing Mechanisms

In this section I will discuss the different actions used by hegemonic actors to establish and maintain hydro-hegemony in the Jordan and ET river basins. I take Israel and Turkey as the basin hegemons based on their significant power capabilities relative to the other riparians in the basins and the presence of transboundary water arrangements[72] that are favorable to the hegemon and put the

[72] Transboundary water arrangements include the institutional structures such as treaties that shape the governance of transboundary waters (Zeitoun et al., 2020).

other riparians at a disadvantage. Table 17 reproduces the four different mechanisms and their associated actions and provides specific examples of each from my case study basins.

Table 17. Examples of hegemonic compliance-producing mechanisms.

Mechanism	**Action**	**Example**
Coercive	Coercion • Threat of force	Israeli threats to use force after Lebanon constructs pumping station at Wazzani Springs
	Weaponization of water • Water as a military target • Water as a military tool	Israel bombs Jordan's East Ghor Canal repeatedly in 1969 Turkish military cuts off water supplies from Alouk station in Hasaka, Syria in 2020
	Creation of facts on the ground (e.g. infrastructure, settlements)	Construction of Israeli settlements in the West Bank physically disrupt Palestinian access to water resources
Utilitarian	Incentives	Turkish agreement of one-time water releases to Iraq to assist with electricity and agricultural purposes
Normative	Treaties	Interim Agreement on the West Bank and Gaza Strip, Annex III Article 40
Ideological	Securitization	Securitization of GAP in context of the Kurdish issue by Turkish government

	Sanctioned discourse	Israeli discourse of cooperation with Palestinians through the JWC
	De-politicization	Focus on technical issues in negotiations between Turkey, Syria, and Iraq

The distinction between many of the actions listed in the table above are blurred. For example, the securitization of water resources can be viewed as a type of sanctioned discourse, as evident in the Turkish discourse regarding GAP as a way to bring security to southeastern Anatolia and the broader region through the integration of the Kurdish minority and the eradication of support for the PKK. In this instance, the sanctioned discourse surrounding GAP also has the effect of securitizing hydraulic development. The effective utilization of hegemonic-compliance producing mechanisms is dependent on power. A hegemon's use of coercive compliance-producing mechanisms is dependent primarily on its ability to marshal various forms of material power such as military manpower, while ideological compliance-producing mechanisms draw heavily on ideational power. However, this is not to say that each type of mechanism is the result of the use of only one dimension of power, as in reality, the distinction between both the type of power and type of mechanism used are not clear. Often the deployment of a given mechanism is dependent on the hegemon's ability to draw on all three types of power. Israel's superior material and bargaining power enabled to dictate favorable terms in the water-related provisions of its respective agreements with Jordan and Palestine while its use of ideational power "sealed the deal" and ensured that these agreements would be viewed as positive examples of cooperation, particularly in the Palestinian case. The remainder of this section now turns to a more in-depth explanation of each type of mechanism and how it Is utilized by the hydro-hegemon.

Coercive-Compliance Inducing Mechanisms

Coercive-compliance inducing mechanisms rely primarily on material power to physically block or disrupt access to water resources by weaker parties. These mechanisms are a part of what Zeitoun and Warner (2006) call a resource capture strategy that often, but not always, involves the construction (or destruction) of infrastructure intended to change the reality on the ground. Coercive-compliance producing mechanisms may also be used as part of a containment strategy in which the stronger party

compels compliance from the weaker party through the use of tactics such as, inter alia, the use of or threat of military force. In the Jordan and ET basins, coercive-compliance producing mechanisms are used by hydro-hegemons through the use of three tactics: the weaponization of water, coercion, and the creation of facts on the ground.

Weaponization of Water. The weaponization of water refers to an actor's use of water as a way to defend oneself or gain advantage in a conflict in such a way that it's use is intended to cause harm or coercion to another party (DuBois King, 2017). As this section will demonstrate, the use of water as a weapon has occurred periodically in the Jordan and ET basins, with water being weaponized more frequently in both basins. According to Daoudy (2020), water can be weaponized through the use of four strategies. Water can be used to increase an actor's domination and legitimacy through its framing as a symbol of identity and as a way to consolidate power. Water can also be an object of military attacks, such as when dams or other infrastructure are intentionally damaged by military strikes to destroy an actor's capabilities and inflict damage on the broader population. Conversely, water can also be used as a military tool when water systems already in one's possession are used to coerce populations, support military strategy, and attain concessions from opponents. Finally, water can be weaponized as a tool of cooperation when such cooperation occurs at the expense of civilians and is used to support military objectives. While such strategies can and are used by state and non-state actors alike in both the Jordan and ET basins, in this section I will examine how water has been weaponized by hegemonic state actors and give consideration to how it has been weaponized by non-state actors later in this chapter.

In the Jordan and ET basins, water has primarily been weaponized by hegemonic actors as a military target and as a military tool. In this sense, its weaponization has formed an important component of the broader Israeli-Palestinian and Israeli-Arab conflicts in the Jordan basin in three distinct periods. As described in greater detail in chapter 3, unilateral development in the upper Jordan basin triggered several instances of violent conflict between Israel, Jordan, and Syria. When the Arabs began constructing the Arab Diversion plan to divert the waters of the upper Jordan in Lebanese and Syrian territory, Israel responded by bombing diversion equipment between 1964 and 1966 (Shemesh, 2004). The Israeli bombing campaign was successful at preventing further construction of the diversion project. A few years later, Israel used water as a military target again when it bombed Jordan's East Ghor Canal eight times between 1967 and 1970 in an attempt to pressure the Jordanians to expel the PLO, who had been waging a guerilla campaign against Israel (including Israeli water infrastructure) from

Jordan (Figure 32). In the third and most recent period in which Israel has utilized water as a weapon, it has conducted a destructive campaign against Palestinian water infrastructure in the West Bank. The water interactions database presented in chapter 5a documents 23 separate incidents from the last ten years in which the Israeli military confiscated or destroyed Palestinian wells, water tanks, pipelines, and other infrastructure in the Jordan Valley (see the water interactions database for the Jordan river basin online here). However, this number is likely much higher, as a brief search through data from the Armed Conflict Location and Event Data dataset (ACLED) indicates that the Israeli military seized or destroyed Palestinian water infrastructure 28 times in 2023 alone.[73] Although with less frequency, the Israelis have also used water as a military tool against the Palestinians by temporarily cutting off water supply to certain areas of the West Bank (e.g. WAFA, 2019).

Water has been weaponized in the ET basin in a similar manner by the Turkish government in the course of its conflict with armed Kurdish groups operating in northern Syria. The capture of large swaths of territory in northern Syria by the Syrian Democratic Forces and the declaration of the autonomous Kurdish region of Rojava have proven to be a significant cause of worry to the Turks, who fear that such moves could increase unrest and calls for Kurdish independence in the Kurdish-majority southeast of Turkey. To quell these concerns, Turkey began a massive military campaign against armed Kurdish groups in Syria in 2018. Part of this campaign involved the use of water as a weapon. In 2018, Turkish forces targeted water infrastructure Syria's Afrin region on at least three separate occasions, cutting access to drinking water and causing civilian casualties (see the water interactions database for the ET basin online here). In 2020, Turkey precipitated a water crisis in Hasaka when it shut off water supplies to over one million people after it seized the Al-Allouk pumping station during its military offensive against Kurdish groups (Human Rights Watch, 2020). Furthermore, between 2018 and 2023, Syrian and Kurdish officials accused the Turkish government on at least 10 separate occasions of deliberately cutting water supplies in northern Syria to advance military objectives (see the water interactions database for the ET basin online here). While not a comprehensive overview of Turkish military actions in Syria and the associated weaponization of water, this brief survey demonstrates that using water as a weapon has been a common strategy employed by the Turkish hegemon to advance its military objectives (and in doing so protect its water resource interests).

[73] When incidents involving the destruction of property by Israeli settlers are included, this number is almost twice as high.

Coercive-Compliance Inducing Mechanisms. Coercive tactics include threats of military action or economic sanctions and are commonly deployed by hegemonic actors. Their successful use depends on the ability of an actor to back up their threats with material power such as military and financial capital.

In the Jordan basin, the most commonly used coercive tactic is the threat to use military force, manifested through speech acts by state elites or by the actual deployment of troops. A prominent example of the former is found in the brief, but intense, dispute in 2002 over Lebanese withdrawals from the Wazzani Springs. Located across the Lebanese border with Israel near the village of Ghajar, the Wazzani Springs contribute about 40 mcm, or about 32 percent, of the Hasbani River's flow and are the river's only source of water in the summer (Medzini & Wolf, 2004). The springs, therefore, hold hydrological significance in the Jordan Basin and are of some strategic importance for Israel. In March 2001, Lebanon began diverting a maximum of 4.4mcm/year to Ghajar and other nearby villages. While these initial withdrawals elicited little concern from the Israelis, construction of the Wazzani Water Supply Project in summer of the following year evoked a much stronger Israeli reaction. The total capacity of the project represented a small amount in the context of the broader Jordan River system, with the pumping station designed to pump a maximum of .01mcm/day through a 16-inch pipe, and was well within Lebanon's 35mcm/year allocation agreed to by Israel (but not Lebanon) as part of the Johnston Plan (Blanford, 2002). However, the Israeli government responded to the plans for the pumping station by threatening war—rhetoric that Hezbollah matched on the Lebanese side. Israelis stated that completion of the project would constitute a casus belli, and IDF jets conducted flyovers above the construction site. Further hardline rhetoric followed; for instance, the head of Mekorot, the Israeli water company, stated that a "war or forceful confrontation" would occur if understandings were not reached on water allocation, while Foreign Minister Shimon Peres claimed, "we do not want a flare-up, but we will not give up water," (Blanford, 2002; Sedan, 2002). Escalation to violent conflict was avoided through mediation facilitated by the United States, United Nations, and the EU. By exacting threats of military action against Lebanon, Israel hoped to prevent future unilateral action by the Lebanese. This goal seems to have been largely accomplished as Lebanon has not yet made any move to construct further infrastructure or abstract more water from the springs.

The mobilization of troops, or the mere ability to mobilize a large military force, is a second coercive tactic that has been utilized in both the Jordan and ET basin by the hydro-hegemon. Between 1979 and 1987, Israel and Jordan mobilized troops along the banks of the Yarmouk River on five

separate occasions. The order in which who mobilized troops first was mixed; for example, Israel was the first to deploy troops along the river's banks after the first protracted disagreement in July 1979 over cleaning debris from the riverbed , while Jordan was the first to mobilize troops a few months later after Israeli farmers unilaterally blocked the intake of Jordan's East Ghor Canal with rocks (Sosland, 2007; see also the water interactions database for the Jordan basin online here). Regardless of who mobilized troops first, the fact that Israel possessed a military capacity far superior to that of Jordan's suggests that the deployment of troops was intended to coerce Jordan into acquiescing to Israel's wishes regarding how the riverbed should be cleaned and how water should be allocated. Most of the time, it worked.

In the ET basin, Turkey has never mobilized troops against downstream Syria or Iraq over water issues, although Turkey did threaten to invade Syria in the late 1990's in response to the latter's support for the PKK, which was implicitly linked to water issues (Siccardi, 2021). The fact that Turkey has never had to mobilize troops directly because of water issues and that neither Syria nor Iraq have threatened to use force against Turkey because of water is testament to the perceptions of material power asymmetry between the riparians. In other words, the anticipated response from Turkey that such a move from Syria or Iraq would elicit was perceived as too high a cost to bear. This reputational power, as Scott (2001) calls it, is an example of how the effects of power can be felt without its actual exercise and showcase how relatively stronger military capacity can act as an effective deterrent against unwanted actions from non-hegemons.

Creation of Facts on the Ground. Although not explicitly included as a separate mechanism in Zeitoun and Warner's (2006) typology of hegemonic compliance-producing mechanisms, I have done so here because facts on the ground have played a pivotal role in shaping hydropolitical realities and because of the emphasis interviewees placed on these elements. The creation of facts on the ground is a type of resource capture strategy that enables and increases a hegemon's control over water resources through actions that change the reality on the ground. This is generally accomplished through the acquisition of land and the construction of infrastructure.

In the Jordan basin, this has been achieved through the construction of Israeli settlements and the separation barrier in the West Bank and Israel's National Water Carrier. These "facts on the ground" have physically altered the landscape and increased the hegemon's access to water resources at the expense of other parties. Israeli settlements in the West Bank, while not established for the purpose of securing access to water per say, have had the effect of breaking up Palestinian access to limited water

resources. This has occurred both through their physical presence and through the ways in which the settlements are connected to Israeli water networks, as throughout the West Bank settlements are linked to Mekorot-owned water supply networks that circumvent neighboring Palestinian communities (HRC, 2021). Many Palestinian villages in Area C, which contains most of the West Bank's agricultural lands and water resources and is under exclusive Israeli control, are not connected to a formal water network and at least 60% of Palestinian residents rely on water trucking to obtain their water (OCHA, 2021). These challenges were highlighted by Palestinian interview participants, who noted that the realities of the Israeli occupation, including the continued construction of settlements, and the diversion of water from the Jordan River by the National Water Carrier, restrict Palestinian access to their own water resources (Participants 13 and 15, personal communication, September 20, 2023 and September 25, 2023).

In the ET basin, the network of dams in southeast Turkey constructed as part of GAP act as facts on the ground that increase Turkey's ability to utilize the region's water resources. The dams, despite Turkish arguments about the benefits they yield on downstream states, are sources of tension between Turkey, Syria, and Iraq, the latter two of whom have frequently complained they are not receiving their rightful shares of water from Turkey. Indeed, upstream development in Turkey was cited by three interviewees as being a significant challenge to water resources downstream, with two interviewees claiming that upstream development posed the largest challenge (Participants 10, 14, 16, personal communication, September 9, 20, and 27, 2023). One interviewee emphasized that the challenges posed by upstream development are greater than those posed by climate change: "So the two major challenges we encounter here in Iraq are the upstream development and then the climate change. And I'm using the word "then" because the portion of water reduction due by upstream development is greater than the climate change impact," (Participant 16, personal communication, September 27, 2023). Another participant further elaborated that the water crisis in Iraq cannot be explained by climate change alone and that the unilateral construction of dams by upstream countries has physically altered the landscape and hydrography of the basin (Participant 10, personal communication, September 9, 2023).

Utilitarian-Compliance Inducing Mechanisms

The least commonly used hegemonic-compliance inducing mechanism observed in either basin, utilitarian mechanisms form part of a hegemon's broader integration strategy for strengthening

compliance with agreements. They can be an effective means of securing compliance through incentives because of the benefits that can be obtained from water itself and its various uses (Zeitoun & Warner, 2006). Incentives can include diplomatic recognition, military protection, and the implementation of mutually beneficial hydraulic development projects. Such mechanisms are more typical of hydro-hegemonic arrangements characterized by shared control where the hegemon takes on a more positive, leadership (as opposed to a dominative) role in the basin like South Africa in the Orange river basin. As a result, they are not commonly used in the Jordan or ET basins where control of water resources is very much contested or consolidated by the hydro-hegemon and the resulting transboundary water arrangements are perceived more unfavorably.

The only identifiable instance where a utilitarian-compliance inducing mechanism was used is found in the ET basin, where Turkey has repeatedly provided downstream Iraq (and less frequently, Syria) with limited, one-time water releases for irrigation and hydropower purposes. These water releases are often short in duration, never continuous, and often occur in response to repeated Iraqi requests for more water or are linked to other, non-water related cooperative projects (Participant 10, personal communication, September 9, 2023). For example, in May 2009, Turkey agreed to release an extra 130m^3/sec from the Euphrates in response to persistent Iraqi complaints about drought (Mohammed, 2009). Importantly, the increase in flow was made around the same time that Turkish and Iraqi ministers were in cooperative talks regarding carrying out joint electric grid projects (Al-Iraqiyah TV, 2009). Given that Turkey is a relatively energy poor country, Iraq's large reserves of oil and natural gas make it an important partner in electricity production from the Turkish perspective, and the provision of extra water can be seen as a "carrot" designed to incentivize Iraqi cooperation in electricity production. More recently, Turkey has agreed to increase water flow from the Tigris river into Iraq. In 2023, Turkey once again agreed to increase flow from the Euphrates and in April 2024, the two countries signed an number of agreements, including a multi-billion dollar water agreement designed to help relieve the water crisis in Iraq through projects funded by Iraqi oil sales, and another on banning the PKK (Rudaw, 2024). This move indicates the close linkages between water, oil, and security in the Turkish-Iraqi relationship and suggests that water-related concessions on the part of Turkey can be elicited by Iraq through cooperation on energy and security issues.

Normative Compliance-Inducing Mechanisms

When states sign an agreement, they develop a normative obligation to adhere to the terms of that agreement. As such, normative compliance-inducing mechanisms, which normally involve the signing of an agreement between the hydro-hegemon and other riparians, are part of a broader containment strategy in which the hegemon seeks to institutionalize the favorable status quo (Zeitoun & Warner, 2006). A non-hegemon may perceive that entering into a treaty may yield certain benefits, such as the provision of water or a pledge of financial support for development projects, but in contexts where the power asymmetries between the riparian states are great, treaties are riddled with exploitative weaknesses at the expense of the non-hegemon. The structure of an agreement can reflect existing inequalities and then some combination of coercion and ideational power tactics can be used to cajole the weaker party into signing, while even a well-structured treaty can be difficult to monitor and enforce. Furthermore, bilateral treaties in a basin where there are more than two riparians exclude non-signatory parties and fragment water governance, potentially contributing to further conflict. As this section will show, agreements that have been signed in the Jordan and ET basins fall into these traps, as they are bilateral and contain clauses that perpetuate an asymmetrical status quo that favors the hydro-hegemon and, in some cases, disenfranchises the other party. The agreements and their consequences were referred to ten times by four different people in interviews, indicating their perceived importance. I will first discuss the two respective agreements that Israel has signed with Jordan and with the Palestinians and then turn to the numerous Memorandums of Understanding that Turkey has signed with Syria and Iraq.

Treaty of Peace between the State of Israel and the Hashemite Kingdom of Jordan. Article 6 and Annex II of the peace treaty between Jordan and Israel deal exclusively with water allocation, water quality, water storage, and the creation of a joint regime responsible for implementing cooperation. The details of the water-related provisions of the treaty are outlined in Chapter 3. The purpose of this section is not to reiterate what has already been said but rather to demonstrate how the treaty was used as a normative-compliance inducing mechanism by Israel to secure Jordanian compliance with an unfavorable status quo. This was done primarily through the prevalence of ambiguous language throughout the water-related sections of the treaty and the omission of groundwater and the mainstem of the Jordan river from the agreement.

While the 1994 peace treaty has largely been respected by both sides, it has not always been perceived as a good agreement by Jordanian officials (Zeitoun et al., 2019; Participant 18, personal communication, January 23, 2024). A main issue is that the treaty only addresses surface water from the Yarmouk river, despite the fact that Jordan is riparian to the entire Jordan river. Additionally, despite the high degree of hydrological connectivity between surface and groundwater throughout the Jordan basin, the treaty only addresses groundwater in the context of contested flows in Wadi Araba, and even then it is conceding more water to the Israeli side. The exclusion of these elements is intentional and legitimizes existing asymmetrical water use by Israel in the occupied Golan Heights and throughout the entire basin. Because of this exclusion, Jordanian water managers are restricted in their ability to ability to address water use and pollution originating from the headwaters of the Yarmouk in the Golan and its endpoint at the junction of the West Bank with the Jordan river (Zeitoun et al., 2019). Therefore, water quantity or quality issues that arise from these sources are dealt with in an ad hoc fashion and are subject to power asymmetries even more than the agreement itself because of the lack of a legally binding framework dictating how to proceed. As one interviewee observed:

> The agreement is not good for Jordan. I heard recently also because it only discusses the lower part of the Jordan river while Jordan technically is riparian to the whole river. Jordan made a mistake back in the day to not discuss also the upper part of the Jordan river because it's a river, so it makes no sense to divide it in different parts. But that maybe also the power of these back in the days of Israel putting on the table. So it's bargaining power and discursive power together and therefore making people imagine and believe they need to discuss only the lower part of the Jordan river. (Participant 18, personal communication, Jarnuary 23, 2023)

The agreement also makes no mention of Palestinian water use immediately downstream of Jordan, meaning that by virtue of signing the agreement Jordan has consented to the appropriation of Palestinian self-determination (Talozi et al., 2019). Through its successful exercise of bargaining and ideational power, Israel was able to craft a treaty with Jordan that seemed favorable to the Jordanians on the surface but in reality preserved a status quo that favored Israel's asymmetrical use of the basin through its narrow focus on the surface waters of the Yarmouk river and the exclusion of language regarding Palestinian water use downstream.

As is the case with many other legal documents, the 1994 agreement is riddled with ambiguous language. Some of the ambiguities helped facilitate acceptance of the agreement at the domestic level while others favor continued asymmetrical water use by Israel. One interviewee who was involved in the multilateral negotiations over water resources during the Madrid peace process, recalled the ambiguous nature of the peace treaty: "I went through it, you know, provision by provision, and there were many

places where I thought to myself, well, you know, if you're Israel, you could interpret this provision to mean one thing, and if you're Jordan, you would think it means another," (Participant 4, personal communication, June 5, 2023). They further go on to note that the ambiguities in the treaty could (and did) lead to misinterpretations about its provisions:

> And sure enough, when I visited Israel and Jordan after the treaty was signed, and I basically asked the Israeli negotiator, you know, what does this provision mean? What does that provision mean? And he would tell me one thing, and then I went to Jordan and I asked the Jordan negotiator the same question. He would say something different… And I said, basically, the bottom line is, when they get to that particular issue, they're going to have to negotiate all the details because you know, the treaty itself is unclear what it means. And that's in fact, you know, what ended up happening. (Participant 4, personal communication, June 5, 2023)

Article 6 and Annex II of the peace agreement are unclear about several elements. As a brief reminder, Annex II allocates Israel a total of 25mcm/year from the Yarmouk and an additional 20mcm/year from the Yarmouk in the winter that it would pump back to Jordan during the summer. Israel was also entitled to maintain its current uses of water from the Jordan river its confluence with the Yarmouk and the northern border of the West Bank, while Jordan was entitled to an equivalent annual quantity. In addition, Jordan was allocated 10mcm of desalinated water from Israel in the north as well as an additional 50mcm/year of water originating from an undetermined source.

Ambiguities in the agreement mainly relate to the above water allocation regime. For example, Annex II does not elaborate on Israel's historical water use of the Yarmouk or the version of the Johnston Plan[74] the treaty's allocations were based on (Fischhendler, 2008). By not clarifying Israel's historical use of the Yarmouk, decision-makers from both sides were able to present the agreement in a favorable light to domestic constituents. From a Jordanian perspective, Israel's water use would drastically drop to 25mcm from between 120-70mcm, while from an Israeli view, water use would decline from between 45-65mcm but would be augmented by the extra 20mcm provided in the winter time (Fischhendler, 2008). Additionally, from where Jordan's water would come was unclear. While the 20mcm/year exchange would implicitly come from the Sea of Galilee, the lake's name was not mentioned in the treaty to prevent Jordan from being named as a riparian. Second, the exact location of the 10mcm/year of desalinated water to be provided to Jordan was left vague, while Israel did not

[74] Recall that a summary of the plan distributed to Arab leaders capped Israeli withdrawals from the Yarmouk at 25mcm/year, while a summary distributed to the Israelis (and approved by them) limited Israeli withdrawals to 40mcm/year.

commit itself to funding the provision of this water.[75] Finally, where and how Jordan was to receive an extra 50mcm/year of water, as specified in Article 3, was left entirely undefined, making it entirely unclear where the water would come from (presumably desalination) and who would be responsible for its provision. The ambiguities embedded within the water clauses of the peace treaty accomplished the dual goals of favoring the more powerful actor while enabling both Israel and Jordan to present the terms of the agreement in a favorable light at home, thus boosting popular support at a critical hydropolitical juncture.

Interim Agreement on the West Bank and Gaza Strip. In September 1995, Israel and the PLO signed the Oslo II Agreement, in which Palestinian water rights in the West Bank were recognized and an allocation regime for the aquifers underlying the West Bank was developed.[76] However, in a manner similar to the Israel-Jordan peace treaty, the water-related clauses of Oslo II are shaped by significant power asymmetries that have skewed the agreement to favor existing Israeli water use at the expense of current and future Palestinian development. Under Oslo II, the West Bank was divided into three administrative areas – Areas A, B, and C – that each have a different system of governance. This has contributed to the fragmentation of Palestinian governance and access to water resources, as Area C, which compromises 60% of the West Bank and is under exclusive Israeli control, contains most of the area's agricultural lands and water resources (Rudolph & Kurian, 2022). This fragmentation contributes to sharp differences in water consumption between Palestinian communities, as the PWA is not able to deliver water to communities that are sometimes only a few kilometers away from ones it does service. In 2020, daily per capita water consumption is among the highest in Jericho District at 129.5 liters while some of the lowest consumption is in Hebron District at 51 liters (PCBS, 2020). The Oslo II agreement has further institutionalized an inequitable form of water governance through the regimes for water allocation and cooperation that it establishes. It is to these issues that this section will now turn.

The purpose of the present section is not to provide an exhaustive account of all of the ways in which power asymmetries are embedded in the Oslo II agreement but rather to provide a few illustrative examples of how the water governance regime created under Oslo II disenfranchises the Palestinians and why they signed onto an agreement that effectively legitimizes their domination (Selby, 2013). Article 40 in Annex III details a regime for the allocation of water from the aquifer system

[75] The exact text from the agreement regarding funding reads: "Israel will explore the possibility of financing the operation and maintenance cost of the supply to Jordan of this desalinated water (not including capital cost)," (Article 2d).

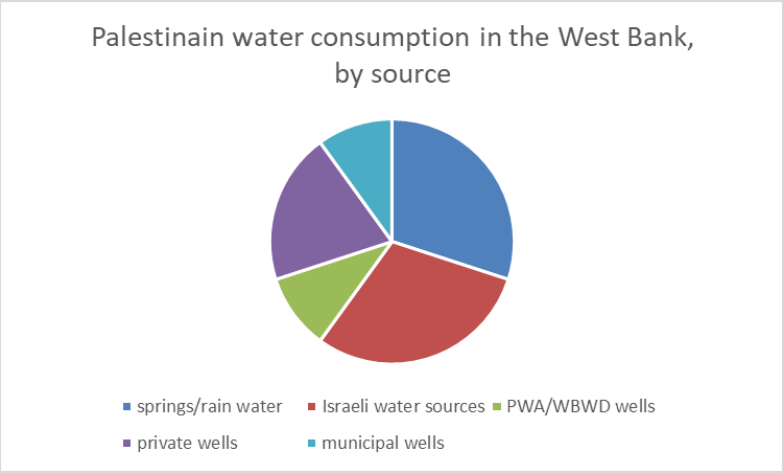
[76] Details of the water provisions of this agreement are recounted in Chapter 3.

underlying the West Bank and joint management of these resources. As in the Israeli-Jordanian water cooperation framework, the Oslo II agreement applies to only one resource to which both Israel and Palestine are riparian – the Mountain Aquifer. There is no policy coordination over the Jordan River, to which Palestinians are completely denied access, or the Coastal Aquifer that Israel shares with the Gaza Strip, meaning that the PA has no say in how these resources are exploited. This is regardless of the fact that their exploitation directly affects the quantity and quality of water subsequently left available for Palestinian communities. While Article 40 does lay out an allocation regime for the Mountain Aquifer, it is highly skewed towards Israel, as recounted in Table 12 in Chapter 3. In reality, Palestinians receive less than these amounts due to Israeli over-extraction and restrictions on Palestinian pumping; in 2020, 108.6mcm were pumped from groundwater wells[77] in the West Bank, and 77.1mcm were purchased from Mekorot to help make up for the loss (PCBS, 2020).

Not only are the allocations outlined in Article 40 clearly skewed in Israel's favor, their fixed nature prevents the water management system from adapting to natural changes or fluctuating water demands. It is significant to note that although large parts of the Western Aquifer are located under the West Bank (see Figure 16), Israel has been allocated 94% of the water captured by this aquifer under the argument that it has been tapping into the aquifer from its side of the border since the 1950's. The data provided in Table 12 serves as a poignant example of how Israel is able to exercise hydro-hegemony through its superior technical capabilities and disproportionate reserve of political power. As Zeitoun (2008) points out, the administrative structure of Palestinian water management organizations, such as the PWA and the West Bank Water Department (WBWD), means that these institutions must acquire approval from the Israeli government before building wells that could be used to harness water from the aquifers. Despite being the official Palestinian water provider, the PWA controls less than one-third of water produced and consumed in the West Bank (see Figure 49).

[77] This figure does not include pumping from illegal wells.

Figure 49: Palestinian water consumption in the West Bank by source. Source: Adapted from Zeitoun, 2008.



As Figure 49 indicates, Palestinians residing in the West Bank obtain most of their water either from Israeli water sources (including Mekorot) or from privately owned collection sources. Israel has been able to coerce the Palestinians into such inequitable agreements through its use of soft power; participation in such arrangements guarantees Palestinians at least some degree of control, however small. Additionally, Israel's superior pumping capacity has allowed it to withdraw vast amounts of water from the Western Aquifer in particular (Zeitoun, 2008).[78]

In theory, Israelis and Palestinians enjoy joint water management over West Bank water resources through the JWC, which operates on the basis of consensus. However, with the exception of grassroots Palestinian water collection practices that exist outside a formal framework, Israel maintains almost complete control of the area's water because it has full military and civilian control over Area C. Permits for the construction of new infrastructure within Area C are required from the JWC. Due to the organization's administrative set-up, these permits must be approved by the Israeli Civil Administration, which itself is subordinate to the Israeli military (Selby, 2013). As a result, almost three-quarters of land within the West Bank is subjected to a water supply framework that prioritizes Israeli military objectives over Palestinian developmental needs. This is evident in the highly skewed manner in which the JWC approves infrastructure projects. Of the 50 projects concerning the drilling or rehabilitation of wells in the West Bank submitted by the Palestinians between 1995 and 2009, only 32 were approved, and none

[78] See, for example, Table 12 in Chapter 3, which shows that in 2015 Israel abstracted more than 411mcm from the Western Aquifer and Palestinians abstracted 37.6mcm.

of these were located in the Western Aquifer basin (Selby, 2013). While it may seem like a favorable outcome that over half of the proposed projects were approved, the implementation of at least half were delayed by years and none of the applications for well rehabilitation were approved (Selby, 2013). Meanwhile, virtually 100% of Israeli infrastructure projects are approved. This highly asymmetrical water management framework has severely limited Palestinian water supply and has led to the politicization of water within Israeli and Palestinian policy-making circles, perpetuating a discourse that links water to both security and identity.

The consensus-based nature of the JWC means that in theory both sides hold veto power over the other side's proposed infrastructure projects. However, the PA does normally not exercise its veto power because Israel has made the approval of Palestinian infrastructure projects conditional upon PA approval of settlements and related facilities (Selby, 2013). In providing consent for the development of Israeli settlements, the Palestinians are effectively forced to consent to their own occupation. One interviewee provided a poignant example of how these dynamics play out on the ground and their effects on Palestinian livelihoods. In order for Palestinians to construct a wastewater treatment plant in Hebron, which is under Israeli military control, the Israelis requested that the treatment plant also treat wastewater originating from Jewish settlements. Not wanting to legalize the settlers' presence by treating their wastewater, the Palestinians refused to build the treatment plant. As a result, much of the area around Hebron, which has been described as the Palestinian Tuscany, remains heavily polluted from untreated wastewater emanating from Jewish settler and Palestinian communities alike (Participant 15, personal communication, September 25, 2023).

While such an arrangement can hardly be considered cooperative, as Selby (2003) accurately notes, Israeli-Palestinian water arrangements within the West Bank were presented as cooperative because the signing of the Oslo II Agreement conferred legitimacy onto the existence of such arrangements. In the eyes of the law, Israel and the PLO signed the agreement as free and equal parties, regardless of the reality that a gaping chasm existed between the parties' military, economic and governing capabilities. Israel's use of soft power, therefore, has caused water management arrangements, such as the JWC, to be made and persist without dispute, even though they are cooperative in name only.

Bilateral Agreements in the ET Basin. Cooperation over water resources is relatively more institutionalized in the Jordan basin than it is in the ET basin. While Turkey, Syria, and Iraq have signed

numerous bilateral agreements with each other, none of these agreements are legally binding[79] and, in many cases, the water-related provisions form a small part of the broader focus of the agreement. At the time of writing, seventeen instruments[80] have been signed between the riparian states of the ET basin, all of which are bilateral and most of which are Memorandums of Understanding, Meeting Minutes, or other non-legally binding instruments. Of particular interest in this section are the 11 agreements signed since 1987. In 1987, Turkey and Syria signed the Protocol on Matters Pertaining to Economic Cooperation which marked the first time Turkey committed in writing to letting a certain amount of water (500mcm/sec) flow through the Euphrates at the Turkish-Syrian border every year (Article 6). Furthermore, while Article 7 invites Iraq to the negotiation table, the agreement defers the settlement of a final allocation regime to an undetermined point in the future. This omission is no oversight and favors continued Turkish utilization of both rivers. Two years later, Syria and Iraq agreed that 58% of this flow would pass through to Iraq while the remaining 42% would be utilized by Syria (Law No. 14 of 1990). While Turkey largely adheres to this regime, the fixed nature of the allocation makes it difficult to strictly follow due to the natural variability in the Euphrates flow and climate change impacts (Participant 5, personal communication, July 24, 2023). As a result, periodic conflicts have occurred in which Turkey is accused of not letting the required 500mcm/sec flow downstream (see the water interactions database for the ET basin for more details). It is also significant to note that no such allocation regime exists for the Tigris river, a factor that has worked in Turkey's favor as it has concentrated its dam development in recent years along this river.

In more recent years, the Turkish, Syrian, and Iraqi governments have embarked on further cooperative initiatives. In 2009, four bilateral protocols over the waters of the Tigris and the Euphrates were signed between Turkey and Syria, and one MoU was signed between Turkey and Iraq. In general, these agreements represent a significant expansion of the scope of cooperation between the riparians, with attention given to important issues such as drought management, water quality management, and broader environmental protection (Kibaroğlu, 2019). However, they do not address the contested issues of water allocations and water rights, which sit at the heart of the water conflict in the basin. While the

[79] An agreement is considered legally binding if it is signed by state actors and meets the criteria for a treaty under the Vienna Convention. Under the Vienna Convention, treaties require ratification while other types of instruments such as Memorandums of Understanding (MoU) and Protocols do not. Another key distinction is that treaties are governed by international law while MoUs are not. Finally, a treaty may be embodied in one or more instruments while MoUs take the form of a single instrument and often detail technical matters or provide an operational arrangement.

[80] This number does not include colonial-era agreements that were signed by the colonial powers prior to independence.

2014 MoU between Turkey and Iraq stipulates that Turkey will supply the latter with "equitable and reasonable river waters" (Article 2a) according to an assessment of the status of water use and climate change in Iraq, the vague and ambiguous language intentionally leaves room for interpretation about what constitutes an equitable and reasonable amount of water. Furthermore, none of the agreements include a prior notification clause that would require Turkey to notify the downstream countries about development projects. In remaining silent about these issues, the agreements perpetuate a status quo that is favorable to upstream development in Turkey at the expense of water supply downstream.

Ideological-Compliance Producing Mechanisms

The final type of compliance-producing mechanism employed by hydro-hegemons in the Jordan and ET basins is perhaps the most effective at securing compliance and consent. Relying primarily on the exercise of ideational power, ideological-compliance producing mechanisms elicit an unquestioned acceptance of the hegemonic order regardless of what benefits or costs the non-hegemon might bear (Zeitoun et al., 2017). In the Jordan and ET basins, securitization, de-politicization, and the construction of knowledge and associated sanctioned discourse have been employed through the effective use of ideational power (and bargaining power as well) to secure compliance. While these strategies are presented separately in the section that follows, in reality they are often overlapping and one may well be the product of another. For example, constructing a certain discourse about how water should be managed and used can have the effect of securitizing or de-politicizing the resource. As this section will show, this is exactly what happened as a result of the discourse promoted by Israel and Turkey.

Sanctioned Discourse. Key to the effective exercise of ideational power is the creation and dissemination of discourse. Discourse provides its subscribers with a shared way of understanding the world by providing a blueprint for the interpretation of information and the development of coherent knowledge about a specific phenomenon (Dryzek, 1997). It is generated through repeated actions, events, and speech acts that together produce and reproduce "a particular set of practices and through which meaning is given to physical and social realities," (Hajer, 1997, p.44). Because discourse is fundamental to how people understand an issue, it plays a key role in determining which solutions are deemed acceptable and which are overlooked or framed as wrong. A sanctioned discourse is one that is supported by political elites and "represents what may be said, who may say it and how it may be interpreted, thereby leading to the creation of a dominant belief system or paradigm," (Turton & Meissner, 2002, p.39). The remainder of this section will now turn to a discussion of how sanctioned

discourse in each basin promoted the establishment of water arrangements that favor the hydro-hegemon.

Sanctioned Discourse in the Jordan Basin. In the Jordan river basin, we can see that Israeli hydro-hegemony is promoted by three different discourses: a discourse of water abundance that justified the settlement of large numbers of Jewish immigrants in Palestine, a discourse of water scarcity that spurred large-scale development projects and the securitization of water resources, and a discourse that highlights water cooperation between Israel and Palestine. Since the first two discourses are recounted in chapter 3, the focus here will be on the last, and perhaps most active in the present-day, discourse.

In the previous section, I argued that Israeli-Palestinian water cooperation under the auspices of the Oslo II agreement, while looking cooperative on paper, cannot truly be considered cooperative due to significant power asymmetries that effectively co-opted Palestinians into consenting to their own detriment. Despite this, the prevailing Israeli discourse frames the Oslo II water regime as an exemplary model of water cooperation and the lack of a resolution to the Palestinian water problem as the result of obstacles that originate primarily from the Palestinian side (see e.g. Kliot & Shmueli, 1998). It is true that the JWC has met regularly since 1995, even during periods of heightened political tensions, and that the JWC has approved Palestinian infrastructure projects and progress has been made in connecting Palestinian villages to water supply lines. However, Israeli presentations of these accomplishment often overlook crucial statistics that, when included, suggest that the extent of cooperation is not as great as it may appear. Take, for instance, Gvirtzman's (2012) observation that the JWC has approved 70 new production wells and 22 observation wells for the Palestinians and the laying of hundreds of kilometers worth of water supply pipelines.[81] The approval of such infrastructure marks an important step forward in improving the state of Palestinian water management, but when compared to Israeli approval rates for the same kind of projects (which were 100% between 1995-2008, compared to a 30%-66% approval rate for Palestinian well permits), much is left to be desired (Selby, 2013). This is not to mention the often years-long planning delays that follow the approval of Palestinian projects. This example shows the importance of paying attention to how data is framed and the need to present data pertaining to both sides so that a more nuanced understanding of the nature of Israeli-Palestinian water cooperation can be developed.

[81] Note that no date range is given for when these projects were approved.

A near-universal discourse supporting the development of Palestinian water resources as part of the peace process can be seen as another factor shaping the nature of Israeli-Palestinian water cooperation. This discourse, while not explicitly formulated by Israel, favors Israeli interests. Since 1995, the PWA has implemented water resource development projects in coordination with international donors. The limited technical and financial capacity of the PWA, as well as internal power struggles within the PA (Trottier, 2019), means that many of these projects would not be able to go ahead without external assistance. Because donors see their role in funding Palestinian infrastructure as supporting the peace process, they will not provide funding without JWC approval because this approval is required for all infrastructure projects under the terms of the Oslo II agreement (Selby, 2013). As a result, even internationally funded projects are subject to the scrutiny of the JWC and the Israeli Civil Administration. Sidestepping the JWC and undertaking unilateral development is not an option for the Palestinians.

***Sanctioned Discourse in the Euphrates-Tigris Basin*.** In the ET basin, asymmetrical use and development of water resources by Turkey is promoted by three separate, but related sanctioned discourses. First, a discourse promoting the framing of the Tigris and Euphrates rivers as constituting a single basin advances framings of the waters as unilaterally Turkish. Second, a discourse that closely links dam construction with state progress and ideas of Turkish nationalism has provided much of the motivation behind Turkey's impressive dam-building campaign over the last few decades. Third, shifting discourses surrounding the role of the dams themselves – as purely technical projects, as harbingers of increased socioeconomic development, and as an answer to the southeast's security problem – contribute to how the dams are viewed at home and abroad. Chapter 5b provides a detailed analysis of the hydraulic imperative discourse and the security discourse surrounding GAP, and Ilisu Dam in particular. Therefore, this section will focus on the discourse promoting the Euphrates and Tigris as one basin and the technical and socioeconomic aspects of dam development.

The Tigris and the Euphrates – One Basin or Two? The question of whether the Tigris and Euphrates rivers form one basin or two sits at the heart of the water conflict between Turkey, Syria, and Iraq. From a hydrological and a hydropolitical perspective, Turkish officials and scholars emphasize the need to consider the Tigris and Euphrates rivers as forming a single, joint system (e.g. Bilen, 2000; Kibaroğlu, 2002), while Iraq (and Syria) views the rivers as separate (Dolatyar & Gray, 2000). As one Iraqi interviewee described, it is in Iraq's interest to consider the rivers separately during negotiations so that it can obtain "a reasonable shared water [allocation] from each one separately. We don't want to combine the number," (Participant 16, personal communication, September 27, 2023). Considering the

Tigris and Euphrates as a joint system highlights Turkey's status as a major contributor to both rivers, while considering the river separately would mark Iraq as the majority contributor to the Tigris. Given that some of the legal basis for claiming shares of transboundary waters rests on how much contribution a particular state makes to a transboundary basin, Turkey has a clear political interest in claiming to make a majority contribution to the joint Tigris-Euphrates system (Harris & Alatout, 2010).

From a Turkish perspective, the discursive construction of the Euphrates and Tigris rivers as a joint, Turkish system (rather than a shared, international system) links back to Kemalist ideals of nationalism and statebuilding that directly link water as integral to the sanctity and legitimacy of Turkey. Recall that, as explained in greater detail in chapter 5b, the taming of water resources vis a vis the construction of dams is seen as a symbol of state progress and pride. These views are embedded in a discourse espoused by Turkish political elites that frames the Tigris and Euphrates as Turkish resources under Turkish sovereignty.[82] Furthermore, the official position of the Turkish government on transboundary water issues is that "each riparian state of a transboundary river system has the sovereign right to make use of the water in its territory without giving 'significant harm' to other riparian countries," (MFA, n.d.). This narrative justifies the extensive unilateral development that has taken place along the rivers' course in southeast Anatolia. The fact that framing the Tigris and the Euphrates as consituting one basin has been normalized in the international discourse is testimony to the effective exercise of ideational power by the Turkish government (Hommes et al., 2016).

Shifting Dam Discourses. In the four decades since GAP was launched, the official discourse about the project's purpose and scope has shifted. This narrative has evolved in parallel with the Turkish government's changing priorities, fluctuating conditions on the ground in southeast Anatolia, and an evolving global discourse about the role of large-scale hydraulic development in promoting socioeconomic development and sustainablility. When GAP was first started in the 1970's, it was conceived as solely a technical project aimed at developing the land and water resources of southeastern Turkey (Bilgen, 2018b). The southeast of Turkey is blessed with relatively abundant agricultural land and water resources with greath hydropower potential, a fortuitous combination that led to the original formulation of GAP as a bundle of land and water development projects aimed at harnessing the area's vast hydropower potential to boost domestic energy production and increase the

[82] Consider, for example, the following statement made by then-President Suleyman Demirel at the opening ceremony for Atatürk Dam: "Neither Syria or Iraq can lay claim to Turkey's rivers any more than Ankara could claim their oil. This is a matter of sovereignty. We have a right to do anything we like…. They cannot say they share our water resources."

region's irrigated land from 2.9% to 22.8% (Kibaroğlu, 2002). GAP's original placement under the management of Turkey's State Hydraulic Works (DSI) is testimony to its initial narrow, technical focus.

In the early 1980's, GAP was transformed into a multisectoral, socioeconomic development program. As outlined in the first Master Plan published in 1989, GAP acquired additional objectives such as raising income levels in the GAP region, increasing productivity and employment opportunities in rural areas, increasing the capacity of large cities in the region to absorb migrants, and contributing to sustained economic growth and social stability through the efficient use of natural resources (Nippon Koei & Yüksel Proje, 1990). As a result of its restructuring into a multisectoral program, GAP was placed under the auspices of the newly established GAP Regional Development Administration (GAP-RDA), a move that reflected its transition away from its purely technical beginnings. In tandem with a shifting global discourse regarding development and the growing importance of sustainability, GAP was transformed yet again into a sustainable human development project in the 1990's (Kibaroğlu, 2002). This transformation is reflected by official discourse that frames GAP as building "on the philosophy of sustainable human development committed to creating environments that future generations will benefit and capitalize on. The underlying strategy in the GAP encompasses fairness and participation in development, environmental protection, employment, spatial planning, infrastructure development, public-private partnership and people participation in investments," (GAP-RDA, n.d.).

By framing GAP as a sustainable human development project, the Turkish government promotes a discourse of dams as positive additions to the waterscape of southeast Anatolia. Statements by top decision-makers paint a peaceful picture of the GAP region as one of abundance and prosperity thanks to the change brought by GAP. For example, then-president Süleyman Demirel stated in the mid-1990's "When we look from here in ten years, we will see a sea down there. This sea will be a green sea. In it, there will be bread, abundance, pearl-like cities, pearl-like villages, pearl-like towns, and bright people. That corner of our Turkey will be decorated like a garden," (Turgut, 2000, pp. 154-155). Perspectives from over a decade later reflect this sentiment and the socioeconomic development dimensions of GAP:

> There are bright days ahead in GAP's future. We march towards a GAP in which we use our potential at maximum level; we build richer and better cities; we have a more diverse and colorful environment with universities, civil society, the media, and activities of culture and arts; and our people, specifically our youth and women, participate much more in social and economic life (GAP-BKİ, 2012b, p. 7).

Official narratives that paint GAP as the source of improved quality of life in the GAP region frame GAP as a beacon of state progress against the context of the underdeveloped southeast. For

example, Target 1 of the GAP Social Action Plan explains that one purpose of GAP is "to enhance the presence and influence of modern organizations and institutions in order to remove those traditional ones that impede development" (GAP website, 2013: Objectives of GAP, Target 1). This binary pitting of the state against the local disenfranchises local forms of knowledge as irrelevant and backward while farming the state as the sole source of progress and modernization. This discourse has the effect of increasing dependency on the state, a dependency that many of the ethnic minority groups living in the GAP region (such as the Kurds) vehemently protest. By devaluing traditional ways of life, this narrative also contradicts one of the stated strategies of GAP to encompass "fairness and participation in development," (GAP-RDA, n.d.). Studies have demonstrated that while GAP may have enacted limited improvements on the socio-economic status of the GAP region, it has struggled to even the development gap between the southeast and the rest of the country (Erçin, 2006; Miyata & Fujii, 2007). Furthermore, the official narrative surrounding GAP continues to frame it as an apolitical project[83] designed to benefit the entire GAP region despite counter-narratives claiming that GAP was implemented to supress the problem of Kurdish nationalism (see Chapter 5b and also e.g. Bilgen, 2018b; Mutlu, 2001; Warner, 2004). However, through the expression of ideational power via the construction of sanctioned discourse, the Turkish government is able to unconditionally paint GAP in a positive light.

Securitization. Securitization can be a powerful hegemonic-compliance inducing mechanism because it frames an issue as a national security concern, legitimizing a state to take extraordinary action (Buzan et al., 1998). It is a type of discourse in that it enables a securitizing actor to create knowledge around an issue to align with other, seemingly unrelated political interests. Securitization occurs when a securitizing actor, such as a public official, makes a speech act elevating an issue into the realm of national security and thereby rendering usual approaches to resolving the problem null and void. Thought of in this way, as something that is created (and contested), security is not an objective absolute but is rather constructed through social processes (Warner, 2004). Water is often subject to securitization because of its fundamental importance to numerous processes and because it is easy to imagine as being in crisis, especially in water scarce areas. Securitization relies on the effective use of ideational power to obtain acceptance from the intended audience, even when this acceptance may be

[83] See, for example, an argument made by a former head of GAP Regional Directorate that "politicians cannot have any influence on engineering projects … it is naïve to think of dams as security providers or blockages against someone [the Kurds]," (Bilgen, 2018c, p.10).

implicit and the recipient unaware of their internalized belief. In this section, I will briefly discuss how water has been securitized in various instances by the discursive elite in the Jordan and ET basins.

Securitization in the Jordan river basin. The most apparent example of securitization of water resources in the Jordan river basin can be found in two examples. The first of these is the early linkages made between water and security by Zionist lobbyists. Acquiring complete control over all of the water resources of the Jordan river was seen as a necessary prerequisite for the creation of a Jewish state by early Zionist politicians, who argued that "the whole economic future of Palestine is dependent on its water supply for irrigation and electric power, and the water supply must be from the slopes of Mount Hermon, from the headwaters of the Jordan and the Litani River," (UN 1992, in Frederiksen (2003: 71)). The importance of securing water resources for a future Jewish state is further reinforced in a report by Aaron Aaronson, a Romanian-born botanist turned British spy whose work was instrumental in demarcating the borders of Mandatory Palestine:

> "in Palestine, like in any other country of arid and semi-arid character, animal and plant life, and therefore, the whole economic life directly depends on the available water supply. It is, therefore, of vital importance not only to secure all water resources already feeding the country, but also to ensure the possession of whatever can conserve and increase these water - and eventually power - resources" (Aaronson 1919 from the Zionist Archives, in Wolf 1998, p.227).

Even prior to the establishment of the state of Israel, water was securitized through language that unequivocally asserted that without adequate water resources, the Jewish state would not thrive. This hydro-strategic narrative remains in force today, serving as a continued justification for Israel's occupation of the Golan Heights and a compelling explanation of the limited but highly conflictual nature of water interactions between Israel and Lebanon. Recall that, after occupying the Golan Heights in 1967, two of the three headwater tributaries of the Jordan river lay within Israeli-controlled territory. Israel has a clear water-related interest in maintaining control of the Golan, an interest which complements its other, perhaps more important, military, religious, and strategic interests in the occupation (Zeitoun et al., 2012). The remaining tributary, the Hasbani, flows just kilometers across the border in Lebanon. Securitization of water resources further served to motivate Israel's highly violized response to Lebanese withdrawals from the Wazzani Springs in 2001 and 2002, as described earlier in this chapter. The hydro-strategic narrative has thus continued to thrive for decades following Israel's capture of the hydro-strategic territory in the Golan. This, combined with the fact that Lebanon has not attempted to abstract water from Jordan river system since the Wazzani Springs incident, suggests that

the hydro-strategic discourse (and subsequent securitization of water) has preserved a status quo in water utilization along the upper Jordan that is favorable to Israel.

Securitization in the ET River Basin. Securitization of water resources in the ET basin by Turkey has occurred at both the domestic and international levels. Domestically, securitization is most apparent in Turkish framings of hydraulic development as a harbinger of state progress. The great emphasis attached to the energy generating potential of GAP is a further example of how water resources are securitized. Given Turkey's lack of natural gas and oil reserves, the energy security dimension of GAP holds great importance for a country desiring to increase domestic energy production and become a regional center for energy trade. As discussed at greater length in chapter 5b, the Kurdish issue adds another security dimension to GAP. A perceived connection between underdevelopment and continued conflict in the southeast between the Turkish government and the PKK has generated a narrative that portrays GAP as a potential solution to the conflict. As succinctly summarized by a former president of GAP-RDA:

> [a]s people [had] more income and a unemployment better social life, they stay[ed] away from terrorism. In other words, and underdevelopment in the region [were] sources that [fed] terrorism. As GAP [would] advance, people's social life, income level, and quality of life [would] change. Why would a person whose quality of life and lifestyle improve be interested in terrorism?

Official narratives from GAP policy documents reinforce this linkage between hydraulic development and national security. The GAP Social Action Plan, conceived in the early 1990's, notes that GAP would "greatly contribute to the solution of the backwardness and unemployment problems of the region, and in turn [would] dry up economic and social sources of terrorist activities," (1995, p.3). The more recent GAP Action Plan 2014-2018 reflects this securitization discourse, with an emphasis on the long-term stability that GAP could bring by stating that an overall goal of GAP was to "make our completed projects lasting, sustain the peaceful environment by increasing welfare level, and strengthening the brotherhood," (2014, p.3).

At the international level, the securitization of water resources is most evident in patterns of water conflict and cooperation between Turkey and Syria. As elucidated in Chapter 5b, increased hydraulic development in Turkey along the Euphrates was often matched by an increase in Syrian support for the PKK. The securitization of water resources by the Syrians in response to upstream development was matched by a parallel securitization process among the Turkish discursive elite, whose coupling of water to security issues has led to the establishment of a precedent under which Syrian

support for the PKK is met by a decrease in the flow of water down the Euphrates. As the upstream riparian, Turkey has the ability to enforce such a favorable arrangement precisely because of the way in which water is securitized on both sides.

De-politicization. De-politicization of the water conflict is a third ideological hegemonic-compliance inducing mechanism employed by hydro-hegemons, although in this case the use of this tactic was observed only in the ET basin by Turkish decision-makers in their interactions with the downstream riparians. A politicized issue is one that has made its way onto the government's public policy agenda so that it requires government attention (Buzan et al., 1998). Conversely, an issue is de-politicized when the politics are taken out of it in favor of addressing the issue from a more objective, scientific perspective (Wegerich & Warner, 2010). Within a hydro-hegemonic setting, de-politicization is often employed by the hegemon in response to the politicization of water resources by a weaker party, a move which can give the non-hegemon more bargaining power.

In the ET basin, the politicization of water disputes by Syria and Iraq has often been met by a corresponding de-politicization within the Turkish discourse. This is best seen in the ways in which hydraulic development in Turkey has been portrayed by the Turkish in a very technical light. A highly uneven spatial distribution of water resources within Turkey and throughout the ET basin make the building of large reservoirs necessary. Furthermore, the GAP dams provide important flood control functions that benefit the downstream states (Participant 5, personal communication, July 24, 2023). Water resources are also de-politicized by the Turkish side during official negotiations by keeping the focus on technical issues. This strategy becomes evident when one looks closely at the content of the MoU's that have been signed in the past 15 years between Turkey and Syria and Turkey and Iraq. While the issue scope of these documents is quite impressive, as explained previously in this chapter, the issues that are addressed are highly technical in nature. Contentious issues such as water rights and allocations have not been included in an agreement signed by Turkey since 1987. As noted by one interviewee, keeping the focus on technical issues can allow more progress to be made when bringing politics to the table makes negotiations difficult (Participant 9, personal communication, August 15, 2023). The de-politicization of water at the negotiation table by Turkey therefore serves a dual purpose; on the hand, it facilitates cooperation and promotes some semblance of progress (therefore appeasing Syria and Iraq) and on the other, it preserves a status quo that is favorable to continued Turkish development by leaving the controversial issue of water allocations unaddressed.

Enabling Factors Behind Non-State Actors' Growing Involvement in Transboundary Water Interactions

Having analyzed the mechanisms used by hegemonic actors to impose and maintain hydro-hegemonic arrangements in the Jordan and ET basins, the remainder of this chapter will investigate how non-hegemonic actors resist and contest these arrangements. Historically, the literature on counter-hegemony has focused on the actions undertaken by state actors to protest hegemonic arrangements. This focus overlooks the rich diversity of non-state actors who are negatively affected by hydro-hegemonic activities and who take actionable steps to counter these arrangements. Such actors include non-governmental organizations, transnational corporations, illicit and armed groups, export credit agencies (ECAs) that fund hydraulic infrastructure, epistemic communities, and ordinary citizens. By expanding the scope of my analysis to include these groups, my aim is to contribute to a small but growing literature that concerns itself with how hegemony is contested by actors who operate outside the confines of the state (see e.g. Conker, 2014; Rudolph & Kurian, 2022; Warner, 2012; Zawahri & Hensengerth, 2012). Given that the majority of the forthcoming analysis in this chapter will focus on actions undertaken by non-state actors, it is worth first discussing how and why these actors were able take on a more active role in transboundary water conflict and cooperation in the first place.

With the exception of the last two or so decades, transboundary water interactions are something that have taken place almost exclusively between state actors in the Jordan and ET basins. A number of factors, what Conker (2014) refers to as political opportunity structures, facilitated the growing involvement of non-state actors in transboundary water conflict and cooperation. Some of these are unique to a particular basin while others originated from the broader global order. One element that has increased the influence of non-state actors in the Jordan basin, at least from an Israeli perspective, was the evolution of a discourse emphasizing the importance of tackling problems relating to water quality and environmental degradation (Feitelson, 2002; Coskun, 2009). The decline of agriculture's dominance in Israeli water policy starting the 1970's and the start of the Israeli environmental movement around the same time brought awareness to the shared interdependencies on water resources, especially the Mountain Aquifer, and the need for a joint solution to a jointly caused problem. This awareness, complemented by a cooperative political atmosphere enabled by the peace process, helped catalyze the formation of numerous environmental NGOs in the 1990s. Perhaps most important among these was the creation of EcoPeace, a joint Israeli-Jordanian-Palestinian NGO dedicated to harnessing shared environmental problems as a platform for dialogue and peace. As evident in Figures 30 and 42, the role of non-state actors such as EcoPeace in promoting cooperation

greatly increased in the 1990's and beyond. The important work conducted by these organizations was enabled by a growing awareness and political will to tackle environmental problems in the Jordan basin, and contributed to a pattern of cooperation that, in the basin as a whole, has continued to increase.

One factor particular to the ET basin in facilitating the growing involvement of non-state actors in transboundary water issues was the privatization of the Turkish water sector. Institutionalized in the mid-1990's, privatization led to the opening of new spaces for engagement by the private sector and other non-state actors. Under a privatization model, the state sells its water assets to private companies who take over their operation and maintenance. When it comes to the privatization of infrastructure, the build-operate-transfer (BOT) model can function as an invited space where private sector entities are invited by state elites to participate in decision-making and finance large infrastructure projects (Durdyev & Ismail, 2017). In other instances, non-state actors create new claimed spaces of their own as they seek to capitalize on new opportunities for participation in water resource management. In the Turkish case, the inability to secure funding for GAP from outside sources such as the World Bank, who require the consent of downstream riparians before funding infrastructure projects, provided a motivation for privatization. This privatization opened the door to private European construction companies such as Balfour Beatty and Impreglio and export credit agencies (ECAs) that covered the cost of risks associated with projects (Warner, 2012). However, privatization also made foreign investors vulnerable to the pressure of international NGOs and other transnational advocacy networks calling for foreign companies to be accountable for their corporate governance practices. In a privatized setting, advocacy groups were able to more easily exert their influence precisely because decision-making was no longer confined to the state and private companies were involved (Participant 2, personal communication). Indeed, private European companies such as Balfour Beatty and Swiss UBS Bank pulled out from the Ilisu dam venture shortly after the release of a 2001 environmental impact assessment that failed to meet credit guarantees, effectively stalling the project for several years (Eberlein et al., 2010).

Another factor that contributed to the rising influence of non-state actors in the ET basin was the global anti-dam movement that began in the 1970's. The widespread activism against the Ilisu Dam highlighted in this study is far from an isolated movement and should be viewed in the broader context of a struggle waged by opposition networks at multiple scales (Conker, 2014). The establishment of the World Commission on Dams (WCD), itself a response to the global anti-dam movement, and WCD guidelines created a normative framework to guide hydraulic development, providing discursive power to transnational advocacy networks protesting dam construction. In the Ilisu Dam case, these guidelines

provided the environmental impact assessment criteria against which ECAs involved in funding the project expected the Turkish government to measure up (Scheumann, 2008). Failure to satisfactorily meet these guidelines was one of the reasons why external funding projects for Ilisu Dam dried up, demonstrating how global norms on dam construction promoted by organizations like the WCD increased the bargaining power of anti-dam activist networks.

The growing salience of the global environmental movement and the subsequent rise of advocacy networks and NGOs dedicated to preserving and protecting the environment has also contributed to opening new spaces of engagement for non-state actors in the Jordan and ET basins. A slew of international conferences and summits in the 1990's thrust ideas about environmental protection, sustainability, and grassroots involvement in decision-making into the global spotlight. At the same time, the water wars discourse that was prevalent in many academic, policy-making, and media circles (see e.g. Gleick,1993; Homer-Dixon, 1994; Ki-Moon, 2007 in UN News, 2008) stoked fears that, left unchecked, deteriorating water quantity and quality would provide an impetus for armed conflict, especially in water scarce regions like the Middle East. This combination of elements galvanized governments and civil society alike into action, sparking a wave of political will[84] and activism that translated into concrete actions taken to prevent such predictions from materializing. In the Jordan and ET basins, these phenomena broadly coincided with the development of a political atmosphere that was more favorable to the participation of non-state actors in decision-making processes. For example, in the Jordan basin, the start of the peace process in the 1990's sparked a wave of optimism that facilitated cooperation between Arabs and Israelis that had hitherto seemed unthinkable (it is no coincidence that EcoPeace was established in 1994). In the ET basin, the privatization of the water sector in Turkey opened new spaces for engagement, as discussed previously, while the cessation of the state of emergency in southeast Anatolia in 2002 increased freedom of speech and movement, providing civil society with an opportunity to mobilize and protest dam development. Furthermore, the EU integration process undertaken by Turkey in 2000 as part of its bid to join the union has encouraged greater civil society involvement in water decision-making (Keyman, 2005).

A final political opportunity structure that has conditioned the influence of non-state actors is social media. The winds of revolution that rapidly swept through the Arab world in 2011 are testament to the power of social media as a tool for uniting people to a common cause and enacting change. The

[84] It is not coincidence, for instance, that the number of treaties signed over transboundary waters peaked in the 1990's, with 144 agreements signed in this decade (TFDD, 2024).

proliferation of social media and related communication tools has enabled the exchange of information in real time between people living in all corners of the world, facilitating contact between spatially isolated groups. One interviewee pointed out that technology makes it easy for non-state actors to interact, creating "a diagonal relationship beyond states because existing technology enables them to come together, just like we are doing our interview," (Participant 2, personal communication). As a result, the collective power of non-state actors has increased.

Mechanisms of Resistance and Counter-Hegemony

In this section I will discuss the mechanisms used by non-hegemonic actors in the Jordan and ET basins to resist and contest the hegemonic arrangements imposed upon them. I will analyze the strategies employed by state and non-state actors alike to provide a fuller picture of how hegemony is contested and determine if different tools are available to them. As shown in Figure 49, my typology of counter-hegemonic actions contains three mechanisms, each employed through a variety of associated actions. Table 18 provides a non-exhaustive list of examples:

Table 18. Examples of counter-hegemonic actions.

Mechanism	**Tactic**	**Example**
Coercive	Covert action	Syrian support of PKK
	Weaponization of water	Bombing of infrastructure and capture of dams by ISIS
	Creation of facts on the ground	Construction of Arab Headwaters Diversion Project
	Non-violent actions	Protests in Jordan against water cooperation with Israel
Leverage	Diplomatic tactics	Active diplomacy – Iraq actively pursuing negotiations with Turkey

	Using legal instruments	Backing up negotiating positions with international law (Iraq, Palestine)
	Alliance formation	Formation of transnational advocacy networks to protest Ilisu Dam
	Advocacy	Raising public awareness; Lobbying decision-makers
	Capacity building	Empowering local actors through skills-building workshops
Transformative	Creation of new spaces for dialogue	NGOs host workshops that provide an alternative space for dialogue
	Construction of expert-based knowledge	Production of scientific reports by NGOs
	Counter-sanctioned discourse	Framing Ilisu Dam as a human rights issue
	Promotion of alternatives	Water-for-energy linkages (e.g. Green Blue Deal proposed by EcoPeace)

As with the tactics used by hegemons to create and maintain hegemonic arrangements, the counter-hegemonic tactics in the table above should not be seen as mutually exclusive. For example, the promotion of an alternative arrangement to a hegemonic order is often utilized in parallel with an

accompanying discourse legitimizing the alternative arrangement. Similarly, by hosting conferences and workshops that are attended by representatives from different sectors of society, NGOs create new spaces for dialogue that may lead to the establishment of alternative discourses or ideas for alternative arranagements. Furthermore, the effective utilization of counter-hegemonic mechanisms is dependent upon the effective exercise of power. What non-hegemons may lack in material power resources they make up for in a creative exercise of bargaining and ideational power, as evidenced by the diversity of actions that utilize these types of power (see Figure 49). Indeed, the fact that non-state actors are not confined to the realm of the state and can cut across political boundaries may contribute to the large arsenal of leverage and transformative mechanisms used by non-hegemons. However, as I will demonstrate, some non-state actors rely heavily on material power and even utilize some of the same tactics that hegemonic actors do, such as weaponizing water. The remainder of this chapter will turn to an in-depth analysis of the different types of counter-hegemonic mechanisms used.

Coercive Mechanisms of Counter-Hegemony

The coercive mechanisms of counter-hegemony at play in the Jordan and ET basins are the use of covert action, weaponization of water, the creation of tactics on the ground, and the use of non-violent tactics such as protests and troop mobilization. Some of these mechanisms, such as the weaponization of water, are similar to those employed by hegemons, and all of them rely primarily on material power to be enacted. As with coercive compliance-producing mechanisms, coercive mechanisms of counter-hegemony are meant to compel involuntary action through the threat of or use of force (Zeitoun et al., 2017).

Covert action. Covert action involves the clandestine support of actions that weaken a hegemon's military, political, or hydraulic assets (Zeitoun & Warner, 2006). This can be done either directly or indirectly by offering support to a third party. Syria's support of the PKK during the 1980's and 1990's is often cited as a classic example of covert action (see e.g. Daoudy, 2009; Kibaroğlu & Scheumann, 2013). By increasing logistical support to the PKK, which carried out significant attacks against Turkey from Syrian soil during this time period, Syria hoped to pressure Turkey into entering a water agreement and increase the flow of the Euphrates across the border. Although Syria was eventually coerced into signing the 1998 Adana Protocol and formally end its support for the PKK after Turkish threats to use military force, it is important to note that Syrian support for the PKK constituted arguably the most significant obstacle to Turkish-Syrian water cooperation.

Weaponization of water. Recall that water can be weaponized in four ways: it can be used to promote a group's legitimacy by framing it as a symbol of identity and power, it can be a target of military attacks, it can be used as a tool to advance military objectives, and cooperation over it can be used to inflict harm (Daoudy, 2020). Non-hegemons in both the Jordan and ET basins have weaponized water to varying degrees in response to unilateral development conducted by the state and to increase their own legitimacy. Unlike the basin hegemons, who rely primarily on using water as a military target and a military tool to advance their objectives, non-hegemons (who in this case are mostly non-state actors) utilize all four of the above-mentioned weaponization strategies.

Water as a tool of legitimacy. After announcing the establishment of a caliphate stretching across Syria and Iraq, ISIS was faced with the problem of how to portray itself as a legitimate state entity. In practical terms, this meant navigating the responsibility of providing basic services such as water and electricity and otherwise proving itself as a legitimate ruler to a people weary of authoritarian rule. One way this legitimacy was created was through acquiring control over water and hydropower resources and their supply (Daoudy, 2020). The association of water security with political legitimacy and emphasis placed on large-scale agriculture and food security by the Ba'ath regime in Syria left behind a network of water infrastructure that made it easy for ISIS to consolidate its power. By capturing large dams and hubs of hydropower production such as Tabqa and Tishreen Dams in Syria and Mosul and Haditha Dams in Iraq, ISIS was able to secure a stable supply of water and electricity for the population under its rule, bolstering its legitimacy as a ruling power. These networks of infrastructure also served as a means of domination, as ISIS often withheld water from newly captured areas until its authority was accepted (SFG, 2014).

Water as a military target. As explained in chapters 5a and 5b, hydraulic infrastructure was often the object of attacks by non-state actors in both basins. In the Jordan basin, the PLO's first military action was to bomb Israel's National Water Carrier in 1965, and in 1969, it destroyed part of the Rutenberg hydropower plant at Naharayim, cutting off water access to nearby Israeli settlements for three weeks (Jerusalem Post, 1969). However, most cases of water weaponization in the Jordan basin have occurred as a result of attacks on Palestinian water infrastructure by Israeli settlers. Data from ACLED indicate that Israeli settlers vandalized or destroyed Palestinian water infrastructure, and often agricultural lands at the same time, on 45 separate occasions in 2023 alone (ACLED). Oftentimes, settlers are protected by the Israeli military as they engage in acts of vandalism. These instances of property seizure and destruction are part of a broader process of occupation designed to create facts on the

ground that disenfranchise Palestinian livelihoods and physically breakup territory that might be included in a future Palestinian state.

Since the outbreak of civil war in Syria, armed groups in the ET basin such as ISIS and the SDF have used water as a military target in their campaigns against regime forces and against each other. This usually involved the capture of large dams, as detailed in chapter 5b and in Table 19 below, and often served the dual purpose of advancing military strategy and consolidating authority and legitimacy.

Table 19: Overview of conflict over important dams in Iraq and Syria (compiled from: Alkhshali & Smith-Spark, 2015; Ghazani & Waldenberger, 2021; Reuters, 2015; von Lossow, 2020).

Name/Location	**Purpose**	**Key Events**
Dams in Syria		
Ba'ath	Hydropower, regulate irregular flow from Tabqa Dam	February 2013 – ISIS captures Ba'ath Dam June 2017 – SDF-led forces capture dam from ISIS 2019 – Control of dam given to Syrian government after Turkish invasion of northern Syria
Tabqa	Hydropower	February 2013 – ISIS captures Tabqa Dam March – May 2017 – Battle of Tabqa waged by SDF-led forces against ISIS; ends in capture of dam from ISIS

Tishreen	Hydropower	November 2012 – captured by Free Syrian Army from Syrian regime September 2014 – captured by ISIS December 2016 – captured by SDF-led forces
Dams in Iraq		
Fallujah	Irrigation	April 2014 – Seized by ISIS; dam gates subsequently closed and used to flood villages upstream and government facilities June 2016 – Iraqi forces regain control
Mosul	Hydropower, irrigation	August 2014 – ISIS capture dam from Peshmerga; two weeks later it is retaken by Iraqi and Kurdish allied forces
Ramadi		May 2015 – captured by ISIS; gates subsequently closed to deprive opposition areas of water December 2015 – retaken by Iraqi forces

Capturing large hydroelectric dams in Iraq and Syria was a calculated move on ISIS' part. Such control enabled them to take on state-like roles in the provision of water and other basic services to nearby civilian populations – and in doing so increase its legitimacy – and also facilitated the creation of supply lines across both countries. The strategic capture of large infrastructure also served a defensive purpose, as evidenced by threats to destroy Tabqa Dam in Syria and Haditha Dam in Iraq if its forces were attacked by advancing coalition forces (Daoudy, 2020). The recapture of dams in Iraq and Syria by American and Kurdish coalition forces largely ended the practice of using dams as military targets, although other smaller infrastructure such as pumping stations and pipelines continued to be damaged by shelling between Turkish and Kurdish-coalition forces in northern Syria.

Water as a military tool. In addition to capturing water infrastructure, illicit groups can utilize water resources to coerce populations into compliance by threatening to withhold or actually withholding water or hydropower resources. The weaponization of water in this manner is similar to how state actors may weaponize water to punish opposition areas or force populations into submission. After capturing dams in Syria and Iraq, ISIS often used this control to do exactly this. For example, after gaining control of the Ramadi Dam in 2015, ISIS closed the dams gates to limit water supply to certain areas of Anbar province and lower water levels to make the crossing easier to pro-government areas Husaybah and Khalidiyah (Alkhshali & Smith-Spark, 2015). It enacted a similar strategy after capturing Fallujah, Mosul, and Samarra Dams to deprive Shiite areas of water and disrupt agricultural production (von Lossow, 2016a). Aside from depriving key areas of water, non-state actors can also manipulate water resources under their control to flood strategic areas of opposition. When ISIS captured Fallujah Dam in 2014, it closed the floodgates to flood government buildings upstream. The subsequent diversion of floodwaters damaged 200 square kilometers of agricultural land, displaced 60,000 locals, and submerged the town of Abu Ghraib, which itself is just west of Baghdad (TOI, 2014).

Weaponization through cooperation. Bombing dams and flooding farmland are not the only ways in which water can be weaponized. In the ET basin, both ISIS and various armed Kurdish groups weaponized water through cooperation. Under this strategy, opposing groups reach a mutually beneficial conclusion at the expense of the civilian population (Daoudy, 2020). As described in chapter 5b, ISIS agreed to deliver hydropower to government military sites while the government continued to pay for the operation and upkeep of hydropower generation facilities (von Lossow, 2016b). As a result, power was cut to rebel-held areas. In recent years, Turkish military activity in northern Syria has provided motivation for cooperation between the Syrian regime and rebel Kurdish groups. In exchange

for suppressing anti-Asad protests, the regime handed over control of water and electricity resources to Kurdish forces under the assurance that delivery of these resources would be prioritized to regime-held areas (van Veen & Netjes, 2021). By weaponizing water in this way, non-state actors are not only able to improve their material power resources, but they also gain considerable bargaining power through the acquisition of important water and energy resources.

Creation of facts on the ground. Just like hegemons, non-hegemons can create facts on the ground to change or challenge their water reality. These facts on the ground usually take the form of infrastructure designed to either reduce the quantity or quality of water flowing to the hegemon or increase that received by the non-hegemon. In the 1960's, Israel's rapidly progressing work on the National Water Carrier prompted the Arab states to consider military and non-military options for stopping diversion of the Jordan river. Opting to pursue the latter option, the Arab League approved a plan to construct a diversion scheme that would divert water from the Hasbani and the Banias to the Yarmouk (Lowi, 1993). While construction on the project was effectively halted before it had really begun due to Israel's heavy-handed military response, it should be noted that the main motivation behind the project was to deprive Israel of water, rather than to supply water to Jordan. Projects of resistance and contestation can also be constructed at a smaller scale by non-state actors. Syrian farmers in the occupied Golan Heights continue to practice local forms of water management through the construction of rainwater collection reservoirs despite the harsh response these structures often elicit from Israeli authorities (Wessels, 2015). Similarly, Palestinians in the West Bank continue to dig wells and practice traditional forms of water management in the face of Israeli occupation. Unlike the Arab League diversion plan described above, the purpose of these actions is not to cause harm to Israel but rather to preserve traditional, agrarian ways of life that closely associated identity with water and land. In doing so, these "facts on the ground" seek to resist hegemonic arrangements by enabling locals to practice traditional ways of agriculture and source their own water.

Non-violent actions. The final coercive mechanism of counter-hegemony employed in the ET basin is non-violent action. These actions can include the creation of facts on the ground, as discussed above, and can also extend to mobilization (but not actual deployment) of troops and non-violent protests. For example, in response to unilateral action taken by Israeli farmers to increase their share of water from the Yarmouk, Jordan mobilized its troops along the river's banks on two separate occasions in 1979. In both instances, Jordanian troop mobilization was matched by Israel and the situation was diffused through talks held under the UN Armistice Commission. In the ET basin, protestors have

gathered in Iraqi cities hit hardest by the water crisis such as Basra, Baghdad, and to peacefully protest Turkish and Iranian water diversions upstream (see e.g. Jordan Times, 2023; Trend News Agency, 2011). Similar protests in Jordan over the water-for-energy agreement signed between Israel and Jordan in 2021 (Davis, 2021) have also taken place and pressured the latter to pull out of the agreement after Israel attacked Gaza in October 2023.

Leverage Mechanisms of Counter-Hegemony

Leverage mechanisms of resistance and counter-hegemony enact change on the hegemonic order by increasing an actor's influence (Zeitoun et al., 2017). As such, they rely primarily on the exercise of bargaining power to increase an actor's ability to play by the rules of the game. While leverage mechanisms do not necessarily enact transformative change or challenge the legitimacy of the hegemonic order, they can still have an important effect on water conflict and cooperation dynamics, especially when used in tandem with other mechanisms. Examples of leverage mechanisms include forming diplomatic alliances and using international law to back up positions at the negotiation table. However, most of the literature on counter-hegemony focuses on state actors; by including non-state actors in my analysis, I significantly expand upon the mechanisms that have already been identified by revealing mechanisms that tend to be used exclusively by non-state actors, such as capacity building and advocacy. I identify five main leverage mechanisms used by non-hegemons in the Jordan and ET basins: diplomatic tactics, using legal instruments, alliance formation, capacity building, and advocacy. As this section will demonstrate, each mechanism can be carried out through many different actions. Furthermore, state actors tend to rely more heavily on the first two mechanisms and non-state actors on the last two, while alliance formation is something that is commonly employed by state and non-state actors alike.

Diplomatic tactics. States often employ diplomatic tactics as part of their counter-hegemonic strategy, as discussed by Cascão (2008) in the case of Ethiopian protests against Egyptian hydro-hegemony on the Nile. In the Jordan and ET basins, four different, but related, diplomatic strategies have been utilized by non-hegemonic states such as Syria, Iraq, and Jordan: active diplomacy, reactive diplomacy, cooperation, and active stalling.

Active diplomacy. An active diplomatic strategy is one that seeks to establish and perpetuate strong diplomatic relations with other riparians, including the hegemon. Doing so may be part of a broader strategy involving alliance formation with other states in the basin, or it may simply be an

attempt by the non-hegemon to gain leverage by initiating negotiations. Iraq's history of attempting to pursue negotiations with Turkey, and to a lesser extent Iran, is a strong example of active diplomacy. Throughout the last three decades, Iraq has periodically reached out to Turkey through diplomatic channels asking for an increase in the flow of water down the Tigris and Euphrates due to ongoing drought. More times than not, these requests are approved by the Turkish, albeit on a temporary and ad hoc basis (see e.g. Rasul, 2023; Reuters, 2009). Oftentimes, these requests are made during high-level talks between Turkish and Iraqi ministers, even if water is not the primary focus of the talks. Iraq is also interested in continuing water sharing negotiations with Turkey and actively pursues this by sending formal requests to Turkey. However, as three separate Iraqi interviewees noted, the Turkish prefer to respond to these requests in an ad hoc matter, increasing water flow for a month or two but rarely engaging in formal negotiations (Participants 1, 14, and 16, personal communication, January 31, September 20 and 27, 2023e). The same interviewees also noted that attempting to negotiate with Iran is even more difficult, with Iraqi requests usually receiving no response due to the strained political relations between the two countries. As a result, active diplomacy has enacted little lasting change in the hydro-hegemonic order.

Reactive diplomacy. Unlike active diplomacy, which takes a proactive approach to establishing relations, reactive diplomacy is utilized in response to hegemonic actions. For instance, Turkish dam construction as part of GAP has often been met by official letters of protests or formal denouncements made by Iraq and Syria. Prior to the political reproachment that occurred between Syria and Turkey after signing the Adana Protocol, the former frequently accused the latter of deliberately withholding water (see the water interactions database for the ET basin). These complaints were issued as formal letters of protest to Turkey or made as political speech acts during public appearances. For instance, Syria issued a letter of complaint to Turkey in early 1990 after water flow down the Euphrates was cut from 500m^3/sec to 120m^3/sec during the filling of Atatürk Dam. The goal of these actions is not to enact radical change or challenge the legitimacy of the hegemonic order but is rather to act as a mechanism of resistance that can serve as a basis for further, more transformative action. In the Jordan basin, reactive diplomacy has been employed in a similar way. In the past, Jordan has also issued complaints that Israel is failing to deliver water as stipulated in the 1994 peace treaty, despite Israeli sources claiming that providing Jordan with its allocation was impossible due to drought (see the water interactions database for the Jordan basin). In stronger displays of reactive diplomacy, Jordan refused to sign a water-energy deal with Israel in 2023 due to ongoing violence in Gaza (Al-Jazeera, 2023). Such a move was made due to significant domestic pressure and to preserve face with other Arab countries.

Cooperation. Cooperation can be seen as an extension of active diplomacy, but for the sake of clarity, I have included it as a separate diplomatic tactic. While cooperation may seem counter-intuitive as a counter-hegemonic strategy, participation in cooperative initiatives, especially ones that involve multiple riparians, can help counter-balance hegemonic influence (Cascão, 2008). In other instances, cooperation over water issues is undertaken in hope that doing so will lead to an improved position at the negotiation table regarding other, higher-priority security issues (Zeitoun et al., 2011). This was one motivation behind Jordan's decision to sign onto a water sharing agreement that was highly favorable towards Israel. In the ET basin, the three main basin states engaged in technical cooperation under the auspices of the JTC consistently from its establishment in 1983 until meetings were suspended in 1993 (Kibaroğlu & Scheumann, 2013). Shortly after signing the Adana Protocol, Syria proposed resuming JTC meetings between the three countries, a call that was repeated by both Syria and Iraq until ministers decided to jointly restart meetings in March 2007. In addition to numerous bilateral MoU's signed in 2009, the institutionalization of cooperation has continued, at least between Iraq and Turkey. In August 2023, a permanent committee on water was established to facilitate a resolution of water-related issues (Bechocha, 2023), while in April 2024 a ten-year framework agreement for cooperation over water resources was signed (Mevellec, 2024). While such cooperation has not yet yielded a permanent water sharing agreement or occurred trilaterally with all three riparians, it has marked a turning point in Turkish-Iraqi hydropolitics by continuing to strengthen communication channels and increase the Turkish commitment to providing Iraq with a water supply that is responsive to changing Iraqi needs.

Active stalling. Active stalling is a diplomatic tactic employed in numerous contexts to deliberately slow the pace of negotiations. Doing so can provide several advantages, such as buying time to gather additional information to boost one's negotiation position, navigate sensitive political issues, or elicit concessions from the other party. In a transboundary water context, active stalling has been observed by hegemons such as Egypt to contain conflict through the exercise of soft power (Carles, 2006). However, it can also be used by non-hegemons. During the course of the picnic table talks with Israel, Jordan was accused multiple times of dragging its feet on cleaning the Yarmouk riverbed and manipulating sandbags so as to provide decreased flow downstream to Israel (Sosland, 2007). A main goal of the picnic table talks was to establish a formal process for dredging the Yarmouk riverbed, which often became clogged with debris from winter floods and decreased water flowing to both the Israeli and Jordanian canal intakes. Jordan purposely dragged out the process of cleaning the riverbed in response to unilateral action taken by the Israelis to remove debris in the river and increase flow to farmers in the Yarmouk Triangle. Then-Director General of the Foreign Affairs Ministry Yossi Beilin also

accused Jordan of intentionally stalling negotiations so the East Ghor Canal could receive as much flow as possible during the summer (Sosland, 2007). While it is unclear whether this was truly Jordan's intention, it is clear that employing an active stalling technique provided Jordan with some small amount of leverage over Israel, who was dependent on Jordan's cooperation in cleaning the riverbed.

International law. International law has both hegemonic and counter-hegemonic potential. The substantive principles of equitable and reasonable use and no significant harm, together with procedural obligations such as prior notification, form the core pillars of international water law (IWL). However, these principles are vague, poor defined, and can easily reinforce soft power expressed by a hydro-hegemon in developing a legitimate legal claim to water resources (Farnum et al., 2017). For example, Turkey has interpreted the principle of no significant harm as "a limitation on the utilization of watercourses by upstream countries," (ILC, 1993, p.86) and has based its arguments for allocation of the Tigris and Euphrates waters on the basis of a flexible interpretation of "equitable and reasonable utilization" that would favor the allocation of the uses of water rather than water itself (Republic of Turkey, 1990). While non-hegemons can also use IWL to strengthen their soft power, often hegemons with their more numerous resources prevail. In utilizing IWL, non-hegemons often use the principles of no significant harm and prior notification to support their arguments for curbing hegemonic development. Making appeals to judicial bodies is another tactic that non-hegemons employ, especially non-state actors who are not able to recourse to IWL. In this section, I will briefly discuss how legal instruments have been utilized by non-hegemons in the Jordan and ET basins to contest hydro-hegemonic arrangements.

Utilization of legal instruments. It is perhaps no coincidence that four of the first signatories to the 1997 UN Convention on the Law of the Non-Navigational Uses of International Water Courses were Syria, Jordan, Lebanon, and Iraq. Each of these countries shares a basin with a hydro-hegemon and all but Lebanon are downstream riparians on these watercourses. All of these countries[85] have relied on IWL to strengthen their bargaining positions and support arguments for reducing upstream development. During the Wazzani Springs incident described in detail earlier in this chapter, Lebanon insisted that it was entitled to use of water from the springs under the principle of equitable and

[85] The application of IWL to Palestine is unclear given that Palestine is not yet a sovereign state and IWL obligates cooperation on the basis of sovereignty. Israel has argued that international law does not apply to the Palestinian territories because they lack sovereignty, and therefore also do not have riparian rights to the Jordan river (Niehuss, 2005). However, this view is disputed by some legal scholars who claim that Palestine is riparian and the international community is preparing for a sovereign Palestinian state in the future (e.g. Abouali, 1998; Issac, 1994).

reasonable use. Israel, meanwhile, claimed that Lebanon had violated the principle of no significant harm (McCracken et al., 2025). The effect of Lebanon's claim to IWL was not lost on the third parties who mediated an end to the conflict. While the US agreed that Lebanon's use of water was reasonable, Lebanon should have notified Israel of its activities given that it is party to the UN Watercourses Convention. In this instance, falling back on IWL yielded limited benefits – Lebanon's right to abstract water from the Wazzani Springs was implicitly recognized and the conflict ended with a tacit agreement that the Lebanese could continue abstracting water bar no further action was taken (Zeitoun et al., 2012).

International water law has been used as a counter-hegemonic tool more extensively in the ET basin. Turkey has historically argued that water should be allocated on the basis of rational and optimal utilization that would be guided by scientific standards developed through the collection and harmonization of data across the basin (Daoudy, 2008). Iraq and, to a lesser extent Syria, have rejected this argument in favor of allocation based on prior use, given the long history of downstream utilization of the Tigris and Euphrates. Indeed, in discussions regarding the draft text of the UN Watercourses Convention, Iraq suggested that prior use should be included – compared to potential use – a claim that was further supported by Syria (ILC, 1993; Kasm, 1996). Suggestions to determine allocation based on historical and acquired rights were rejected by Turkey on the grounds that prior use is only one factor of many that must be considered in equitable utilization (Kibaroğlu, 2015). Meanwhile, Turkish overtures for allocation based on optimal utilization were rejected by Syria on the grounds that Turkey's higher concentration of agricultural productivity would afford it more water. Syria and Iraq have also charged that the principle of no significant harm has been violated by upstream development in Turkey, citing issues such as increasing salinization in Iraq and pollution of the Balikh, a tributary of the Euphrates that flows in Syria (Daoudy, 2008). Referencing IWL principles can enhance a non-hegemon's bargaining power because it does influence the outcome of negotiations and codifies norms for the management of shared waters. Nonetheless, difficulties with enforcing international law and the ambiguous language enshrined within legal instruments limit the impact that it has on strengthening a non-hegemon's bargaining power. In the case of the ET basin, Turkey's rejection of the UN Watercourses Convention[86]

[86] Turkey was one of three countries to veto adoption of the convention, along with China and Burundi (all upstream states).

and its continued unilateral development on the grounds that it has the right to develop its sovereign waters[87] as it wishes exemplify Turkish hydro-hegemony by serving to legitimize the existing order.

Reliance on Judicial Organs. States are not the only actors to employ international law in resistance to and contestation of hydro-hegemony. While non-state actors may not be able to default to IWL, they can bring cases to judicial organs to strengthen their bargaining power against the hegemon. Consider the several instances legal action taken by anti-dam activists protesting construction of the Ilisu Dam on the Tigris river near the Turkish border with Iraq. Arguing that the Ilisu Dam would cause irreputable damage to the culturally and historically significant town of Hasankeyf, anti-dam activists lodged a complaint with the Administrative Court of Diyarbakir in 2006. The case was later appealed to the European Court of Human Rights (ECHR), to which Turkey is a party. The ECHR ultimately rejected the appeal to save Hasankeyf (Initiative to Keep Hasankeyf Alive, 2019). More successfully, anti-dam activists have lodged cases with domestic Turkish courts in a bid to halt construction of the dam. In 2012, the Turkish State Council ruled in favor of the case brought by the Chamber of Architects and Engineers against the dam. Construction was ordered to halt immediately pending completion of an environmental impact assessment required by Turkish law (Save the Tigris, 2012). While the assessment was ultimately conducted and construction on the dam completed, the temporary delay in the project symbolized a significant victory for the network of non-state actors campaigning against the dam and exemplifies the effect that an increase in bargaining power can have on hegemonic actions.

Alliance formation. State and non-state actors alike can form alliances that cut across political and sectoral boundaries to resist and contest hegemonic arrangements. As seen in Figure 44, there are three main ways in which alliances can be formed: through the mobilization of more powerful actors, the mobilization of international funding, and third-party involvement. Alliance formation is more commonly employed as a leverage mechanism in the ET basin, where Iraq and Syria have sought to ally themselves with each other and with external, multilateral institutions such as the World Bank to slow down Turkish dam development. Arguably the most prolific example of alliance formation, however, is seen in the extensive domestic and transnational advocacy networks[88] that have protested the Ilisu Dam for over two decades. However, non-state actors involved in water cooperation in the Jordan basin have

[87] Turkey has long upheld the principle of absolute territorial sovereignty in justifying its development on the Tigris and the Euphrates and consideration of the two rivers as constituting a single, transboundary basin. This stands in opposition to the principle of absolute territorial integrity used by Iraq and Syria, which upholds that upstream development cannot interfere with natural flow.

[88] Transnational advocacy networks are networks of actors who work together across state boundaries to exchange information and disseminate a common discourse and shared values (Keck & Sikkink, 1998).

also sought to bring actors with more extensive resources into their work due to constraints posed on cooperation by the broader conflict. In this section, I will analyze how the formation of alliances involving non-state actors expands their bargaining power and the extent to which this increase in bargaining power has affected change in patterns of conflict and cooperation over dam development in the Jordan and ET basins.

Alliance formation in the Jordan basin. Challenges such as a lack of technical capacity on the Palestinian side and broader conflict dynamics that discourage Palestinian cooperation with Israelis and label those who do engage as "normalizers" have at times necessitated third party involvement in cooperative initiatives between Israelis and Palestinians. In fact, six of the eight references to third party involvement identified in interviews were made in the context of projects promoting Israeli-Palestinian water cooperation. Third party involvement, particularly by the United States, was very important in keeping activities facilitated by the Multi-Lateral Working Group on Water Resources (MWGWR)[89] running smoothly. The involvement of the United States, which chaired the MWGWR, in these activities was important for two reasons. First, many of the projects undertaken by the MWGWR were funded by the United States Agency for International Development (USAID). Consequentially, the MWGWR served as a forum in which the United States could keep tabs on various water projects and make sure they were running smoothly (Participant 4, personal communication, June 5, 2023). Second, the complicated situation on the ground in the West Bank made it difficult, if not impossible, for Palestinians to obtain the required permits from Israel for a project to go ahead. Therefore, "Palestinians would also bring to the table projects that other donors wanted to do that were getting hung up in Israeli permitting," (Participant 4, personal communication, June 5, 2023).The involvement of a powerful third party such as the United States was often conducive to obtaining the required approvals from the Israelis.

The benefits of involving third parties and forming alliances with diverse actors are also recognized by non-state actors. Many Palestinians are reluctant to engage in cooperation with Israelis, even at the local level, due to the stigma labeling such cooperation as normalization and fears of facing intense discrimination from within Palestinian society. To help work around this problem, some Israeli-Palestinian environmental organizations have found it helpful to involve third parties who are perceived as neutral. One interviewee described how marketing a project in an area of the West Bank where anti-normalization sentiment was strongest as a Dutch project helped promote successful cooperation

[89] Recall that the MWGWR was one of five multi-lateral working groups created during the peace process to find solutions to regional problems and promote dialogue between actors.

(Participant 15, personal communication, September 25, 2023). Had the project been advertised as a joint Israeli-Palestinian endeavor outright, it likely would have received intense pushback from both sides and would not have succeeded. Another interviewee mentioned how alliance formation emphasizes the importance of complimentary expertise and knowledge exchange in promoting positive project outcomes:

> And by bringing together their complimentary expertise, we say, okay, everybody brings something special to the table. Everyone has some important skills. You're not competing with each other in your skill set. And then when you present the findings back to your governments, those findings are done by consortium of experts from the region. So, they are more trusted than if it was like all one national team, let's say, because everybody has someone in there that's you know, representing as well. (Participant 3, personal communication, May 31, 2023).

Bringing diverse stakeholders to the table and involving them in decision-making process from the beginning can help facilitate a sense of ownership and trust in a specific project and in the broader process of cooperation itself. This is especially important in the Israeli-Palestinian context, where mistrust is deeply embedded in negative attitudes of othering that are perpetuated by both sides and broader conflict dynamics tend to prevent engagement and dialogue exchange.

Alliance formation in the ET basin. Alliance formation has also been employed by people in the ET basin working to advance cooperative solutions to the basin's water issues. Recall ETIC and BluePeace, two initiatives seeking to use water as a tool for cooperation in the ET basin. Both of these initiatives have recognized the value of forming networks with other stakeholders in promoting their mission. For instance, some of ETIC's first activities after its establishment centered around convening sessions at international conferences to explain the initiative and grow its network (Participant 5, personal communication, July 24, 2023). As a track II initiative that was started by a small group of academics and professionals from the basin and the United States, it was crucial that ETIC take steps to grow its small base shortly after its establishment. Lacking formal government support, ETIC used international conferences, which are widely attended by academics and other professionals from around the world, to spread its message and quickly gain supporters (and more importantly, funders). Engaging stakeholders at these venues helped ensure that the process of using water as a tool for cooperation would move beyond government and academic circles to reach civil society at large (Kibaroğlu, 2008).

BluePeace Middle East similarly promotes water as an impetus for cooperation, and for peace, by forming networks with diverse actors. However, BluePeace is a track 1.5 initiative, meaning that its

institutional structure includes both governmental and non-governmental officials. It is precisely the relative success with which BluePeace has been able to form alliances with state and non-state actors that has enabled it to withstand the tremendous political upheaval that has rocked the region. For example, BluePeace Middle East is highly institutionalized as part of the global BluePeace movement and enjoys formal government support from Iraq, Jordan, Lebanon, and Turkey (Participant 9, personal communication, August 15, 2023).[90] It has also been more successful at mobilizing international funding than ETIC or other, similar initiatives in the Jordan basin, having received steady funding from sources such as the Turkish Water Institute and the Swiss and Swedish governments. As a result, BluePeace has continued to operate even as violence engulfed Syria and Iraq for much of the past decade. The longevity of BluePeace and its ability to continue spreading a message of water as a tool for peace even against a broader background of violent conflict is testament to the organization's success at forming lasting connections with governmental and non-governmental stakeholders.

As I mentioned above, the anti-Ilisu Dam movement in Turkey and abroad is the most well-known example of alliance formation in the ET basin. This movement is a type of social movement, which have been variously defined as "collective enterprises seeking to establish a new order of life," (Blumer, 1951, p.199) or "moments of collective creation that provide societies with ideas, identities, and even ideals," (Eyerman & Jamison, 1991, p.4). The social movement against the Ilisu Dam started as a very localized protest movement against construction of the dam and the implications it had on Kurdish livelihoods and gradually grew larger, spanning provincial, country, and continental borders. Indeed, the so-called "defense of the local" is not enough to explain how and why the anti-Ilisu Dam movement grew so large and influential (Participant 6, personal communication, July 31, 2023). The negative ecological, social, and cultural consequences of the Ilisu Dam and the associated protests that emerged from this can be seen as a microcosm of the global movement against large dams. A driving force behind these social movements, both in Turkey and abroad, is the value people place on the land and water (Participant 6, personal communication, July 31, 2023). Hasankeyf, the predominately Kurdish town that was submerged by the Ilisu Dam's floodwaters, was important not only to Kurds but to Arabs, Turks, and other ethnic groups living in the Mesopotamian region because of its historical, religious, and cultural significance. It was these values, and the common ground they presented to people from

[90] For example, the Policy Advisory Committee is chaired by HRH Prince Hassan bin Talal of Jordan and Danilo Türk, former President of Slovenia, serves as special advisor to the committee (Tugba interview).

different backgrounds and sects of society, that enabled the anti-Ilisu Dam movement to grow from a local protest against the oppression of Kurdish heritage to a global social movement (Ilhan, 2010).

The anti-Ilisu Dam movement included locally based and external non-state actors. Within Turkey were grassroots organizations, local municipalities, academic institutions and nation-wide professional associations while actors based abroad included European NGOs, multinational corporations, and individual activists (Atzl, 2009). Table 20 provides a non-exhaustive list of the organizations involved in the campaign.

Table 20: Stakeholders involved in the conflict over Ilisu Dam. Compiled from Conker (2014), Eberlein et al. (2010), and Warner (2012).

Scale	**Sector**		
	Public	**Private**	**Civil Society**
Pro-Dam Actors			
Domestic	Turkish Ministry of Forestry and Water Affairs State Hydraulic Works (DSI) Garanti BBVA Akbank	Nurol Cengiz Temelsu Celikler	
International	Third party governments (e.g. Germany, Austria) UBS Switzerland	Construction firms (e.g. Balfour Beatty, VA Tech Hydro, Alstom, Stucky, Colenco, Maggia, Zublin) Private banks (e.g. DekaBank, UniCredit, Bank	

		Austria Creditanstalt)	
Anti-Dam Actors			
Domestic	Local Municipalities (e.g. Diyarbakir, Batman) Southeastern Municipalities Association Peace and Democracy Party (BDP)		Initiative to Keep Hasankeyf Alive Doğa Derneği Local and national professional chambers
International			Friends of the Earth Berne Declaration WEED Kurdish Human Rights Project ECA Watch Save the Tigris

As I will explain in further detail in the next section, this coalition of actors was successful in delaying construction of the dam two times, first in 2002 and later in 2009. As one interviewee described, much of the early successes of the anti-Ilisu Dam movement and its rapid proliferation across country borders was due to the efforts of Kurdish activists:

> But the Kurds embraced it. Then it became part of the GAP project so they are like 'oh this is a Kurdish issue.' Then it was the Turkish Kurdish issue, then Anatolian issue. Then as the project would be financed by the international corporations, then it became an international issue. (Participant 6, personal communication, July 31, 2023)

By utilizing their connections to the Kurdish diaspora in Europe, which is estimated to number up to one million (Ayata, 2008), Kurdish activists based in Turkey were able to raise awareness about the plight of Hasankeyf. Because Kurds living in Europe have comparatively more political freedom than do those living in Turkey, they were able to protest at a much larger scale and maintain this momentum for a greater period of time. Additionally, privatization of the Turkish water sector and the decision to finance construction of the dam through a consortium of European companies opened up new spaces for debate and decision-making that were previously closed to non-state actors. A follow-up to the interview quote provided above clearly demonstrates the systematic way in which Kurdish activists mobilized networks of European contacts to grow the protest movement:

> They started to communicate with the Kurdish [people] in England, for example, because in the first round of cooperations before 2000 there was an English company, so they contacted with the Kurdish people living there in England … so people there were like okay, we are going to protest here in this country in front of parliament in front of the building of the corporation that will build this, you know, dam … Then in the second round, there were also Austrians and German companies. They built communication with those people there saying that 'look the Kurdish community should organize some protests against the corporations in these countries.' (Participant 6, personal communication, July 31, 2023)

While networks of Kurdish activists in Turkey and abroad played a key role in placing the anti-Ilisu Dam movement in the global spotlight, they were far from the only actors involved. As previously mentioned, the Turkish government began privatizing the water sector in the 1990's and invited foreign companies to participate in the construction and financing of the Ilisu Dam. This consortium was spearheaded by Balfour Beatty, a British construction company, and included Swiss, Italian, German, and Turkish companies (Eberlein et al., 2010). The financial risks associated with the project were covered by export credit agencies (ECAs) from the various countries. This first international consortium collapsed in 2002 after the ECAs pulled out of the project (Warner, 2012). When the Ilisu project was revived in 2005, it was supported by a more robust coalition of international actors and faced opposition from a growing network of anti-dam actors.

The second international consortium was led by Austrian company VA Tech Hydro in cooperation with Swiss, German, and Turkish companies. Once again, the European companies sought protection against risks from their respective ECAs while Akbank and Garantibank, both Turkish banks,

signed on to underwrite the project in 2007 (Eberlein et al., 2010). The growth of the anti-Ilisu Dam movement that occurred during the first international consortium thanks to the advocacy of Kurdish activists continued and grew during the second attempt. In 2006, the Initiative to Keep Hasankeyf Alive (Hasankeyf'i Yaşatma Girişimi) was founded by a coalition of environmental and human rights organizations based in southeast Anatolia; a year later, the initiative had grown to incorporate over 70 NGOs, unions, municipalities, and professional associations under its umbrella (Eberlein et al., 2010). The Initiative to Keep Hasankeyf Alive was joined by prominent Turkish environmental organizations such as Doğa Derneği (Birdlife Turkey) and prominent Turkish individuals such as writer Orhan Pamuk and famous singer Tarkan, who helped spread the message against Ilisu Dam throughout their networks. European NGOs such as the Berne Declaration and World Economy, Ecology, and Development (WEED) joined the fight, forming transnational advocacy networks that aimed to stop construction of the Ilisu Dam. It is also important to acknowledge the importance of social media in enabling non-state actors to form networks with each other and operate outside the state apparatus (Participant 2, personal communication, February 6, 2023). The next section will delve deeper into the role of these networks in the fight against Ilisu Dam as well as the role of advocacy more broadly in the Jordan and ET basins.

Advocacy. Advocacy is a commonly used leverage mechanism in the Jordan and ET basins, cited by six different interviewees 15 times. The term "advocacy" refers to a systematic effort to influence public opinion and policy (Prakash & Gugerty, 2010). At its most basic level, advocacy involves increasing public awareness about an issue with the ultimate aim of enacting a change in policy. In the context of transboundary waters, advocacy often revolves around issues such as large-scale hydraulic development, unequal water access, and the socioeconomic and ecological dimensions of water quality problems. In the Jordan and ET basins, advocacy tended to focus on two issues: unequal access to water of sufficient quantity and quality in the Jordan basin and the construction of large dams in the ET basin. Advocacy efforts are most often undertaken by NGOs and other civil society organizations, such as EcoPeace and Save the Tigris. The networks of anti-dam activists described in the Ilisu Dam case in the previous section also relied heavily on advocacy to stop construction of the dam. I identified two main ways in which actors conducted advocacy: raising public awareness and lobbying. The following sections will analyze how these specific strategies were employed by non-state actors in the Jordan and ET basins.

Raising public awareness. Increasing public awareness about a particular issue lies at the heart of advocacy. By educating the public about what is causing an issue and why it needs to be fixed,

advocacy organizations can generate the momentum needed to influence policy-makers and enact lasting change. A lack of awareness about water issues, including where it comes from and who controls its supply, was cited as a problem in both basins (Participants 8, 9, and 19, personal communication, August 11 and 15, 2023, January 22, 2024). For example, one interviewee noted that one reason why there was a lack of awareness about water issues in Iraqi Kurdistan was "because we never talked about these water problems and it's a very slow process to recognize them," (Participant 20, personal communication, February 7, 2024). They further go on to talk about how people are aware of the water shortage because they don't have permanent access to water, but utilize their water wastefully on tasks such as washing streets and cars. This problem is mirrored in the Jordan basin, where natural water scarcity in Jordan and the occupied Palestinian territories is amplified by mismanagement and Israeli hydro-hegemony. A lack of awareness and misunderstanding of one's "water reality" leads to the immediate placement of blame on the other side (Israel), a move that is not helpful to resolving conflict. Educating people about the causes of water problems in their area and what they can do to rectify these issues is the first step towards enacting a change in policy. One Jordanian activist clearly illustrated how raising awareness can change dynamics on the ground and even encourage cooperation with Israelis:

> Because of the conflict, people would immediately blame the other side, especially Israel … By focusing on having them understand their water realities, see with their own eyes, that Jordan also gets its share based on the peace agreement changes things. When people see that the Jordanian side of the Valley does not have proper sanitation solutions because of the geography of the area, when people have to build cesspits, and because they're poor, they don't have the financial resources to pump the sewage, the cesspits are cracked and infiltrate into the ground or they end up overflowing and flowing into the river. So when people see this with their own eyes, they start advocating as residents and saying to the government, we understand now, we want you to build sanitation solutions for us that could eliminate the pollution and make possible the treatment and reuse of that water for agriculture. So, people start understanding and they start shifting their approach from blaming to we must fix our own side before we discuss with the other side. And it gets easier to understand why we need to cooperate together. (Participant 19, personal communication, January 29, 2024)

Raising public awareness is therefore important not only to achieve a change in policy, but it is also a first step that must be taken to build dialogue and trust between parties who are in conflict.

Educating people about their water reality yields benefits that go beyond conserving water and catalyzing local-level policy reform; it has the potential to shift the overall conflict narrative from a zero-sum game to a positive-sum approach. By showing people the shared nature of water problems and highlighting the mutual benefits that can be gained through cooperation, advocacy organizations can drive a shift in mindset from one of blame to one of cooperation (Participant 19, personal

communication, January 29, 2024). This work is often carried out by NGO's or other civil society organizations that are able to easily reach out to and connect with local communities. In the Jordan basin, EcoPeace is one of the main organizations that advocates for seeing water as a tool of cooperation and of peace. Its youth education programs, which target high school students and their teachers, inform youth about water and other environmental challenges facing the region and equip with the skills to advocate for water equality and sustainability in their communities. Furthermore, EcoPeace's young professionals programming facilitates dialogue between young professionals from Israel, Palestine, and Jordan and teaches them how to become leaders who advocate for joint solutions on water issues and understand the importance of cooperation (Participant 19, personal communication, January 29, 2024). In the ET basin, organizations such as Save the Tigris and Waterkeepers Iraq-Kurdistan raise awareness about water quantity and quality issues in the basin by harnessing the power of media, organizing river clean-ups, and educating the public about the historical and cultural significance of the region's waterways (Participant 20, personal communication, February 7, 2024; savethetigris.org). In doing so, these organizations advocate for the sustainable and democratic use of the Tigris and Euphrates rivers and frame water resources as a tool for peace.

Lobbying. Lobbying is another commonly utilized approach to advocacy employed in the Jordan and ET basins. In its broadest sense, advocacy centers around mobilizing public support for a cause, while lobbying focuses on influencing members of the legislature to impact certain legislation or regulations (Dicharry, 2024). Lobbying is therefore a more specific type of advocacy activity that goes beyond simply raising awareness of an issue to actively pressuring policymakers to change policy. This type of work involves utilizing communication with leaders as the primary tool of advocacy. For example, Save the Tigris works within Iraq and throughout the ET basin to advocate for the protection and democratic use of Mesopotamia's waterways. One of the most significant waterways in the region is the Mesopotamian Marshes, which stretch across southern Iraq and southwestern Iran and serve as a habitat for dozens of bird species as well as a source of shelter and livelihood for the Marsh Arabs. When dam construction and water abstraction upstream in Turkey and Iran continued to threaten the delicate ecology of the marshes and the unique way of life practiced by the Marsh Arabs, Save the Tigris conducted a lobbying campaign to name the marshes as a UNESCO World Heritage Site. As one interviewee involved with the campaign described:

> We wrote some statements especially to leaders and to take opinions about what's going on to take to UNESCO. Because we already, as Save the Tigris, we are members of water research watch and through this we always got this opportunity to send our message and our letter on

> what we are thinking to UNESCO directly. (Participant 1, personal communication, January 31, 2023)

By drafting open letters and reports and participating in high-level meetings with representatives from UNESCO and the Iraqi government, Save the Tigris was able to successfully have the Mesopotamian Marshes added to the UNESCO World Heritage List in 2016. Doing so marked a significant accomplishment for the organization and the country of Iraq. While the move is not expected to persuade Turkey and Iran to release more water to Iraq, it provides Iraq with increased leverage at the negotiation table, as naming the marshes as a UNESCO site makes them a site of international significance (Participant 1, personal communication, January 31, 2023). The lobbying campaign spearheaded by Save the Tigris was therefore a calculated move to increase Iraq's bargaining power at the negotiation table.

Activists involved in the anti-Ilisu Dam campaign have also engaged in lobbying. As previously described, two separate international coalitions were formed to stop construction of the dam. Primary stakeholders in the second international coalition were European NGOs such as the Berne Declaration, who pressured the ECAs providing risk coverage to the transnational corporations involved in the project to ensure that certain environmental and human rights standards were being met by the Turkish government.[91] Because ECAs are national institutions, the NGOs were able to lobby to ensure that taxpayer funds were being used to support work that abided by national and international laws and standards. NGOs across Europe lobbied representatives from the ECAs and their respective country governments to withdraw from the project on the grounds that these standards were not being met and the dam posed significant ecological, humanitarian, and cultural harm (Eberlein et al., 2010). These activist networks also organized large protests in high-profile areas such as Berlin's Brandenburg Gate and in front of German banks sponsoring the Ilisu Dam (Conker, 2014). Bowing to this pressure, the European governments involved suspended export credit guarantees in December 2008, and in July 2009, the ECAs formally withdrew their guarantees due to Turkey's inability to meet environmental, resettlement, and cultural heritage criteria.

EcoPeace also engages in lobbying work in the Jordan basin. In the past, much of this work focused on lobbying to increase the amount of freshwater released from the Sea of Galilee to the Lower Jordan as part of the work EcoPeace has done rehabilitating the Lower Jordan (Participant 7, personal communication, August 2, 2023). In more recent years, it has occurred within the scope of the

[91] See Eberlein et al. (2010) for further detail about the specifics of these requirements.

organization's climate security programming, the focal point of which is the Green Blue Deal – a proposed water-energy exchange that would advance regional energy interdependency through the exchange of renewable energy produced in Jordan for desalinated water produced by Israel and Palestine (Bromberg et al., 2020). The success of EcoPeace's efforts to place climate security and regional cooperation high on government agendas was realized in 2021, when Israel and Jordan (with backing from the UAE) signed a declaration of intent for a water-energy exchange and a year later signed a MoU to proceed with feasibility studies for the project (Jordan Times, 2022). While implementation has since been suspended, EcoPeace leaders continue to work with their respective country governments to emphasize the strategic importance of continuing this work (Participant 19, personal communication, Janaury 29, 2024).

Capacity building. The last leverage mechanism of counter-hegemony identified at play in the Jordan and ET basins is capacity building. A lack of capacity on the part of local actors, and in some cases state entities, to effectively acknowledge and address water-related issues was cited as a significant challenge by five different interviewees (e.g. Participants 4, 8, and 10, personal communication, June 5, 2023, August 15, 2023, and September 9, 2023). This lack of capacity translates to a greatly reduced bargaining power at the negotiation table and often leads to outcomes that perpetuate asymmetrical distributions of both water and power. For instance, because Palestinians possess far less technical capacity than the Israelis, and often even lacked baseline data to backup their negotiating positions, they were forced to accept the data that was presented to them by the Israeli side during the Oslo process (Participant 4, personal communication, June 5, 2023). The imbalance in access to data and the ability to use it contributed to the development of the inequitable water allocation regime stipulated in the Oslo II agreement. Not surprisingly, therefore, capacity building was the most frequently used leverage mechanism identified in both basins. In this section, I will discuss how different organizations have worked to improve the capacity of state and local actors in both basins.

Capacity building in the Jordan basin. Both local and state-level actors in Jordan and Palestine suffer from a lack of capacity that makes it difficult for them to address issues relating to a lack of water quantity and deteriorating water quality. As mentioned above, Palestinian participants in the Oslo peace process found themselves unable to challenge arguments made by the Israeli side due to a lack of data and technical capacity. Recognizing that elevating Palestinian technical capacity would better equip them in bilateral negotiations with Israel, a main focus of the MWGWR was to identify and implement projects that were mutually beneficial to Israel, Jordan, and Palestine and would improve the technical

capacities of each (Participant 4, personal communication, June 5, 2023). Wastewater treatment projects in the West Bank, for example, proved popular among both Palestinians and Israelis, as the former had no way to treat their sewage and the latter were negatively affected when raw sewage flowed downhill to Israeli settlements and contaminated shared groundwater resources. Engaging in this type of activity with state actors helped to level the playing field at the negotiation table by increasing the weaker party's bargaining power.

Activities conducted by NGOs and grassroots organizations in the Jordan basin aim to empower local actors by increasing their technical capacity and awareness about their water reality. This can be done in numerous ways; interviewees mentioned engaging in diverse capacity building activities such as developing off-grid wastewater solutions (Participant 15, personal communication, September 25, 2023), equipping villages with small-scale desalination plants and training residents on how to use and repair them (Participant 13, personal communication, September 20, 2024), and working with students to increase their technical skills (Participant 3, personal communication, May 31, 2023). Oftentimes, these capacity building activities involve bringing together people from opposing sides of the conflict, providing them with a chance to interact with people whom they likely never would have come into contact with otherwise. As one interviewee recalled:

> I remember one project that the kids Israeli and Palestinian kids, in this case, did with like GIS technology where they mapped out some water hazards in their communities and transboundary basins and presented those to the mayors. I thought that was really good skill building for the young people, but also enabled them to meet their neighbors in a shared project that they both found value in. (Participant 3, personal communication, May 31, 2023)

However, while one-time projects such as this can result in tangible improvements in technical skills that are needed to address localized issues, they often do little to address broader conflict-cooperation dynamics. Continuing with the example provided above, it is also important to point out that "those young people grow up and they're exposed to a lot more and very different perspectives from the majority community around them … it's probably not enough to be sustainable in terms of shifting really a mindset," (Participant 3, personal communication, May 31, 2023). Longer-term capacity building solutions that focus on enacting systemic change in broader conflict dynamics are therefore needed.

EcoPeace has attempted to provide a solution to this issue by implementing long-term programs designed to bring Israelis, Jordanians, and Palestinians together in skills-building exercises. Rather than focus on improving technical skills, these programs empower youth to take action to improve their water reality. To do this, EcoPeace works with high school teachers to enable them to understand the

mutual interest and importance of working together to find solutions to environmental problems (International Environmental Peacebuilding). Teachers then pass these skills on to their students. Students themselves are also involved through project-based, interdisplicinary learning that informs them about their region's water challenges and emphasizes the importance of cooperation (Qaimari & Lev, 2024). The Climate Diplomacy for Young Professionals Program (CDYP) shares similar goals but at a higher level. A main goal of the CDYP is to equip young professionals from Israel, Jordan, and Palestine with the negotiation and diplomatic skills they need to advance joint solutions to the region's water problems (Qaimari & Lev, 2024). While bringing together people from all sides of the conflict can be a painful and emotional process, using the environment as a bridge helps to incentivize cooperate once participants realize that the environmental crisis affects everyone and working together to solve it is in their best interest. Programs such as CDYP cultivate joint, long-term engagement with environmental problems and offer a way to transform entrenched conflict dynamics by establishing dialogue between participants from different backgrounds and preparing them become leaders who advance diplomatic solutions to the water conflict.

Capacity building in the ET basin. In the ET basin, capacity building shares the same goal of increasing actors' technical capacity and empowering them to take steps to change their water reality, but is carried out in a slightly different matter than in the Jordan. Two organizations that are most active in capacity building in the ET basin are BluePeace Middle East and Save the Tigris. Many of the activities conducted by BluePeace involve strengthening agricultural efficiency in communities. Senior academics and policy-makers are also taken on field tours to demonstrate innovative technologies and enhance knowledge exchange (Participant 9, personal communication, August 15, 2023). Activities such as this are not intended to shift power dynamics or improve one's stance at the negotiation table but rather focus on water conservation. Similar to EcoPeace, BluePeace also conducts youth programming that brings together young professionals from different countries to facilitate cooperation over transboundary water resources (Youth Fellowship Programme). Through the Youth Fellowship Programme (YFP), young professionals from Iraq, Iran, Jordan, Lebanon, Syria, and Turkey gain skills in Track II diplomacy and learn how to harness water as a source of peace. Like the CDYP offered by EcoPeace, YFP offers a long-term vision to challenging asymmetrical power dynamics in the basin by providing a platform for dialogue amongst youth from different countries and launching them onto career paths as successful scientists or diplomats.

Capacity building work performed by Save the Tigris looks a little different than that done by BluePeace. While Save the Tigris also brings together people from all four basin countries to share knowledge and exchange experience and engage in skills-building activities, most of this happens through workshops conducted with civil society (Our Work – Save the Tigris Foundation). Other initiatives extend their reach beyond civil society to also engage with academics, policymakers and scientists in capacity building programming. Although not currently active, ETIC hosted numerous workshops on dam safety and technical cooperation in the mid-2000's to exchange best practices for dam operation and explore paths forward for cooperation (Participant 5, personal communication, July 24, 2023). Furthermore, in 2011 ETIC implemented a project designed to help overcome the basin's lack of data transparency and increase confidence by developing a data inventory and harmonizing hydrological data from each country (Activities – Euphrates Tigris Initiative for Cooperation (ETIC)). In more recent years, external initiatives like Water, Peace, and Security (WPS) have worked at the country-level to increase by organizing participatory workshops and trainings to create an inventory of water-related security risks (Water, Peace and Security). Other projects aim to enhance policymakers' ability to effectively respond to water-related conflict in Iraq, addressing a critical need for more capable water diplomacy experts in Iraq (Participant 8, personal communication, August 11, 2023). Together, capacity building activities such as these can provide Iraq with greater sources of bargaining power to assist with its ability to negotiate a fair water sharing agreement.

Conclusion

In this chapter, I presented a typology of the mechanisms of hegemony and counter-hegemony employed by actors involved in transboundary water conflict and cooperation in the Jordan and ET basins. The effective use of these mechanisms is predicated on the exercise of one (or more) of the three dimensions of power: material, bargaining, and ideational. Hegemonic actors tend to rely more on material and ideational power to promote hegemonic arrangements, and in situations of extreme power asymmetry, it may seem that little can be done to change the status quo. However, even hegemons have their weaknesses, and one's weakness may be another's strength (Petersen-Perlman & Fischhendler, 2018). Syria's ability to leverage the PKK card to exploit Turkish security concerns and elicit water-related concessions and Jordan's use of active stalling during negotiations over the Yarmouk river to extract further concessions from Israel (who depended on Jordan's cooperation in cleaning the riverbed) are testament to the vulnerability of hegemonic actors.

Non-hegemons can and often do employ soft power (i.e. bargaining and ideational power) mechanisms to resist and contest hydro-hegemony. Furthermore, armed non-state actors such as ISIS heavily utilize hard power tactics through coercion and the weaponization of water and in doing so shift distributions of power. Although for the sake of clarity I presented my typology of hegemonic and counter-hegemonic mechanisms as strategies that are employed separately from one another, it is important to emphasize that this often is not the case. The different dimensions of power are not mutually exclusive and are often used in tandem with one another to achieve the desired outcome. Israel's systematic campaign of creating facts on the ground vis a vis settlement construction has the added effect of backing up Israeli claims for water at the negotiation table (more settlements mean more water is needed) while a prevailing discourse of water scarcity has justified large-scale hydraulic development and out-of-basin transfers through the NWC to supply the growing Jewish population. The three dimensions of power are used synchronously to justify a water distribution regime that favors Israel.

What non-hegemons often lack in material power they make up for in their creative use of diverse leverage mechanisms of counter-hegemony to evoke a change in hegemonic state behavior. These mechanisms include utilizing diplomatic tactics, calling on legal instruments, forming alliances, and capacity building. Each of these mechanisms can increase a non-hegemon's bargaining power by providing them with more leverage at the negotiation table. For example, an increase in an actor's technical capacity can allow them to more accurately and confidently use hydrological data to support a claim for a specific share of water, while calling on legal instruments can lend a sense of normative credibility to an argument. As I will discuss in the next chapter, non-hegemons also employ a diverse set of transformative mechanisms that are primarily premised on ideational power to not only resist hydro-hegemony, but also to challenge the legitimacy of the hegemonic order.

Before I conclude, I want to offer three observations about the relationship between power and scale that I derived from my analysis. First is that power is used to maintain existing spatial configurations. In the Jordan basin, Israel uses its control over water resources to preserve a status quo in which Palestine lacks the sovereignty of an independent state but yet has responsibilities that typically fall to states, such as the provision of basic services such as water. In the ET basin, Turkey perpetuates a discourse that frames the Tigris and Euphrates rivers as constituting a single, transboundary basin (as opposed to two separate ones) to justify its extensive development on what is perceived as a Turkish resource. Second, shifts in spatial realities can lead to shifts in the type of power

used. When Israel occupied the Golan Heights in 1967, it acquired most of the Jordan river's headwaters under its control and no longer had to rely on material power tactics to block Arab diversions. Instead, Israel prefers to rely on a securitization discourse and reputational power to deter Lebanese withdrawals from the Hasbani. Third, power can be used to open new spaces for dialogue, a move which can lead to further increases in soft power. Since water policy in both basins is often crafted behind closed doors by state elites, the use of power to create new claimed spaces for decision-making and participation by non-state actors has proven to be especially influential in resisting and contesting hydro-hegemony. The capacity of non-state actors to effectively utilize power to do so is attributed to changes in political opportunity structures, or arrangements of resources, institutions, and historical precedents that influence the ability of a protest movement to develop and mobilize (Kitschelt, 1986). Turkey's initial attempts to fund the Ilisu Dam through a consortium of international companies, a move which itself was made possible by privatization of the water sector, opened up the anti-dam struggle to international actors and created new spaces for debate and decision-making. By inviting foreign participation in the construction of the Ilisu Dam, the state apparatus was no longer the main space for decision-making and transnational advocacy networks composed of local and international NGOs exerted indirect influence on state behavior by lobbying ECAs to uphold certain environmental and humanitarian standards.

The exercise of power has a noticeable impact on patterns of water conflict and cooperation. The increasing bargaining (and ideational) power of non-state actors is reflected in the increased frequency of cooperative interactions that occurred in both basins as these actors became more involved (see Figures 30 and 42). Similarly, the use of material power by non-hegemons tended to coincide with a increased frequency of conflictive interactions. This is especially reflected in the last ten years of increasing conflict between Israel and Palestine and between various armed groups in the ET basin utilizing water as a weapon. However, underlying power asymmetries are reflected in the hegemonic and counter-hegemonic mechanisms used. For example, non-hegemons may request to restart negotiations or ask for a delivery of water, but only the hegemon possesses the ultimate decision-making power. As a result, many of the leverage mechanisms discussed in this chapter are limited in their ability to enact real change on a hegemonic order. Oftentimes, a hegemonic order may only be transformed through the direct or indirect erosion of its legitimacy. In the next chapter, I will analyze the ways in which this transformative change can be imposed by non-hegemons.

Chapter 7: Transforming Hydro-Hegemonic Arrangements

Stakeholders involved in transboundary water conflict and cooperation utilize a variety of mechanisms to promote their interests and contest actions that go against these interests. In situations of extreme power asymmetry, such as in the Jordan and ET basins, hydro-hegemony prevails and power relations play an important role in determining patterns of conflict and cooperation. Previously, I analyzed how hegemons utilize different dimensions of power and how this is challenged by non-hegemon's use of material and bargaining power. However, oftentimes the coercive and leverage mechanisms of counter-hegemony discussed in the previous chapter do not attempt to impose change on the hegemonic order and instead continue to play by the rules of the game. Counter-hegemonic mechanisms that do challenge the legitimacy of the hegemonic order and attempt to transform conflict and cooperation dynamics are primarily underpinned by expressions of ideational power. This chapter analyzes how such mechanisms have been used by non-hegemons (primarily non-state actors) in the Jordan and ET basin by addressing sub-research question three: How can transboundary water arrangements in the Jordan and Euphrates-Tigris river basins be transformed to promote more equitable arrangements?[92]

Before proceeding any further, it is important to unpack what is meant by the word "transformed" and its derivatives. My use of the term is based on its meaning in the phrase "conflict transformation," which refers to shifting the underlying structures, relationships, and dynamics that create and sustain conflicts (Zeitoun et al., 2020). In conflict transformation, the goal is to challenge and change the structures that undergird existing transboundary water arrangements. This approach differs sharply from more conventional conflict management or conflict resolution approaches, where the emphasis is on avoiding an escalation in conflict or reaching a solution without altering any of the dynamics that underpin and sustain the conflict itself. A critical step in transformative analysis is to assess the power asymmetries that contribute to the formation of inequitable arrangements and identify ways to challenge and change these dynamics (Zeitoun et al., 2020). Transformation, therefore, is inherently about change and replacing an undesirable arrangement with one that is more preferable (ideally) to all involved. While conducting a full transformative analysis is beyond the scope of this dissertation, I refer to the concept of transformation throughout this chapter to emphasize that the goal

[92] Recall that a transboundary water arrangement consists of the institutions, such as treaties, joint committees, and river basin organizations, that dictate how transboundary waters are governed (Zeitoun et al., 2020). Inequitable arrangements are those that do not possess elements of a model regime for transboundary water governance, such as agreements that uphold principles of international water law (including equitable and reasonable use), mechanisms for stakeholder participation, and include all riparians in the basin.

of this chapter is to identify ways in which hydro-hegemony in the Jordan and ET basins is challenged and structural change enacted. It is my hope that the transformative mechanisms of counter-hegemony I discuss in the sections below can serve as a useful starting point for transformative analysis.

My analysis in this chapter is based on the same data sources utilized in the previous chapter – that is, interviews with 20 stakeholders from across both basins and a review of the academic and grey literature regarding conflict and cooperation in the Jordan and ET basins. This chapter is organized as follows. In the first section, I outline the four actions through which attempts are made to transform hydro-hegemonic arrangements: creation of new spaces for dialogue, construction of expert-based knowledge, de-politicization, counter-sanctioned discourse, and the promotion of alternatives. These actions are visualized on Figure 44 in the previous chapter. When analyzing the promotion of alternatives, I pay particular attention to the use of desalination, issue linkage, and climate change as potential hydropolitical gamechangers. In the second section, I analyze the challenges associated with enacting such transformations such as broader conflict dynamics, power asymmetries, lack of political will, lack of capacity, and a lack of funding and decision-making power. The final section concludes by analyzing the implications of transformative mechanisms on patterns of conflict and cooperation that occur in a hydro-hegemonic setting.

Transformative Mechanisms of Counter-Hegemony

Transformative mechanisms of counter-hegemony have the potential to enact the longest lasting change on hegemonic orders. They do so by targeting the legitimacy of the bedrock supporting it (Zeitoun et al., 2017). This is accomplished by envisioning an alternative reality by reframing water conflicts, creating knowledge, and spreading discourses that oppose those disseminated by the hegemon. For example, proposing a solution that involves allocating water based on the benefits it can provide (see Sadoff & Grey, 2002), rather than strictly allocating the water itself, can create an alternative path forward when previously it was unthinkable to challenge the dominant discourse that portrays an allocation of flows as something completely unfeasible. The following transformative mechanisms are identified at play in the Jordan and ET basins: creation of new spaces for dialogue, construction of expert-based knowledge, counter-securitization, counter-sanctioned discourse, and the promotion of alternatives.

Creation of New Spaces for Dialogue

For new discourses or alternatives to the current hegemonic arrangement to be developed, there needs to be space in which ideas and knowledge can be exchanged. Because dialogue about water resources in contexts of hydro-hegemony tends to be conducted in closed spaces between elite decision-makers, new spaces have to be established. Often, this is a goal that is pursued by non-state actors such as NGOs and other civil society organizations, who lack decision-making power on their own. Sometimes, these new spaces for dialogue span vertical interactions between state and non-state actors while in other instances they are limited to horizontal interactions amongst different non-state actors. In all cases, however, they represent new invited or claimed spaces that are established through the use of bargaining and ideational power by non-state actors.

The creation of new spaces for dialogue was mentioned by five interviewees as a strategy their organization has employed. Interestingly, in the Jordan basin, this mechanism has been utilized by state and non-state actors alike. An expert in the multilateral water negotiations during the peace process noted that the Multi-Lateral Working Group on Water Resources itself served as an opportunity for Israelis and Arabs to come together and talk about water issues, presenting a valuable opportunity for communication between people who previously were not afforded the chance to engage in constructive dialogue:

> And as discussions went along, you know, in the beginning we'd kind of talk about general topics and that familiarization process, I think, really helped because people began to realize that you know, this neighbor who I've never talked to because we're at war, officially, you know, has the same issues that I have to deal with, and, you know, maybe we can figure out you know, working together. Maybe that will help both of us. (Participant 4, personal communication, June 5, 2023)

Within the framework of the multilateral working group, Israelis and Arabs alike were able to talk to one another (sometimes for the first time) and engage in an exchange of knowledge and experience. In doing so, participants found that they often experienced similar environmental hardships and that these shared experiences facilitated a common understanding of water issues. Notably, this strategy is used by civil society organizations such as EcoPeace and the Palestinian Wastewater Engineers Group to bring together Israelis, Palestinians, and Jordanians to craft joint solutions through the identification of common problems and common interests (Participant 13, personal communication, September 20, 2023). One of the primary goals of EcoPeace programming is to bring together stakeholders from all dimensions of the conflict to discuss shared environmental hardships. In doing so, participants are able

to breakdown stereotypes and build trust through using the environment as a common platform. The CDYP program described in the previous chapter is an example of how EcoPeace creates new space for dialogue. Another example is the Good Water Neighbors (GWN) program, which was started in 2001 to improve cross-border cooperation over shared water resources and utilize shared interests to foster long-term trust-building (EcoPeace, 2007). The GWN program partners Israeli, Jordanian, and Palestinian communities together so that residents may engage in dialogue about shared challenges and visions for the future, serving as a crucial space for communication that would otherwise not exist.

In the ET basin, new spaces for dialogue are created to promote engagement between state and non-state actors. At the state level, the appointment of a special Turkish envoy for water issues in Iraq has promoted a more continuous exchange of dialogue of this kind between the two countries by creating a new invited space (Participant 9, personal communication, August 11, 2023). At the civil society level, organizations such as ETIC, BluePeace and Waterkeepers Iraq-Kurdistan have all conducted programming that has created new invited spaces in which members of civil society can communicate with policymakers about water issues. One of the main goals of BluePeace, for instance is to foster the development of dialogue among the five member countries at both the civil society and governmental level (Participant 9, personal communication, August 11, 2023). This is done through programs such as YFP discussed in the previous chapter and by disseminating research to decision-makers to encourage further dialogue. In Iraq, Waterkeepers Iraq-Kurdistan hosts roundtables that bring together activists and politicians to talk about current problems and potential solutions (Participant 20, personal communication, February 7, 2024). Roundtables such as these function as another invited space in which stakeholders from the public and private sectors and civil society can discuss issues of common interest and identify cooperative paths forward.

Focusing more on the civil society level, on the other hand, Save the Tigris creates new claimed spaces in which civil society members from different countries can come together and exchange ideas. This occurs through activities such as the Mesopotamian Water Forum, which “functions as an alternative civil society forum for water, an open space to give voice to those who are marginalized and excluded from the discussion about water management in the Tigris-Euphrates basin,” (Our Work – Save the Tigris Foundation; see also Participant 1, personal communication, January 31, 2023). The most recent Forum, held in December 2024, included stakeholders from Iraq and Iraqi Kurdistan, Iran, northeast Syria, and Turkey and addressed themes such as water diplomacy, water justice, and community participation. Spaces for civil society engagement are especially important in regions like the

Middle East, where decision-making tends to be confined to within the state apparatus and public participation is very limited.

Construction of Expert-Based Knowledge

Reality is predicated on a shared "truth", or understanding of the world, that is based on the construction of knowledge which itself informs a particular discourse (Foucault, 1980). In other words, knowledge is power. Hegemons are usually better equipped to construct and disseminate knowledge that is farther reaching and more influential on policy. However, non-hegemons also generate their own knowledge of what water is available and how it should be managed. Non-hegemons engage in activities such as capacity building, building networks with stakeholders from across civil society, and encouraging communication across sectors to reduce knowledge gaps at both the state and local levels. The generation of new knowledge therefore arises organically from engaging in some of the mechanisms of counter-hegemony I have already discussed.

Non-state actors across the Jordan and ET basins seek to collect, interpret, and disseminate knowledge that can lead to change in water policy. Many of the capacity building and dialogue facilitation activities undertaken by NGOs and other civil society organizations that I have previously described involve an element of knowledge creation. For example, BluePeace conducts field visits to various sites across the Middle East to educate participants on the water situation in different countries and promote the exchange of ideas about technical issues such as efficient water use in agriculture. Findings from these trips are published in reports and the collective knowledge and experience is disseminated to high-level people in the government through BluePeace's policy advisory committee (Participant 9, personal communication, August 11, 2023). Publishing research on water quantity and quality issues is acknowledged as an important part of the work done by many organizations working across the basin because disseminating this research can help push governments to implement new policies (e.g. Participants 1 and 20, personal communication, January 31, 2023 and February 7, 2024). Constructing knowledge also yields other benefits. Involving local people in the creation of new knowledge and then disseminating that knowledge to high-level actors can provide people with a sense of ownership and empowerment that is crucial for building confidence and trust in one another and in the organization's mission (Participant 3, personal communication, May 31, 2023). It can also catalyze a shift in previously entrenched mindsets that can lead towards a more prosperous future. After EcoPeace published the Regional Master Plan for Sustainable Development in the Jordan Valley in 2015, for

instance, one interviewee recalled there was a shift in mindset from focusing on the ecological aspects of rehabilitating the river to acknowledging the mutual economic benefits and prosperity that would arise out of focusing on sustainable development (Participant 19, personal communication, January 31, 2024). The construction of new knowledge is a powerful tool that can challenge the legitimacy of a hegemonic order by facilitating a shift in perspective that questions previously held assumptions and encourages a move away from zero-sum thinking towards a mindset that emphasizes possibilities for mutual gain.

De-politicization

The politicization of water resources in the Jordan and ET basins presents a major obstacle to cooperation. When water is treated as a political issue, as it so often is by the political elite in these basins, a zero-sum mindset often prevails and water is linked to higher-level political issues such as security that are much more difficult to resolve. In contexts where water is highly politicized, actors can choose to de-politicize the issue by taking the politics out of water (Wagerich & Warner, 2010). By doing so, de-politicization actors increase their discursive power and construct a new discourse that emphasizes the scientific and legal underpinnings of water issues. While this can be done by state actors[93], de-politicization in the Jordan and ET basins has more often been carried out by non-state actors who seek to provide alternative framings to the water conflict and advance cooperation. For instance, a lot of the work conducted by NGOs in the basins focus on technical aspects of water. As one interviewee working for BluePeace explained:

> We choose the very technical topic for the cooperation because, you know, if we're starting with the water policy or the transboundary dimension, it's not easy to talk about. In the water world, it's not easy to take tangible steps, as you know. (Participant 9, personal communication, August 11, 2023)

Recognizing that dominant discourses have embedded politics into water, many organizations have opted to focus almost exclusively on technical issues, which are easier to dissociate from politics and often are not at the heart of water conflicts. This sentiment is also reflected in the Jordan basin, where a Palestinian activist lauded the decision by many Palestinians to not put politics into their wastewater as a "smart move," (Participant 15, personal communication, September 25, 2023). Often, de-politicizing

[93] For instance, Turkey has often emphasized the technical aspects of water management in negotiations with Syria and Iraq to avoid more contentious issues of water allocation. This is reflected in the highly technical focus of numerous bilateral MoUs that stipulate cooperation in diverse fields such as irrigation, water quality protection, and agricultural efficiency.

water is also a way to get around a lack of political will that exists at the highest levels to pursue water cooperation (Participant 19, personal communication, January 31, 2023). By focusing on projects that are technical in nature and do not necessarily require large sums of money to implement, organizations are able to move forward with cooperation even as political relations are at standstill or suspended at the highest political levels. This de-politicization of water resources by non-state actors explains in part why cooperation has persisted in both basins at the civil society level even as interactions at the state level are conflictive or non-existent.

Counter-Sanctioned Discourse

Just as hegemons produce a sanctioned discourse that dictates how others ought to perceive water issues, non-hegemons can construct counter-sanctioned discourses, or alternative discourses, that promote a different way of thinking. As I explained in the previous chapter, discourse gives meaning to reality through repeated actions, speech acts, and events, and determines what issues are acceptable to be addressed and how (Hajer, 1995). Construction of a counter-sanctioned discourse is an ideational power tactic used to influence how people think about water and how water conflict is approached and resolved. This alternative discourse is disseminated through the publication of reports, the hosting of conferences, and other activities that establish new invited and claimed spaces that facilitate dialogue between civil society actors and state actors. In this section, I will discuss the three prominent counter-sanctioned discourses developed in by non-state actors in the Jordan and ET basins: water as a tool for peace, water for all, and alternative dam discourses.

Water as a tool for peace. Using water resources as a tool for promoting cooperation and peace is a common discourse promoted by civil society organizations in both basins. Take, for example, the BluePeace mission statement, which declares that the overall objective of the organization is to "transform water from a potential source of conflict into an instrument of cooperation and peace through dialogue, capacity building and concrete action," (BPME | The initiative is dedicated to improving the region's water). Similarly, the primary goal of EcoPeace is "the promotion of cooperative efforts to protect our shared environmental heritage. In so doing, we seek to advance both sustainable regional development and the creation of necessary conditions for lasting peace in our region," (About - EcoPeace Middle East). These organizations capitalize on a growing environmental peacebuilding discourse that suggests that the interdependent nature of environmental challenges can facilitate cooperation and provide a platform on which mutual trust can be built, promoting cooperation in other

areas and contributing to the peacebuilding process (Dresse et al., 2018). This kind of discourse, which emphasizes mutual interdependencies created by shared natural resources and the mutual gains that are fostered through cooperation, stands in direct opposition to sanctioned discourses in both basins that emphasize the self-interested and zero-sum nature of water conflicts. A closer look at the language used by civil society organizations, which includes the use of phrases such as “water for all” and “pollution knows no borders” (e.g. Participants 1, 6, and 15, personal communication, January 31, July 31, and September 25, 2023), illustrates how water is framed as an issue that effects everyone and encourages the adoption of a mindset that is conducive to cooperation.

Water for all. A discourse of water for all was promoted by several interview participants. Activists discussed how they would frame water as a resource that belongs to everyone as a strategy for making their advocacy campaigns more compelling and relatable. For example, the waters of the Tigris were often referred to as the “life blood” of all people living in Mesopotamia by activists campaigning to save the river from threats posed by upstream development (Participant 1, personal communication, January 31, 2023). The Reconnecting with our Life Blood project launched by Waterkeepers Iraq-Kurdistan and Humat Dijlah, a local Iraqi NGO, aims to reconnect communities along the Tigris river to their natural environment by documenting traditional connections to the river and highlighting how the Tigris has for millennia linked together the various ethnic groups living in the area (Participants 1 and 20, personal comunication, January 31, 2023 and February 7, 2024). The discourse of water for all was particularly prominent during the anti-Ilisu Dam campaign. As one interviewee explained:

> I said it's not only yours. It belongs to humanity. It doesn’t only belong to our past or now but it also belongs to the future. And they were very impressed by this … like the land, the water, the air whatever belongs to everybody. Our cultural heritage not only belongs to the people that live in Hasankeyf but also to the Kurdish people there, the people from Anatolia, the people from the Middle East, and the fish there the birds there, the animals, everything. And it was so liberating for people because they thought they were stuck in this idea of we are just a bunch of people who don’t want this place to be ruined. And then they realized slowly that it’s not only them, there are so many people who hold this place, embrace the place as his or her own and are ready to do anything for it. So it was very it was a liberating feeling for those people. (Participant 6, personal communication, July 31, 2023)

Framing Hasankeyf and the surrounding landscape as a cultural treasure that belongs to all of humanity helped motivate people to join the protests against construction of the Ilisu Dam and empowered local communities by helping them realize they were not alone in their struggle against the dam. By generating a discourse of water for all, activists challenged dominant narratives that framed the waters

of the ET basin as a Turkish resource and highlighted how stopping construction of the dam was in everyone's interest.

Differing dam discourses. The final counter-sanctioned discourse identified as being at play in the Jordan and ET basins is actually a series of discourses that challenged hegemonic narratives about the Ilisu Dam disseminated by the Turkish government. Recall that Turkey framed the Ilisu Dam as a sustainable human development project and as a potential solution to the so-called Kurdish question. In response, anti-dam activists developed three interrelated discourses to refute this narrative. First, Ilisu Dam was portrayed as an existential threat to the area's fragile environment. Various negative environmental impacts such as loss of endangered species, reductions in water quality, and degradation of 400km of ecosystem were named by various organizations involved in the campaign (e.g. Berne Declaration, 2001; ECA Watch, 2009).[94] Second, the Ilisu Dam was portrayed as an urgent human rights issue due to the adverse impacts the dam would have on tens of thousands of displaced people. Viewing the dam as "a form of ethnic cleansing in which governments and companies would have been complicit" (World Archaeological Forum, 2001, p.1) helped galvanize the international community into action while prominent organizations such as the Kurdish Human Rights Project brought to light potential impacts of the dam on the repression of Kurdish identity. Closely related to the human rights discourse was a discourse that the Ilisu Dam represented an existential threat to the rich history and culture of Hasankeyf and the surrounding area (Hommes et al., 2016). Protests against the dam on cultural grounds formed a focal point of campaigns led by the Initiative to Keep Hasankeyf Alive, who emphasized the importance of preserving Hasankeyf, which has been inhabited since the seventh century B.C. and contains numerous sites of religious and cultural importance (Warner, 2012). By perpetuating these counter-sanctioned discourses, anti-dam activists securitized the environment and cultural heritage to help bring international attention to what was originally a local struggle.

Promotion of Alternatives

One of the most effective ways a non-hegemon can contest a hegemonic order is by proposing alternative transboundary water arrangements. This type of mechanism goes beyond propagating alternative knowledge or discourse about water to propose, or implement, actionable steps to create actual change on the ground. The outcome of such action is a new transboundary water arrangement

[94] See Consortia for Ilisu (2001) for detailed findings of the environmental impact assessment conducted for Ilisu Dam.

that alters daily water use and shifts the political economy of the basin (Zeitoun et al., 2017). For instance, non-hegemons may suggest alternative approaches to water resources development that privilege socioeconomic development, as seen in EcoPeace's efforts to establish the Jordan EcoPark in the northern Jordan Valley (Participant 3, personal communication, May 31, 2023), or help local communities develop off grid technologies to reduce their reliance on the state (Participant 15, personal communication, September 25, 2023). These alternative arrangements ideally represent a move away from the status quo towards shared control over water, but sometimes may result in an arrangement that is not all too different from the previous one. The identification of mutual interdependencies and opportunities for benefit sharing can help make alternative arrangements more appealing, but as I will discuss in this section, sometimes these factors can increase the vulnerability of certain actors. In the remainder of this section, I will center my analysis around three opportunities for the transformation of transboundary water arrangements in the Jordan and ET basins that were brought up multiple times in interviews: climate change as a motivator for cooperation, issue linkage, and desalination as a hydropolitical gamechanger.

Climate change as a motivator for cooperation? The Middle East is one of the most vulnerable regions in the world to climate change. The region is predicted to experience a 4^{o}C increase in temperature by 2100 and suffers from natural water scarcity, low adaptive capacity, and low social-ecological resilience (EcoPeace, 2019). States such as Jordan, Syria, and Iraq, which largely depend on a water supply that originates from outside their borders and experience high levels of political tensions and social conflict, are especially vulnerable to climate change. While climate change is often thought of as a "threat multiplier" in that it can exacerbate pre-existing tensions and grievances, the causal role of climate change in causing or contributing to conflicts such as the Syrian civil war is unclear (Goodman & Baudu, 2023; Ide et al., 2018; Selby et al., 2017). It is no surprise that climate change was one of the most cited challenges to transboundary water cooperation by interviewees (n=5). However, it was also cited as a major motivator for cooperation due to the threat that climate change poses to all riparians in the Jordan and ET basins.

In the Jordan basin, much of EcoPeace's more recent work has focused on addressing the basin's climate crisis and advancing regional integration over climate resilience (Participant 19, personal communication, January 31, 2032). This work has been advanced at multiple scales. At the national scale, EcoPeace has lobbied policymakers to incorporate climate change concerns on national security agendas and has disseminated research highlighting the climate-related national security implications

for Israel, Palestine and Jordan (e.g. EcoPeace, 2019; EcoPeace & KAS, 2020). For example, a stable Jordan is in both Israel and Palestine's benefit. Jordan shares a long land border with the former and is one of only two Arab countries with which Israel has brokered a peace agreement, while most Palestinians have family residing in Jordan and also benefit from a Jordan that is free from internal instability. At the transboundary and regional scales, EcoPeace has advocated for the creation of a regional roadmap to climate security and climate resilience. The Green Blue Deal, which is marketed as a way for Israel, Jordan, and Palestine to meet their national-level climate commitments while simultaneously promoting regional integration and climate security, is a strong example of an alternative transboundary water arrangement. Rather than casting water, energy, and climate security as a zero-sum game, the Green Blue Deal proposes a win-win solution for everyone. The benefits to water-starved Jordan and Palestine are obvious, with desalination providing an alternative source of water and, in the Palestinian case, helping to define and quantify Palestinian water rights (Participant 7, personal communication, August 2, 2023). Although Israel likely has the adaptive capacity to appropriately respond to climate change, it will benefit from the increases in water security and political stability the deal will bring to Jordan and Palestine (Bromberg et al., 2020). Furthermore, purchasing solar energy produced in Jordan will help Israel meet its Paris Agreement commitment to increase renewable energy use to 30% by 2030 (Steinitz, 2019). As an initiative that was entirely created and marketed by an NGO and tentatively accepted by national-level governments (pending resolution of the ongoing conflict in Gaza), the Green Blue Deal showcases how the simultaneous use of counter-hegemonic mechanisms such as knowledge creation, counter-sanctioned discourse, and the promotion of alternatives can create an opportunity for transformative change.

Iraq is the world's fifth-most vulnerable country to climate change (UN Environment, 2019). Increasing temperatures, lower levels of precipitation, and rising salinity pose threats to delicate ecosystems such as the Mesopotamian Marshes and local livelihoods (Mehdi, 2023). Climate change is also expected to impact the rest of the ET basin, with precipitation expected to decline most significantly over the Turkish part of the basin (IPCC, 2014). Climate change is also predicted to exacerbate existing political and economic instability, especially in Syria and Iraq where governance structures are weak and adaptive capacity is low (Mueller, 2021). Virtually all of the participants I interviewed from the ET basin cited climate change as a top challenge facing the basin, alongside hydraulic development. However, several participants also argued that climate change could serve as a motivator for cooperation. The significant threat that climate change poses to all states in the basin, and the immense importance each state attaches to the waters of the Tigris and the Euphrates, can incentivize cooperation (Participant 8,

personal communication, August 11, 2023). This positive language viewing climate change as an opportunity for cooperation is also found in official discourses put forward by the state. The 2014 Memorandum of Understanding in the Field of Water signed by Iraq and Turkey stipulates that both countries will cooperate over issues relating to climate change (Article 2a). Furthermore, the recent framework agreement inked in April 2024 repeatedly mentions sustainable water management and institutionalizes a process for the involvement of Turkish companies in projects dealing with flood and drought protection, modernizing irrigation systems, and improving wastewater and industrial water reuse in Iraq (Framework Agreement Concerning the Cooperation in the Field of Water between the Government of the Republic of Türkiye and the Government of the Republic of Iraq). While the agreement does not explicitly mention climate change, the aforementioned factors will be key in improving Iraq's climate resilience. Viewing climate change as an opportunity for cooperation, rather than a driver of conflict, can help transform zero-sum thinking about water resources and identify opportunities for mutual gain that challenge conventional framings of the water conflict as intractable.

Issue Linkage. Linking water to other issues in negotiations can be an effective way for weaker parties to induce cooperation on the part of the hegemon (Daoudy, 2009). While the use of such a strategy is typically associated with the exercise of bargaining power because of its ability to increase a party's influence at the negotiation table, I categorize it here as a transformative mechanism because of its potential to fundamentally alter the underpinnings of a hegemonic arrangement through the recognition of mutual interdependencies. Attaching water to an issue that is perceived to be more important to the hegemon can result in significant gains for the weaker party, as was the case when Syria linked its support for the PKK to the water issue to force Turkey's hand at the negotiation table. When water is linked to other issues, the basket of benefits is enlarged and innovative paths forward for cooperation that were previously undiscovered may rise to the surface. This is especially important in basins with extreme power asymmetries like the Jordan and ET, where the hegemon's lack of motivation to cooperate can lead to an entrenched status quo that may seem impossible to get out of.

Linkages can be made between single water issues, multiple water issues (e.g. water quantity and hydropower) and water and non-water issues (e.g. trade, security) (Katz & Fischhendler, 2011). These linkages can span the entire basin or focus on a smaller area of the basin such as a single watershed. In the Jordan basin issue linkages form the heart of the water-energy exchange between Israel and Jordan (and eventually Palestine) that was proposed as part of the Green Blue Deal. Such an exchange capitalizes on the mutual gains that can be achieved through cooperation and increases the

mutual interdependence of the two countries, thus transforming the dynamic of the hegemonic order. As one interviewee explained:

> This is the concept of the water-energy deal. Jordan has the capacity to produce renewable energy from solar from wind and later on hydrogen and sell that energy to Israel and Palestine in exchange for water and that changes the dynamic of our region to where no one is dependent on the other but rather to mutual dependency. (Participant 19, personal communication, January 31, 2024)

In the ET basin, issue linkage has been utilized in Syria's past negotiations with Turkey, as described previously. Other opportunities for issue linkage exist that might be utilized to extract concessions from the Turkish side. For instance, Syria could use it upstream position on the Orontes river relative to Turkey to its advantage. The Orontes river originates in Lebanon and flows north through Syria before emptying into the Mediterranean Sea via Turkey's Hatay province. While the Orontes represents a relatively insignificant source of water for Turkey (0.6% of its entire potential, Conker, 2014), the river flows through disputed territory with Syria that plays an important role in Turkish nationalist politics and Turkish identity due to its association as the homeland of the Hittites. The territory, known in Syria as Alexandretta, is important to Syria because it was originally part of the French Syrian Mandate, had an Arab majority population prior to its annexation by Turkey, and was home to Zeki al-Arsuzi, one of the founders of the Syrian Ba'ath movement (Conker, 2014). In the past, Turkey has insisted that an agreement with Syria on the Tigris and the Euphrates rivers must also include the Orontes. Syria could use Turkey's insistence to its advantage by leverage its upstream position on the Orontes to elicit concession from Turkey on the Euphrates, similar to the strategy Mexico has employed in its negotiations with the United States over the Colorado River.[95] However, such a strategy carries risks, as linking the three rivers in one agreement would likely implicitly recognize Turkish sovereignty over the Hatay/Alexandretta disputed territory.

There are also opportunities for issue linkage in Iraqi-Turkish water negotiations and increase mutual interdependencies. Lacking abundant natural gas and oil reserves, Turkey has long been a net energy importer, importing much of its oil from Iraq. In December 2021, Turkey imported 1.18 million tons (out of 2.98 million tons[96] in total oil imports) of oil from Iraq (Hurriyet, 2022). A significant amount

[95] Mexico has used its upstream position on the Rio Grande river, which Texas is heavily dependent on, in negotiations with the United States to extract concessions on the Colorado river, to which Mexico is downstream (Petersen-Perlman & Fischhendler, 2018).

[96] One metric ton of crude oil is about 7.5 barrels of crude oil. Put another way, in December 2021, approximately 40% of Turkish oil imports came from Iraq.

of the oil Turkey imports from Iraq is produced in the Kurdistan region. Prior to March 2023, when the ICC ruled that Turkey could no longer import oil from the Kurdistan region of Iraq (KRI) without consent from the federal government of Iraq, the Kirkuk-Ceyhan oil pipeline had exported some 450,000 barrels a day[97] to the Turkish port of Ceyhan (Krasna, 2023). Although Baghdad requested that Turkey renew oil exports two months later, the latter has yet to do so, a move that has proven devastating to the Iraqi economy which has lost some $2 billion as a result of the suspension in oil exports (Salih, 2023). However, Turkey's energy needs are growing, and Iraq represents a relatively cheap way to meet this demand. Iraq could use Turkey's dependence on its oil to increase its bargaining power in negotiations. In fact, there is evidence that it has already done so, as the recent 2024 Turkish-Iraq water resources agreement stipulates that Turkish efforts to help improve Iraq's water use efficiency will be financed by purchases of Iraqi oil (Article 3). Iraq could also link security issues to its water negotiations with Turkey, similar to Syria's strategy in the 1990's. PKK activity in northern Iraq and the KRI has long been a national security concern for Turkey, who has conducted attacks against the PKK in the KRI with increasing frequency and established numerous military bases in the area (Salih, 2023). Assisting Turkey in its struggle against the PKK could well prove a fruitful way to get Turkey to make concessions on water allocations, if history does indeed repeat itself.

Desalination. The use of desalinated water is a third way in which alternatives to transboundary water arrangements can be proposed. Occasionally referred to as a hydropolitical gamechanger (e.g. Aviram et al., 2014), desalination has the potential to fundamentally alter the dynamics of a water conflict. Water allocation in transboundary basins is often treated as a zero-sum game that is based on factors such as riparian position, distributions of power (especially hard power), and the amount of water naturally available to a riparian. However, several characteristics inherent to desalination allow it to help guide thinking beyond these narrow framings (Aviram et al., 2014). First, desalination as an additional water source provides states with more stability in their water supply and reduces, to some degree, restrictions on water supply. This may provide states with more bargaining chips at the negotiation table. Second, desalination provides states with more control over water quality because water is produced in a tightly controlled environment. Third, it may alter existing power dynamics depending on the location of the desalination facilities (Feitelson & Rosenthal, 2012). A downstream country that has the capacity to desalinate (e.g. access to the ocean and the technological know-how to build and operate a desalination plant) may find its dependency on the good graces of the upstream

[97] This figure comes out to about 60,000 tons per day.

country to be significantly reduced and therefore close the upstream-downstream power gap. Fourth, water rights to desalinated water are less likely to be challenged because of its manufactured nature and desalinated water instead is more likely to be treated as an economic commodity (Aviram et al., 2014). It is due to a combination of these factors that desalination may transform existing transboundary water arrangements and reduce hegemonic power.

Desalination is already at play as a potentially transformative mechanism in the Jordan basin given Israel's status as a world leader in desalination and the incorporation of desalinated water into numerous transboundary water arrangements. In 2021, Israel doubled the amount of water it sells to Jordan to 100mcm per year (Rabinovitch, 2023), a move that was largely made possible because desalination increased existing water supplies. It also sells around 77mcm of desalinated water to the West Bank every year (B'Tselem, 2023). The mere existence of desalinated water as an alternative water source in the Jordan has had far reaching implications, as one interviewee explained:

> With Israel becoming a world leader in desalinating water, the cheapest prices in the world, the change in the water economy has allowed us to rethink how water can become a low hanging fruit. Because Israel is no longer depending on the shared resources like the Mountain and Coastal aquifer or the Jordan river to meet its demands. They are desalinating more water than they need. They have excess water. (Participant 19, personal communication, January 31, 2024).

Because desalinated water provides up to 80% of Israel's freshwater needs, and almost 100% of its sewage is repurposed as treated wastewater for agricultural use, the country's dependency on contested water resources such as the Mountain Aquifer is greatly reduced (Mandel, 2023). By increasing the amount of water available, desalination alters conflict dynamics by "bringing rivalry parties to a better possibility of reaching an agreement," (Participant 7, personal communication, August 2, 2023). In addition, the same interviewee highlighted how desalination presents an economically more feasible solution to water supply in the West Bank than the alternative dual-system (one Israeli, one Palestinian) approach:

> I think that nowadays there's no viability for two different water systems in the West Bank. As many other issues concerning the occupation, the capability, like roads, air, other issues, the possibility nowadays to create two water systems, both for freshwater supply and sewage systems is impossible. Impossible not only because there is no Palestinian sovereignty whatsoever, but also because economically it's not viable anymore. And at the end of the day, it is impossible economically to build a new network. (Participant 7, personal communication, August 2, 2023)

Another way that desalination has the potential to transform conflict-cooperation dynamics in the Jordan basin is that it forces Israel to do something about Gaza (Participant 17, personal communication,

January 18, 2024). Collapsing water and sewage infrastructure in Gaza, which were already deteriorating prior to the outbreak of conflict in October 2023, pose a serious threat to Israel's major desalination plants stationed just north of Gaza along the coast. In 2016, Israel's desalination plant at Ashkelon, just north of Gaza, was forced to shut down on at least four separate occasions because of sewage flowing north from Gaza (Cooke, 2016). Prior to the war, 90 million liters of sewage flowed out of Gaza into the Mediterranean everyday; that number has likely significantly increased since the ongoing conflict destroyed virtually all of Gaza's wastewater treatment plants and 70% of its sewage pumps (Livingstone, 2024). The threats this sewage pose to Israel's desalination plants could force its hand into taking action to provide a more permanent solution to Gaza's chronic water supply and wastewater treatment issues.

While desalination may seem like an ideal way to resolve a water crisis and improve prospects for cooperation between two parties in conflict, it comes with a fair share of challenges and caveats. For one, desalination does not necessarily lead to reduced conflict or improved cooperation between two actors. It can provide more opportunity for unilateral disengagement because cooperation, or interaction of any kind, is no longer perceived as necessary (Participant 17, personal communication, January 18, 2024). It can also increase conflict in certain circumstances. After Singapore began desalinating water, it declined to renew a water supply agreement with Malaysia and hydropolitical relations between the two states actually deteriorated (Walschot & Katz, 2022). Desalination also introduces new opportunities for conflict into a socio-ecological system due to the interactions between seawater and freshwater that take place during desalination (Participant 17, personal communication, January 18, 2024). When highly contaminated seawater comes into contact with a coastal desalination plant, such as what happened in the Gaza example above, new opportunities for conflict emerge. Desalination is also an energy intensive process, meaning that water security is attained at the expense of energy security. Successful, long-term reliance on desalination increases water-energy interdependencies and requires that extra attention be paid to the water-energy nexus so that security in one resource is not achieved at the expense of security in the other.

Desalination also presents challenges that are more specific to the Israeli-Palestinian conflict. First is that desalination will not fundamentally alter upstream-downstream dynamics in the conflict given that Gaza is the only location where Palestinians could open a large-scale desalination facility of their own, and this not likely to happen in the foreseeable future. Therefore, any desalinated water provided to the Palestinians realistically has come from Israel. This is directly related to the second problem desalination presents, which is that it is not necessarily a solution to the issue of Palestinian

water rights, which have never been formally defined, and Palestinian sovereignty over water resources. If most of their water is coming from Israeli desalination plants, how are Palestinians expected to feel a sense of sovereignty over it? The answer to this question, one interviewee explained, might lie in water pricing:

> If we agree that the water rights of the Palestinians in the mountain aquifer, let's say, [are] 300 million per year. Since you cannot give the 300 out of the mountain aquifer, this 300 can be pumped on the Israeli side because it is more viable economically, et cetera, then the way to say this is [Palestinian] is by saying, for this, you pay a few cents and then all the rest that is not used you are paying the desalination price. So in that sense, at least you can quantify what belongs to the Palestinians. (Participant 7, personal communication, August 2, 2023)

One way Palestinian water rights could be defined is by labelling the water that would rightfully be allocated to them from the Mountain Aquifer (but cannot be due to over-exploitation and limited technical capacity on the Palestinian side) with a price tag that is different from the remainder of water sourced through desalination. However, such an approach may receive backlash from Palestinians who perceive a strong connection between water and Palestinian identity and would refuse to pay for water that is rightfully theirs. Furthermore, it would do little to advance Palestinian sovereignty over water resources. Perhaps a more appropriate solution for the long-term is to increase Palestinian capacity to desalinate water in Gaza, which could then be pumped to the West Bank and even sold to Jordan, as proposed in the Green Blue Deal. Such an arrangement, however, is predicated on improvements in the broader conflict[98] that are not likely to happen in the foreseeable future.

Challenges to Transformation

Thus far, this chapter has analyzed various transformative mechanisms used by non-hegemons to contest and challenge the legitimacy of hegemonic orders. Ultimately, the goal of these mechanisms is to enact real change in the existing transboundary water arrangement. It has also discussed opportunities for the transformation of existing arrangements through the promotion of alternative visions that capitalize on the opportunities for cooperation offered by climate change, issue linkage, and desalination. However, inherent within transboundary water arrangements are challenges that may hinder, or entirely prevent, their transformation. Even though interviewees were not originally asked about what challenges they faced in advancing their work, virtually everyone I spoke to brought up at least one challenge they encountered and how it has impacted prospects for water cooperation. These

[98] For instance, Israel has not exported sizeable amounts of fuel to Gaza since Hamas came to power in 2007, while electricity supply was erratic even prior to October 2023.

challenges included broader conflict dynamics, power asymmetries, a lack of political will, and challenges that are specific to NGO's and civil society organizations such as funding and a lack of decision-making capacity. In this section, I will analyze each of these challenges in turn.

Broader Conflict Dynamics

All transboundary water interactions are embedded within the broader conflict-cooperation system, which encompasses the environmental, social, and political dimensions in which water dynamics play out (McCracken et al., 2025). This broader context was the most commonly cited challenge by interviewees, with 11 people referencing it 37 separate times. In most cases, interviewees specifically cited the broader conflict dynamics as hindering the progress of water cooperation, although two people also noted that changes in Israel's ruling party also slowed down cooperation.

Broader conflict dynamics in the Jordan basin. The Israeli-Palestinian conflict is an extremely complex and multi-faceted issue. The high degree of volatility, uncertainty, complexity, and ambiguity inherent in the broader conflict has a significant impact on cross-border water cooperation between Israelis and Palestinians (Participant 15, personal communication, September 25, 2023). In the early days of the multilateral negotiations that took place under the framework of the peace process, just getting Arabs and Israelis together in the same room without having anyone walk out was considered an accomplishment (Participant 4, personal communication, June 5, 2023). Identifying environmental issues that both sides struggled with and keeping the focus of conversations initially on technical issues helped facilitate dialogue. Nonetheless, broader political dynamics tended to get in the way. The assassination of Yitzhak Rabin in 1995, who came to be one of the most ardent supporters of the peace process, set the peace process on a downhill trajectory. When Netanyahu's Likud Party came to power in 1996, the pace of progress in the Israeli-Palestinian bilateral negotiations as well as the multilateral talks slowed dramatically (Participant 4, personal communication, June 5, 2023). Furthermore, water issues are often perceived as being subordinate to other issues that were relegated to final status talks, such as borders, refugees, and Jerusalem. As a result, it can be difficult to reach an agreement over water when other, bigger issues are still unresolved (Participant 7, personal communication, August 2, 2023). As I discussed in chapter 5a, state-to-state water negotiations have often fluctuated in tandem with broader political relations. For example, political discussions about water involving government representatives came to a halt when the second Intifada began in 2000, although limited cooperation over technical projects persisted in the MWGWR (Participant 4, personal communication, June 5, 2023).

Water cooperation that takes place outside the state apparatus has also been affected by broader conflict dynamics:

> The conflict is embedded in everything that we do. Each side sees the other as the enemy unfortunately. And there's the blame game, there's that conspiracy that I do but what if the other side doesn't. (Participant 19, personal communication, January 31, 2024)

Deeply entrenched suspicion and lack of trust between people from different sides makes it extremely difficult to initiate dialogue in the first place. Another challenge relating to this is that the costs of entering into cooperation is often much lower on the Israeli side than it is on the Palestinian side: "It's always much easier. Let's say for Israelis to enter into a dialogue situation. They have less real and psychological impacts or threats. The costs that they bear is a great deal less," (Participant 3, personal communication, May 31, 2023). Palestinians engaging in cooperation with Israelis are often accused of normalizing relations and face intense pushback from their families and communities (Participant 13 and 19, personal communication, September 20, 2023 and January 31, 2024). This stigma surrounding cooperation with Israel can limit the effectiveness and scope of cooperative projects, especially when they are unable to be publicized or labelled as initiatives of a third-party country. Additionally, it can be hard to focus on water issues or sustain this type of cooperation when there are people in the community who are actively experiencing violence:

> It was very difficult to stay focused on the environment if someone was experiencing current violence, which would happen. That kind of story when it's brought into the session can trigger empathy for sure. It can trigger anger. And anger can cause people to focus on action in a lot of ways, whereas other triggered emotions from dialogue processes can make [them] feel that they can't change the situation or it's beyond me. (Participant 3, personal communication, May 31, 2023)

Furthermore, civil society organizations such as EcoPeace have to be able to adapt to changing political realities. As the possibility of a two-state has continued to erode over time, organizations need to identify how this will affect water governance possibilities and adjust their programming and engagement with communities appropriately. It can be especially challenging when broader conflict dynamics create an internal fissure within organizations, decreasing their ability to effectively engage with local communities if these internal splits become public knowledge. As one activist noted about their organization:

> And quite a lot of the staff, I would say, moved towards a one state mindset, but not the leadership. And if that was like a public position or something like that, that would have put the organization in a lot of challenging positions. And I can understand why the Palestinian and the

> Israeli leadership would find that very difficult to do. (Participant 3, personal communication, May 31, 2023)

Maintaining a cohesive internal vision of what peace means and how it can be achieved is essential for work to continue moving forward on the ground even as broader conflict dynamics have stalled dialogue at higher political levels.

Broader conflict dynamics in the ET basin. Years of civil war and political violence have hindered the progress of transboundary water cooperation in the ET basin. The civil war in Syria and the country's subsequent lack of participation in formal negotiations was cited as the most significant challenge by several interviewees (Participants 5 and 9, personal communication, July 24, 2023 and August 15, 2023). While interactions have occurred at the interstate between Syria and Turkey since the outbreak of civil war, most of these interactions were verbal accusations made by Syria against Turkey, indicating that the period of political reproachment that began with the signing of the Adana Protocol in 1998 has ended. Interactions between Syria and Iraq post-2011 have been mostly cooperative, but without engagement from the upstream countries on a multilateral basis, little progress has been made. Iran's refusal to participate in negotiations, and rhetoric within the country that blames Turkey for water problems, was also cited as an obstacle to cooperation (Participant 5, personal communication, July 24, 2023). Without participation from Syria and Iran, a basin-wide agreement, which has been held as a gold-standard for transboundary water governance, will never be reached.

Broader conflict dynamics also present a challenge to cooperation taking place at the grassroots level. In general, cooperation has prevailed between non-state actors in the ET basin, even as violence and political turmoil has swept through the region. However, there have been times when broader conflict has hindered the ability of civil society organizations to carry out their work effectively. As one Iraqi activist explained, escalating violence in the Rojava region of Syria in 2019 forced their organization to cease operations there:

> And in Syria, our work was only in northeast Syria, which in Rojava area. It was quite good until 2019, when people were able to work on water and how we can protect our water and all these kinds of things until 2020 or the end of 2019 when Erdogan started to attack northeast Syria again, and the worst came back again to northeast Syria. So, all the organization took a step back to work on humanitarian issues. (Participant 1, personal communication, January 31, 2023)

The longevity of the conflict situation in Iraq and Syria also presents a challenge to transboundary water cooperation. Decades of authoritarian rule under the iron fist of the Ba'ath regime and political and economic instability meant that environmental issues were usually not a top priority for funders or

humanitarian organizations. The collective trauma that people have experienced as a result of decades of political violence can make it difficult for NGOs dedicated to advancing water cooperation to engage with local communities because their work is not seen as important (Participant 20, personal communication, February 7, 2024). The fact that cooperation amongst non-state actors has continued in the ET basin even as interstate relations have stalled is a testament to the small successes that civil society organizations have achieved in promoting water as a tool for peace.

Security challenges. Ongoing violence presents a significant obstacle to cooperation in both basins, especially work that is carried out by non-state actors. When there are real security risks on the ground, NGOs are unable to conduct their work due to funder constraints and concerns for the safety of their workers. In the Jordan basin, water cooperation that occurs at the grassroots level is often not publicized due to fears for the safety of participants (Participant 19, personal communication, Janaury 31, 2023). Palestinians and Jordanians who engage in cooperation with Israelis can be labelled as normalizers and subject to ostracization from their communities and even physical violence. It is for these reasons that EcoPeace recruits most of its participants by word of mouth and does not maintain a significant media presence. In the ET basin, restrictions of freedom of speech and movement pose a danger to activists working on the ground. One activist involved in the campaign to save Hasankeyf from the Ilisu Dam noted that when violence reemerged between the Turkish state and Kurdish separatists in the southeast in 2015, they were unable to continue travelling to the region (Participant 6, personal communication, July 31, 2023). Crackdowns in freedom of movement by the Turkish government further hindered cooperative efforts on the ground. In Iraq and Iran, environmental activists can face physical danger and prosecution; one interviewee spoke of how they were forced to flee the country because of their environmental activism put their life in danger (Salman interview). Unfortunately, these are daily realities that many environmental activists across both basins face and are likely to persist as long as the broader conflicts rage on.

Power Asymmetries

Asymmetrical distributions of power underpin any hydro-hegemonic arrangement. These asymmetries stem from differences in riparian position, military and economic capacities, and discursive capabilities. Power asymmetries were reported as an especially significant challenge in the Jordan basin, where Israel's upstream position on the Jordan river and its disproportionate reserves of hard and soft power have perpetuated a decades-long occupation that has pervaded every aspect of Palestinian

society and enabled complete control over water resources. As a result, Palestinians in the West Bank require Israeli permission to access water perceived to be their own (Participant 13, personal communication, September 20, 2023). The lack of complete Palestinian sovereignty is both a product and driver of the occupation and places Palestinians at an inherent disadvantage in any negotiations because they do not have the same status as a sovereign state (Participant 7, personal communication, August 2, 2023).

In some ways, the power asymmetries in the Jordan basin, especially those between Israel and Palestine, are so pervasive they seem almost insurmountable. They can affect the cooperation and peacebuilding carried out by civil society organizations on the ground and even pervade the organizations themselves. For instance, even though EcoPeace advances a noble vision of using water to promote peace and achieves meaningful work on the ground, the organization itself is still subject to the same power asymmetries that underpin the broader conflict. What one interviewee referred to as an "illusion of parity" undergirds much of the organization's day-to-day work and can limit the extent to which project activities, especially those that focus on building dialogue, are effective and have lasting impacts:

> Whereas the weaker political body is, you know, they've come to the encounter. They've put a lot on the line. It's probably very hard for them to get there. That was, you know, it's like they've invested a lot in just getting to the encounter. And You know, there's not a lot that they're going to take away from it. Yes, they've met a counterpart was not a soldier. Maybe they learned something new. But they're going back home to the exact same situation and the power or parity will remain. So that was like deeply ingrained in all of our programs. And it wasn't always discussed and recognized, which was a real challenge, I think. (Participant 3, personal communication, May 31, 2023).

For projects to truly enact transformative change, they need to actively put the power dynamics on the table and work to reduce disparities. Encouraging dialogue between Palestinians and Israelis and developing plans for the sustainable management of water resources in a future Palestinian state are important objectives that need to be achieved to advance peace, but by themselves they fail to address the daily constraints that Palestinians face because of the occupation (Participant 18, personal communication, January 23, 2023). At the same time, however, it is important to keep in mind that projects such as those implemented by EcoPeace or other grassroots organizations are not designed to overcome these issues or achieve a solution to the conflict. Challenges such as economic disparities between communities and the occupation are not going to be solved through a project. Rather, interviewees acknowledged these shortcomings and spoke of strategies they use to work within the

constraints placed upon them. Prioritizing the needs of the most vulnerable, for example, allows them to communicate their priorities and signals that their needs are important. Another strategy that can be employed is to recognize that projects that advance a benefit sharing approach at the regional scale need to take into account what benefits mean at different scales and how these may change over time (Participant 3, personal communication, May 31, 2023). The priorities of a Palestinian community without stable access to running water are going to look very different from those of an Israeli settlement that has a stable supply. Identifying opportunities for mutual benefit and capitalizing on mutual interdependencies in ways that do not increase the vulnerability of the weaker party is challenging and requires a close understanding of local dynamics. Several interviewees also mentioned the importance of maintaining a mindset that emphasizes the power in taking small steps (e.g. Participant 19, personal communication, January 31, 2024). Activists working on the ground know their work is not going to resolve the conflict, and that it may not even make a big difference in the grand scheme of things. But they are making a difference to the communities they work in. Success is not measured by the size of the impact but rather by its quality. As one interviewee eloquently summarized:

> I can't bring peace. And even what I'm trying to do is to do my own miracle on the ground for this farmer, this person, that my work could change his life even in the slightest bit. So this is for me my message. There are people who curse the darkness, and there are people who light a small candle in the darkness. So you know, this is what I can do. My small candle, I want to light it. (Participant 15, personal communication, September 25, 2023)

Lack of Political Will

When there is no motivation to cooperate at the highest political level, it can be extremely difficult for real change to happen, especially if most of the efforts to generate dialogue and enact change are concentrated at the grassroots level where actors lack decision-making power. In the Jordan and ET basins, there is a general lack of political will to cooperate at the highest levels of decision-making in many of the basin countries. Without sustainable support from governments or a similar type of dialogue happening in parallel at higher decision-making levels, it is difficult for civil society organizations to make a meaningful contribution on overall conflict-cooperation dynamics (Participant 2, personal communication, February 6, 2023). A lack of political will to advance cooperation can be due to many factors. In Iraq, for instance, water has historically not been a policy priority because of the lack of capacity at the federal level to address water problems and because decades of conflict have given priority to other issues such as state-building (Participant 10, personal communication, September 9, 2023). For upstream countries that are also hydro-hegemons, such as Israel and Turkey, there needs to

be a motivation for cooperation that outweighs the potential costs of entering into such cooperation. Cooperation is much less likely when an upstream state wields disproportionately more power than the downstream states (Lowi, 1993). If perceived benefits of cooperation do not outweigh perceived risks, cooperation will likely not occur (Subramanian et al., 2014). In the 1990's, Israel was motivated to enter into a peace agreement (and a water-sharing agreement) with Jordan because it was eager to normalize relations with an Arab country (Sosland, 2007). Similarly, Turkey was motivated to sign a water-sharing agreement with Syria because of the latter's continued support for the PKK in the 1980's and 1990's. Given that Turkey controls the tap on most of the water resources in the ET basin, what incentive does it now have to enter further negotiations and make more concessions? What motivation does Israel have to create more equitable water sharing arrangements with the Palestinians when it can continue to unilaterally desalinate water to meet its own needs and the current status quo under the occupation satisfies a growing far-right sentiment that seeks to deny Palestinian statehood? These questions pose an enormous challenge that is beyond the scope of this dissertation; however, the promotion of alternative transboundary water arrangements through strategies such as issue linkage that I discussed earlier in this chapter provide a strong starting point.

Conclusion

This chapter analyzed how five transformative mechanisms of counter-hegemony are employed in the Jordan and ET basins: the creation of new spaces for dialogue, the construction of expert-based knowledge, counter-securitization, counter-sanctioned discourse, and the promotion of alternatives. Transformative mechanisms of counter-hegemony move beyond simple actions of resistance or contest that do not necessarily lead to measurable change in on-the-ground realities by undermining the legitimacy of the hegemonic order itself. Indeed, the fact that diverse actors can and do contest hegemony everyday begs the question of whether hydro-hegemony indeed existed in the first place (Menga, 2016). If hydro-hegemony is predicated on a combination of coercion and consent that is secured through the exercise of material and discursive power capabilities, then does it still exist once consent is broken?

This chapter, along with the previous, illustrated the rich diversity of actors who are involved in transboundary water conflict and cooperation and the complex scalar dynamics that result from the involvement of actors from across sectors. The exercise of bargaining and ideational power by non-state actors can lead to the opening of new spaces for dialogue with each other and with state elites. These spaces would not otherwise exist if negotiations over how to use and manage water resources were

constrained solely to the interstate scale. As I demonstrated, private sector and civil society organizations also generate new knowledge about water resources by conducting independent research and publishing reports and policy briefs. Oftentimes, this new knowledge challenges conventional discourses that are promoted by state elites as part of the broader hegemonic arrangement. When this new knowledge is disseminated amongst broader civil society and to policymakers in newly created claimed and invited spaces, the legitimacy of the hegemonic order is called into question by the portrayal of an alternative reality that is underpinned by both new knowledge and new scalar arrangements.

The politicization and securitization of water resources by state elites can present a significant obstacle to transboundary water cooperation. However, as I showed in this chapter, non-hegemons can reframe water issues in a way that facilitates cooperation and helps people overcome entrenched thinking. Keeping cooperative projects focused on technical issues, for instance, can lead to longer-lasting dialogue and greater progress, especially when contentious issues such as water rights and allocations are not yet resolved. Promoting discourses that challenge dominant notions of how much water there is, what it should be used for, and how it should be distributed is another effective way to expand the realm of possibility. For example, dams constructed as part of Turkey's GAP are portrayed by the state as a necessary perquisite for improved security and socioeconomic conditions in the country's southeast. By portraying these dams as existential threats to the region's environment and as a humanitarian issue, civil society organizations and networks of activists embed their actions into a global movement of political and ecological resistance to large dams and can draw support from the global anti-dam movement. Framing water resources as a tool for peace rather than a reason for conflict is another powerful way in which organizations such as EcoPeace can help people move beyond zero-sum thinking to understand the mutual gains that can be achieved from advancing dialogue and cooperation over shared waters.

Perhaps the most compelling way of contesting a hegemonic order is to propose a tangible alternative. In this chapter, I discussed three visions of an alternative reality that capitalize on opportunities offered by climate change, issue linkage, and desalination. Although often viewed as a "threat multiplier" that will exacerbate existing social unrest and political instability, climate change can also be viewed more optimistically as a motivation for cooperation. Helping policymakers understand the linkages between climate and national security can make addressing climate change a policy priority even in countries with better adaptation and mitigation measures in place such as Israel and Turkey,

while emphasizing how deteriorating water resources can affect political instability in downstream countries can also help incentivize cooperation on the behalf of upstream riparians. Drawing linkages between water and water-adjacent (e.g. hydropower) or non-water issues (e.g. security) can provide policymakers with tangible alternatives to the status quo in a way that highlights the mutual gains arising from the alternative. For instance, Iraq can use Turkish dependence on its oil exports to incentivize the latter to provide more concessions in water negotiations. Leveraging mutual interdependencies such as these creates opportunities for the transformation of the hegemonic order by exposing the vulnerability of the hydro-hegemon. However, they can also exacerbate existing vulnerabilities (Participant 17, personal communication, January 18, 2024); for instance, a water-energy exchange such as the one proposed for Israel and Jordan as part of the Green Blue Deal might provide each state with more of much-needed resource, but Jordan will still be dependent on Israel for water, which is much more difficult to store than electricity. Similarly, desalination presents a novel opportunity for cooperation because it increases the amount of water available to negotiate over, but it also presents opportunities for disengagement and is expensive and energy-intensive to implement.

While the mechanisms discussed in this chapter have the potential to transform hegemonic arrangements, it is important to acknowledge that their transformation faces significant challenges. Broader conflict dynamics in both basins have instilled a deep sense of mistrust and suspicion that can make it difficult for lasting dialogue to be achieved on the ground. Furthermore, activists can face persecution from their own governments and persistent violence sometimes means that civil society organizations have to temporarily stop their work. Power asymmetries within and between states persist and unless organizations actively work to change these, they run the risk of perpetuating these harmful dynamics and it is unlikely that positive, meaningful change can be enacted. Finally, lasting cooperation and transformation of the hegemonic order will not occur without political will from state governments. Therefore, it is crucial that activists focus their efforts on identifying opportunities for motivation, such as those offered by issue linkage and climate change, and synchronize their efforts across the basin to effect maximal change.

Chapter 8: Conclusion

This chapter presents a summary of the findings of this dissertation and outlines its limitations, directions for future research, and contributions to the literature. In Chapter 2, I identified two limitations in the existing literature on hydropolitical analysis. The first is that the state-centricity of conventional approaches to hydropolitics overlooks the nexus between domestic and international politics. Although these synergies are well-recognized in the broader international relations literature (Fearon, 1998; Putnam, 1998), they are under-developed in hydropolitical analysis, overlooking the interrelated interactions that occur at the local, regional, national, and international scales in transboundary river basins. Political leaders have to simultaneously balance domestic preferences with international imperatives that may be rooted in conflicting interests. In other words, state preferences for negotiation outcomes are established in the domestic arena (Dinar, 2000), while domestic politics in turn is often influenced by international power plays. Furthermore, the fluid nature of water and increasing connectivity between people and institutions across country borders invites the participation of transnational actors in decision-making over transboundary waters. The second limitation is closely related to the first and relates to integrating non-state actors into hydro-hegemonic analysis. While it is well-recognized that non-state actors such as NGOs and private sector companies may contest hydro-hegemony (e.g. Warner, 2012), the specific mechanisms by which this occurs are less understood. Just like riparian states, non-state actors possess material and discursive power capabilities that enable them to resist and contest unequitable arrangements to varying degrees of effectiveness. The distribution of power in a transboundary basin, together with the broader political context, play a significant role in influencing patterns of conflict and cooperation. The overall goal of this dissertation was to address both challenges, which directly informed the development of the research questions.

This dissertation aimed to answer the overarching research question: How are power dynamics manifested within transboundary water interactions across different scales? To answer this question, I created a dataset of water-related interactions that occurred in two transboundary basins – the Jordan and the Euphrates-Tigris, and analyzed 1) how hydropolitical relations in these basins are explained by interactions between actors at different scales and 2) created a typology of hegemonic and counter-hegemonic mechanisms that various actors use to promote and contest hegemony in each basin. This research was underpinned by a theoretical framework that draws on key elements of hydro-hegemony and political ecology. The framework posits that transboundary water interactions occur at the nexus of space, place, and power and are underpinned by power relations, power relations, and hydro-social relations in which water and society have a mutually constitutive effect on each other. The exercise of

hydro-hegemony, and counter-hegemony, vis a vis the utilization of different types of power, can change the balance of transboundary water interactions (e.g. influence how conflictive or cooperative they are). To answer the overarching question, three sub-research questions and their corresponding objectives were developed. The following table summarizes the sub-research questions, their objectives, and where in the dissertation I address them. The sections that follow the table present the main findings for each sub-question.

Table 21: Summary of research questions, research objectives, and locations where they are discussed.

Overarching research question: How are power dynamics manifested in transboundary water interactions across different scales?		
Research Question	**Objectives**	**Chapter Location**
Sub-question 1: How are hydropolitical relations in the Jordan and Euphrates-Tigris river basins explained by interactions between actors at different scales?	Research Objective 1: Create a dataset of transboundary water interactions that have occurred in each basin. Determine how domestic factors such as political pressures and discourses about water and broader international relations have influenced patterns of water conflict and cooperation.	Chapter 5a and Chapter 5b
Sub-question 2: How does the interplay of power between actors explain patterns of conflict and cooperation between actors at different scales in the Jordan and Euphrates-Tigris river basins?	Research Objective 2: Create a typology of actions stakeholders at different scales use to promote and contest hydro-hegemony. Analyze the extent to which the interplay between power and scale explains patterns in transboundary water conflict and cooperation.	Chapter 6 and Chapter 7
Sub-question 3: How can transboundary water arrangements in the Jordan and Euphrates-Tigris river basins be transformed to promote more equitable arrangements?	Research objective 3: Identify transformative mechanisms of counter-hegemony that are used in each basin. Identify challenges that non-hegemons face in transforming hydro-hegemonic arrangements.	Chapter 7

Sub-Research Question 1

The first sub-research question asks *How are hydropolitical relations in the Jordan and Euphrates-Tigris river basins explained by interactions between actors at different scales?* This question can be broken down into three separate queries:

4. What actors are involved in transboundary water conflict and cooperation in the Jordan and ET basins?
5. At what scale do these actors operate?
6. How do the domestic sphere and broader international relations influence transboundary water conflict and cooperation?

This question takes as its starting point that transboundary water interactions are shaped by pressures originating from within states - such as changes in government, state-sponsored discourses regarding water, and domestic policy priorities – and the broader political context that shapes how states interact with each other. In this sense, decision-makers are engaged in "two-level games" in which they must balance domestic preferences and priorities with international imperatives. The nexus between the domestic and international arenas in terms of hydropolitical outcomes is beginning to be addressed with increasing frequency in the academic literature (e.g. Feitelson, 2002; Menga, 2016b), but direct connections between specific events and transboundary water conflict and cooperation are made less often. Chapters 5a and 5b take a first step towards addressing this gap by presenting a database of water-related interactions in the Jordan and ET basins. These datasets enable me to make explicit connections between events in broader international relations or changes in ruling political party, for example, and shifts in patterns of water conflict and cooperation. I further argue that the involvement of certain non-state actors and transnational institutions in transboundary water interactions add a third chessboard to the playing field. By including non-state actors and transnational institutions in my analysis, I am able to paint a more holistic picture of the factors that explain hydropolitical relations at different scales.

Water interactions in the Jordan basin are showing an increasing tendency towards low-level cooperation (Figure 27). This is due primarily to warming political relations between Jordan and Israel (at least prior to the outbreak of war in Gaza) that have facilitated increased water-related cooperation (Figure 31) and to the growing involvement of non-state actors such as EcoPeace in water interactions (Figure 30). In the 1950's and 1960's, water interactions were predominantly conflictive, the result of high political tensions and occasional violent conflict between Israel and the surrounding Arab countries and state-sponsored discourses that emphasized the close links between water security and national security. Arab nationalism, which reached its peak expression during this time, also contributed to patterns of water conflict by perpetuating a discourse that viewed water as a precious Arab resource that was being "stolen" by Israel. Cooperation began to increase, albeit slowly, in the following decades.

The expulsion of the PLO from Jordan in 1970 marked the beginning of political reproachment between Jordan and Israel that was reflected in increasing water cooperation between the two countries (Figure 30). Jordanian-Syrian hydropolitical relations, which had been paused between the mid-1950's and mid-1980's due to deteriorating political relations, restarted in 1987 when the two countries signed an agreement on construction of the Unity Dam. Water cooperation in the basin sharply increased during the 1990's as a result of increased dialogue occurring within the framework of the Madrid peace process and the normalization of relations between Israel and Jordan in 1994. Cooperation also prevailed in Israeli-Palestinian water interactions until 1996, when the more right-wing Likud party came to power in Israel, and the pace of cooperation slowed down until 1999 when a coalition of Labor and more centrist parties came to power under Ehud Barak (Figure 33). Cooperation throughout the early 2000's prevailed even as the Second Intifada largely halted broader political relations due to a focus on technical issues and a spirit of collaboration in the water sector that had been fostered by the peace process. The growing involvement of non-state actors such as EcoPeace has also played a critical role in promoting, and at times even escalating, water cooperation in the basin in the past two decades (Figure 30). My database demonstrates that even though the number of interstate water interactions has generally declined over time, the number of interactions involving non-state actors has spiked from 2005 onwards. Most of these interactions have favored cooperation, highlighting the important role that non-state actors such as NGOs play in fostering dialogue that can contribute to lasting cooperation across multiple scales. However, conflict has tended to prevail in Israeli-Palestinian water interactions, especially those involving domestic and national-level actors (Figure 33). These findings demonstrate the importance of disaggregating scalar dynamics in hydropolitical analysis and showcase the different ways in which non-state actors may contribute to patterns of water conflict and cooperation.

Water conflict and cooperation in the ET basin has also coexisted across multiple scales. In this basin, an overall trends towards conflict is occurring, largely due to the influence of armed groups such as ISIS and ongoing conflict between the Turkish state and Kurdish coalition forces in northern Syria that have involved large-scale destruction of water infrastructure. Hardly any interactions over water resources took place until the mid-1960's as Turkey, Syria, and Iraq each pursued a program of unilateral hydraulic development. This development was fueled by each state's pursuit of the hydraulic mission and an emphasis on achieving food security and increasing the amount of irrigable land. As hydraulic development accelerated in each state, especially Turkey, conflict became more common. Rivalry between the ruling Ba'ath parties in Iraq and Syria throughout the 1970's and 1980's contributed to escalations in water conflict in the basin, while interstate relations were also strained during this time by

the Iran-Iraq War, the outbreak of which was in part precipitated by tensions regarding sovereignty over the Shatt al-Arab. However, cooperation also persisted during this time period, at least at the technical level. The Joint Technical Committee – which consisted of representatives from Iraq, Syria, and Turkey – met throughout the 1980's to discuss technical issues such as drought mitigation and increasing agricultural efficiency, even as more contentious issues such as water allocation were not addressed. High-level political talks also continued during this time period, albeit on a bilateral basis, culminating in the signing of a water allocation agreement between Turkey and Syria and one between Syria and Iraq. However, ongoing tensions between Turkey and Syria over the latter's support of the PKK limited the scope and impact of Turkish-Syrian water cooperation until 1998, when Syria expelled the PKK and a new era of improving political relations began. Water cooperation persisted between the two countries until the outbreak of civil war in Syria in 2011 (Figure 38). The increasing involvement of non-state actors in water interactions, itself owing to a stabilization in political relations and privatization of the Turkish water sector, contributed to continued cooperation at multiple scales beginning in the early 2000's (Figure 42). Similar to the Jordan basin, less cooperation occurs when analysis of water interactions is limited to interstate interactions (Figure 43). Non-state actors such as Save the Tigris and transnational advocacy networks of anti-dam activists facilitated dialogue at the transnational scale and continue to contribute to low-intensity cooperation. However, the rapid rise of ISIS in Iraq and Syria led to sharp increases in high-intensity water conflict between various armed groups as water was weaponized to advance or delay territorial gains (Figure 40). Lingering conflict between Turkey and Kurdish coalition groups such as the SDF in northern Syria is a source of recent water conflict in the basin. Ongoing water cooperation at the highest levels between Turkey and Iraq highlights the coexistence of water conflict and cooperation in the basin. Finally, the importance of taking a multi-scalar approach to hydropolitical analysis is illustrated by Figure 42, which suggests that cooperation prevails in the basin absent the involvement of non-state actors.

Sub-Research Question 2

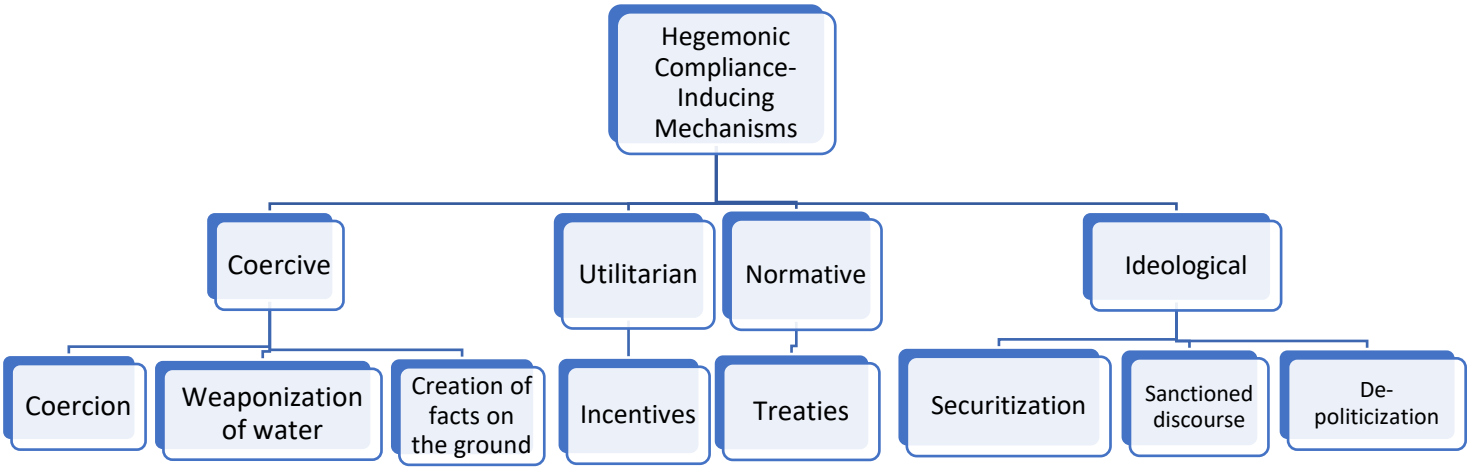
The second sub-research question asks *How does the interplay of power between actors explain patterns of water conflict and cooperation between actors at different scales?* My approach to answering this question was underpinned by two lines of inquiry:

1. What actions do actors at different scales use to promote or contest hegemonic arrangements?
2. To what extent does the interplay between power and scale explain patterns of transboundary water interactions?

This question was inspired by several observations. First, power, and power relations between actors, are key determinants (but not the only determinants) of how much control over water resources a given actor has. Material forms of power such as military and economic resources can secure greater control of water while discursive power capabilities can shape the nature of negotiations and influence how people think about and perceive transboundary water arrangements. Second is the observation that power is traditionally considered as something that exists and is wielded within the state apparatus. From a Foucauldian point of view, however, power is embedded in all aspects of social relations and does not originate from a particular source (Foucault, 1998). When combined with the observation that hydro-hegemony is something that is enacted and contested across different scales (Warner, 2008), it makes little sense to restrict analysis to the interstate scale. The third observation that informed the development of research sub-question two is that while attempts have been made to categorize the specific means through which power is exercised in hydro-hegemonic settings (e.g. Cascäo, 2008; Zeitoun & Warner, 2006), these typologies have an overwhelming focus on the state and hence provide an incomplete picture of how hegemony is enacted and contested. To fill this gap, in Chapter 6 I presented the Typology of Actions to Promote Hydro-Hegemony and the Typology of Actions to Contest Hydro-Hegemony to better explain how power influences patterns of water conflict and cooperation at different scales. The typologies use those created by Zeitoun and Warner (2006) and Cascäo (2008) as a starting point but is also informed by a review of the literature and interviews with diverse stakeholders about the ways in which their organizations are involved in water conflict and cooperation. As a result, the TAPHH demonstrates that hydro-hegemony is promoted through four compliance-inducing mechanisms of hegemony – coercive, utilitarian, normative, and ideological – each of which can be implemented through diverse actions such as the weaponization of water and the creation of sanctioned discourse (Figure 48). Similarly, counter hydro-hegemony is premised on three mechanisms of resistance – coercive, leverage, and transformative – that can be exercised through actions such as capacity building, forming alliances, and promoting alternatives (Figure 49).

Figure 50 below summarizes the compliance-inducing mechanisms of hegemony and their associated actions:

Figure 50: Summary of hegemonic compliance-inducing mechanisms. Author's own compilation.

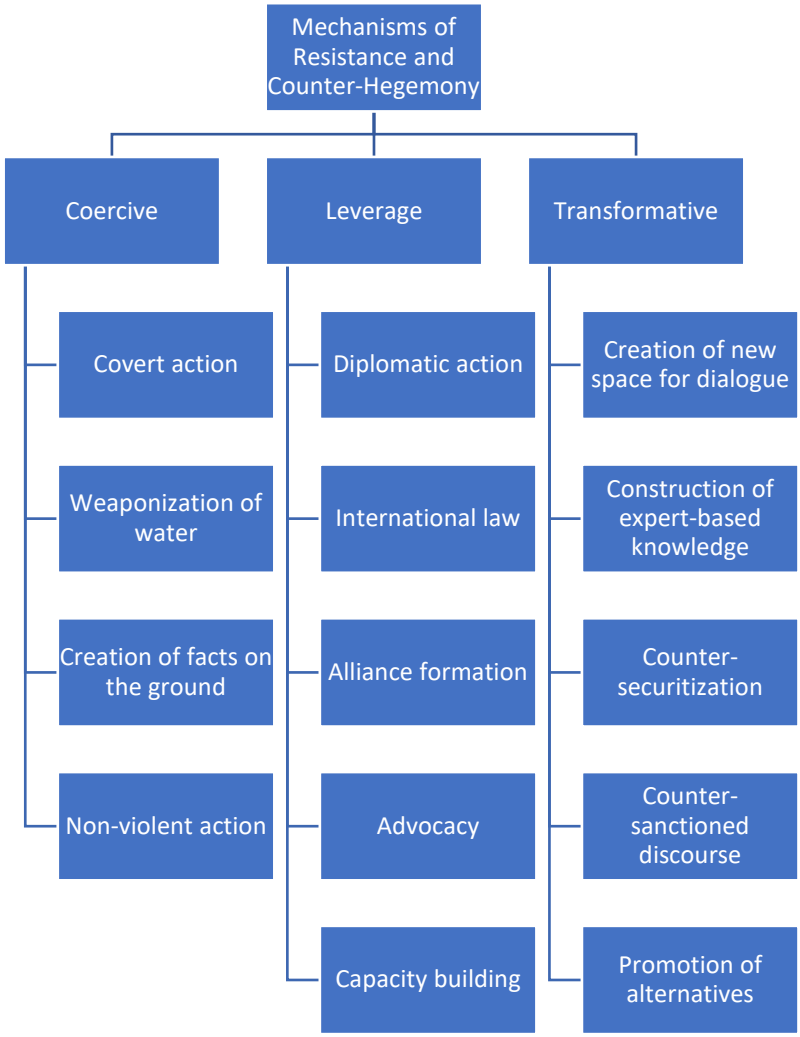


The exercise of the above mechanisms and their associated actions is predicated on an actor's ability to utilize different types of power. The use of material, or hard, power is most often associated with the use of coercive compliance-inducing mechanisms, while the remaining three mechanisms are underpinned by a mix of bargaining and ideational power. As the above figure suggests, I demonstrated that hegemonic actors in the Jordan and ET basins – the states of Israel and Turkey – prefer to utilize coercive and ideological mechanisms that are dependent on the use of material and ideational power, respectively. Water in both basins has been weaponized as a military target and a military tool, contributing to the sustained patterns of high-intensity conflict seen in the 1950's and 1960's in the Jordan basin and since 2018 in the ET basin (Figures 30 and 42). Threats to use military force or mobilize troops have also contributed to high-intensity conflict, particularly in the Jordan basin. For example, in 2002 Israel threatened to use force to stop Lebanese withdrawals from the Wazzani Springs after Lebanon built a pumping station on the springs, which are located near the Israel-Lebanon border. Additionally, I added the creation of facts on the ground as an action that is used to promote hegemony, as the construction of settlements and networks of dams in the West Bank and southeast Turkey play an important role in shaping hydropolitical realities. The use of incentives to elicit compliance has not often been observed in either basin, although Turkey does have a history of providing Iraq with one-time water releases in response to Iraqi requests. The only normative mechanism observed at play in both basin were the numerous bilateral agreements that the riparian states have entered into. I demonstrated that the ambiguous wording of these agreements, inflexible allocations, and purposeful

avoidance of more contentious water issues perpetuate existing inequalities and are the direct result of asymmetrical power relations. Finally, I analyzed how hegemons rely on their discursive power capabilities to frame water as a national security issue and generate discourses that favor existing arrangements. In the Jordan basin, this is most evident in the dominant Israeli discourse that praises Israeli-Palestinian water cooperation that takes place under the auspices of the JWC. In the ET basin, a Turkish discourse that labels the Tigris and Euphrates rivers as a single, transboundary basin and emphasizes the socioeconomic benefits of dam construction facilitate and justify continued Turkish control over the two rivers.

The below figure summarizes the mechanisms of resistance and counter-hegemony I identified at play in the Jordan and ET basins:

Figure 51: Summary of mechanisms of resistance and counter-hegemony. Author's own compilation.



Chapter 7 demonstrated that hydro-hegemony is regularly resisted and contested and showed how non-state actors wield material and discursive power to shape patterns of conflict and cooperation. Coercive mechanisms of counter-hegemony are favored by non-hegemonic states and by armed non-state actors. The weaponization of water in Iraq and Syria by ISIS and other armed groups contributed to heightened periods of conflict throughout the past decade in the ET basin (Figure 42). Similarly, the destruction of Palestinian water infrastructure in the West Bank by Israeli settlers has contributed to sustained patterns of high-intensity conflict at the communal level. At the same time, however, NGOs and other civil society organizations in both basins have utilized diverse leverage mechanisms to increase their bargaining power and help promote water cooperation. Issues such as a lack of awareness about water issues and a lack of capacity to improve the situation were cited as some of the most significant challenges facing water cooperation in both basins. As a result, organizations such as EcoPeace and Save the Tigris work to educate people about their water reality and empower local communities by increasing their technical capacity. While such actions do not necessarily effect change in the broader asymmetrical power relations underpinning the hegemonic order, they are powerful tools of resistance. Actions such as lobbying decision-makers to take action to protect water resources and creating alliances with like-minded organizations at home and abroad have proven effective at enacting a small degree of change to the status quo, as evidenced by the impact of the anti-Ilisu Dam campaign on construction of the dam and the adoption of the Green Blue Deal by the Israeli and Jordanian governments. The increased involvement and influence of non-state actors on patterns of water conflict and cooperation must be attributed to political opportunity structures such as the privatization of the Turkish water sector, the emergence of an Israeli environmental discourse that prioritized water quality degradation, and the proliferation of social media as a tool that enables people to connect in real time over long distances. These elements highlight the inherent multi-scalar nature of transboundary water interactions and how power can be used to create new spaces for engagement.

Research Sub-Question 3

The final research sub-question asks *How can transboundary arrangements in the Jordan and Euphrates-Tigris river basins be transformed to promote more equitable arrangements?* This research question was originally intended to be answered in Chapter 6 as its focus is on the last set of counter-hegemonic mechanisms – transformative mechanisms of resistance and counter-hegemony – that appear in my typology. However, I decided to separate them to highlight how transformative mechanisms are different from other mechanisms of counter-hegemony. Actions categorized under the

first two types of counter-hegemonic mechanisms in my typology, such as building capacity, engaging in diplomacy, or basing claims on international water law, challenge hegemony but do so within the boundaries already set in place by the hegemon. Transformative mechanisms are so named because of their transformative potential; that is, they challenge the legitimacy underpinning the hegemonic order (Zeitoun et al., 2017). In other words, transformative mechanisms do not play within the rules of the game and present the possibility of an alternative reality. Another addition to this question that I did not originally envision was an emphasis on the challenges inherent in transformation. Even though I did not ask initially, virtually every person I interviewed mentioned challenges they faced in their work of promoting water as a tool for cooperation and challenges facing the establishment of more equitable water sharing arrangements in the basins more broadly. Identifying and analyzing these challenges provided insights into the challenges inherent to the hegemonic transformation and the limitations of counter-hegemonic mechanisms.

I identified five transformative actions at play in the Jordan and ET basins: the creation of new spaces for dialogue, the construction of expert-based knowledge, counter-securitization, counter-sanctioned discourse, and the promotion of alternatives. Notably, all of these actions were undertaken by non-state actors, showcasing the ability of such actors to mobilize significant discursive power capabilities and underscoring the need for a multi-scalar analysis of transboundary water conflict and cooperation. These actions also highlight the close relationship between power and scale, as new spaces for dialogue are opened with bargaining and ideational power. This creates new claimed and invited spaces in which civil society can express their concerns to decision-makers and decision-makers can be provided with the most accurate scientific data on which they should base their decisions. These opportunities for engagement would not otherwise exist because the crafting of water policy often occurs behind closed doors in both basins. Furthermore, the legitimacy of the hegemonic order is put under scrutiny by the portrayal of an alternative reality underpinned by knowledge constructed outside of the state apparatus and new scalar arrangements. Counter-securitization and the dissemination of a counter-sanctioned discourse challenge dominant views about water as ideas that should not be questioned and encourage thinking about water in new and creative ways. The promotion of alternative arrangements, such as ones based on mutual interdependencies or linkages between water and water-adjacent issues, present concrete visions of an alternative reality. Analyzing the character of existing relationships that exist outside of the water sector can reveal mutual interdependencies that can form the foundations of a new transboundary water arrangement that is premised on reciprocity and mutual gains rather than zero-sum thinking. In the Jordan and ET basins, such possibilities include water-energy

and water-security linkages and viewing climate change as an incentive for cooperation. These examples demonstrate how creative thinking and a willingness to "step outside the box" can result in the identification of opportunities for mutual gain that could be key to motivating cooperation at a basin-wide level. However, as I discussed, they can exacerbate existing vulnerabilities in the weaker party, and opportunities for transformation might be more limited in situations where water is held subordinate to higher-level political issues. Challenges to hydro-hegemony and attempts to create a new transboundary water arrangement through the actions I identified are likely to fall short if they do not directly address broader asymmetrical relations of power. Without engaging with the processes that underpin unequitable arrangements, interactions will continue to play out within the boundaries set by more powerful actors and conflict will linger without undergoing significant change.

Overarching Research Question

This dissertation sought to answer the overarching question How are power dynamics manifested in transboundary water governance? While Chapters 5a, 5b, 6, and 7 each answer this question in part, I also want to reflect on how the findings presented in these chapters may be synthesized. Power is a key concept in understanding transboundary water conflict and cooperation. I argue that power dynamics manifest in transboundary water governance in three ways. First, power plays within and between states can influence patterns of conflict and cooperation. As I demonstrated in chapters 5a and 5b, transboundary water interactions play out on multi-level chessboards in which decision-makers must balance domestic priorities against international imperatives. Shifts in the balance of power in the international arena can affect how state elites are viewed at home, while domestic power plays influence how states interact with each other. These factors can have a direct impact on patterns of transboundary water conflict and cooperation, as I empirically demonstrated in chapters 5a and 5b. Second, state and non-state actors are able to mobilize various power resources to advance their interests. Chapters 6 and 7 illustrated how hydro-hegemony, and the contestation of hydro-hegemony, are rooted in actors' ability to exercise material, bargaining, and ideational power. The TAPHH and TACHH showed different actions actors take to promote or contest hegemonic arrangements. These actions have a direct bearing on patterns of conflict and cooperation as evidenced by the database of water interactions I created for both basins. Third, power and scale are mutually constitutive and are products of social relations. In this dissertation, I demonstrated how non-hegemons may mobilize power to create new spaces for their participation in decision-making processes, while

hegemonic actors may similarly use power to uphold favorable scalar configurations. At the same time, scalar arrangements are a determinant of who participates in decision-making and who is excluded.

Limitations and Future Directions

There are several limitations to this dissertation, mostly relating to its scope and methodology, that point to avenues for future research. The first limitation relates to the selection of the Jordan and ET basins as case studies. These basins were chosen because they are located in areas where high levels of political unrest and water scarcity have not led to the water wars that were so widely anticipated by scholars and media alike (e.g. Gleick, 1993; Homer-Dixon, 1999; Ki-Moon, 2007). Furthermore, a rich literature has documented how asymmetrical power relations have led to the establishment of hydro-hegemony. Despite these conditions, water cooperation does occur in varying degrees at the subnational and transnational scales in both basins. Yet, the mechanisms through which this cooperation occurs and the effects it has on broader patterns of conflict and cooperation are understudied. Nonetheless, the Jordan and ET basins have been heavily studied, and some would say, are overused examples of hydro-hegemony. Future research should take a multi-scalar approach to the application of the Framework of Hydro-Hegemony to other basins with significant power asymmetries, such as the Colorado, Mekong, and the Aral Sea, to flesh out these dynamics and uncover the impact of non-state actors on transboundary water interactions in basins such as these.

In terms of interstate hydropolitics, this study focused on the primary sets of relations in each basin, or the country-dyads that experienced the highest levels of interactions. In the Jordan basin, this meant that Israeli-Jordanian and Israeli-Palestinian interactions were emphasized at all scales. The focus on these sets of interactions limited the scope of my analysis primarily to the Lower Jordan river basin. However, interesting hydropolitical dynamics have also played out between Israel and Lebanon in the Upper Jordan basin, as Zeitoun et al. (2012) have pointed out. Furthermore, water interactions in the occupied Golan Heights between Israelis and local Arab inhabitants make for a promising, but severely understudied, site for research on local agency and counter-hegemony (Wessels, 2015). Of course, it must be acknowledged that this dissertation did not pay more than a passing glance to hydropolitical dynamics in Gaza. Although not technically part of the Jordan basin, water scarcity is extreme in Gaza, where prior to the outbreak of conflict in 2023, 90% of water was sourced from the over-abstracted Coastal Aquifer and the remaining 10% procured from Mekorot or from small-scale desalination plants that are dependent on Israeli fuel imports for their operation (Hall, 2024). As a quick scan through the news will reveal, water infrastructure has been heavily targeted, directly and indirectly, throughout the

conflict. Inclusion of Gaza in future analyses would doubtless yield interesting insights regarding the weaponization of water as an action of hegemony and counter-hegemony and could identify important opportunities for reconstruction and cooperation once the conflict ends.

My analysis of water conflict and cooperation in the ET basin was similarly limited to dyads that experienced the highest frequency of interaction. This meant that Turkish-Iraqi and Turkish-Syrian relations were emphasized and I only briefly touch on Iran's involvement in basin hydropolitics, mostly in the context of its relations with Iraq. However, Iran is an important player in regional geopolitics as well as an upstream riparian on the Tigris. Yet the hydropolitics of Iran with its riparians in the ET basin remain relatively understudied, indicating a direction for future research that could yield fresh insights about the impacts of Iranian development on Tigris tributaries. The analysis of water relations between the central government of Iraq and the Kurdistan Regional Government (KRG) is a similarly promising avenue of future research, especially given that the KRG is upstream relative to the rest of the country and its unique status as an autonomous region would yield interesting scalar dynamics. Future research on water conflict and cooperation in the ET basin should also emphasize the impact of armed non-state actors on these dynamics. While I briefly explored how groups such as ISIS and the SDF have weaponized water as a coercive mechanism of counter-hegemony, a more in-depth analysis of how they interact with water resources was beyond the scope of this dissertation. Given that armed groups in the basin are increasingly taking up water management functions locally, more attention should be given to how they fit into the bigger picture of basin hydropolitics.

Throughout my dissertation, I highlighted power relations and the broader political context as key determinants of hydropolitical outcomes. However, these factors are not the only variables at play. Norms, identities, the value placed on water, and prevailing paradigms for water resources management also inform the nature of hydro-social relations between actors. Incorporating these elements into hydropolitical relations will yield a more holistic understanding of how patterns of water conflict and cooperation are produced and reproduced. Additionally, the relationship between the broader political context and hydropolitical outcomes can be quantitively assessed. Using my database of water interactions as a starting point, and with the creation of a similar database on broader political events, logistic regression analysis can be conducted to model the relationship between the broader political context and hydropolitics. Such an analysis can also be performed to determine if water-related cooperation has an effect on the improvement of interstate relations by positing water interactions with a positive BAR scale value along the peace scale developed by Goertz et al. (2016).

Contributions to the Literature

The goal of this dissertation was to respond to two limitations in the existing literature on hydropolitical analysis: the state-centricity of research on transboundary water conflict and cooperation and the exclusion of non-state actors from hydro-hegemony analysis. While research is beginning to understand that transnational companies, civil society, and international NGOs are important actors with a role to play in transboundary water interactions, the exact mechanisms through which these actors engage with transboundary issues under conditions of hydro-hegemony is unclear. Additionally, the broader political context is widely known to have a bearing on hydropolitical outcomes, but explicit connections between the two are rarely backed up by empirical evidence, and the nexus between domestic and international politics remains underexplored in context of transboundary waters. This dissertation responds to these gaps by taking a multi-scalar approach to two empirical cases: hydro-hegemony in the Jordan and the Euphrates-Tigris river basins. In doing so, the dissertation makes the following empirical contributions.

First, the dissertation provided explicit evidence of how the broader political context affects patterns of transboundary water conflict and cooperation. By constructing a database of water-related interactions for each case study, I was able to visualize how conflict and cooperation fluctuate over time. This made it easier to directly connect shifts, or inflection points, in patterns of conflict and cooperation with broader political events such as the outbreak of conflict or the signing of a peace treaty. Acknowledging that transboundary water conflict and cooperation occurs at multiple scales, my interactions databases included interactions that occurred between state governments and non-state actors as well as interactions that occurred between two sets of non-state actors. This allowed me to visualize the multi-scalar nature of conflict and cooperation and demonstrate how they may co-exist at different scales. Furthermore, the dissertation empirically demonstrated the importance of considering the nexus between domestic and international politics by showing that domestic factors such as the ruling political party or domestic discourses about water can influence hydropolitical outcomes.

Second, this dissertation highlighted the agency of non-state actors and showed how they can directly influence patterns of water conflict and cooperation. While asymmetrical power relations were at play in both case study basins, so-called weaker actors are not entirely helpless. By drawing on discursive power capabilities, often in a multitude of creative ways, non-state actors are able to directly shape hegemonic behavior. The Typology of Actions to Promote and Contest Hydro-Hegemony identifies specific actions that hegemons and non-hegemons take to promote or contest hegemonic

arrangements. This typology extends beyond existing research by offering concrete steps that non-state actors take to contest, and even transform unequitable transboundary water arrangements such as advocacy, creating new spaces for dialogue, and promoting alternative realities. The typology shows that many of the same actions used by hegemons are also used by non-state actors, although the latter tend to draw on a more diverse set of actions because their behavior is not constrained by the internal and international expectations that constrain state behavior. In doing so, I emphasize the multi-scalar nature of transboundary water interactions and empirically demonstrate why hydro-hegemony analysis needs to be rooted in a multi-scalar approach.

This dissertation also offers several conceptual contributions to the literature. Chapters 6 and 7 showed how hydro-hegemony is challenged and contested by a multitude of state and non-state actors, with varying degrees of effectiveness. If hydro-hegemony is true to its Gramscian roots and is premised on a mixture of coercion and consent, does it exist once consent is broken? The fact that consent can be broken by non-state actors challenges the state-centricity of hegemonic theory and calls for closer attention to be paid to scalar dimensions. Indeed, hydro-hegemonic arrangements do not always neatly fit into a Realist framework of governance given the waning authority of state sovereignty and the increasing overlap between state and non-state actors. The tendency of hydro-hegemony to overlook the role of national and transnational actors is also problematic given the dynamic nature of globalization and capitalism (Naidoo et al., 2007). This dissertation also extends our understanding of power by demonstrating the connections between scale and power. Both power and scale are determined by social dynamics and one may change in response to a change in the other. In other words, the exercise of power can create new scalar configurations as I demonstrate by showing how non-state actors utilize power to create new spaces for dialogue. Similarly, scalar dynamics can influence how power dynamics play out by determining who is and who is not involved in decision-making processes. By extending the analysis of power relations to include domestic and transnational actors, this dissertation enriched our existing understanding of the role of power in determining hydropolitical outcomes.

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APPENDICES

Appendix 1: International Freshwater Agreements in the Jordan and Euphrates-Tigris River Basins

Basin Name	Year Signed	Agreement Title	Signatories	Primary Issue Area(s)
Tigris-Euphrates	1946	Treaty of friendship and neighbourly relations, and six annexed protocols, signed at Ankara	Iraq, Turkey	Infrastructure/Development
Tigris-Euphrates	1975	Treaty concerning the state frontier and neighbourly relations (Algiers agreement)	Iraq, Iran	Border and Territorial issues
Tigris-Euphrates	1987	Protocol on matters pertaining to economic cooperation. Signed at Damascus	Syria, Turkey	Water Quantity, Hydropower
Tigris-Euphrates	1989	Law No.14 of 1990, ratifying the Joint Minutes concerning the provisional division of the waters of the Euphrates River	Iraq, Syria	Water Quantity
Jordan	1993	Declaration of Principles on Interim Self-Government Arrangements	Israel, Palestinian Liberation Organization	Economic Development
Jordan	1994	Treaty of peace between the state of Israel and the Hashemite Kingdom of Jordan, done at Arava/Araba crossing point	Israel, Jordan	Water Quantity

Jordan	1994	Agreement on the Gaza Strip and Jericho Area, May 4, 1994	Israel, Palestinian Liberation Organization	Borders/Territorial Issues
Jordan	1995	Israeli-Palestinian Interim Agreement	Israel, Palestinian Liberation Organization	Water Quantity
Tigris-Euphrates	1998	Minutes between Syria and Turkey on cooperation in fighting terrorism, signed at Adana, including Annex 2	Syria, Turkey	Water Quantity
Tigris-Euphrates	2001	Joint comminique between Republic of Turkey Prime Ministry Southeastern Anatolia Project Regional Development Administration (GAP) and Arab Republic of Syria Ministry of Irrigation General Organization for Land Development (GOLD)	Syria, Turkey	Technical Cooperation/Assistance
Tigris-Euphrates	2002	Agreement to Install a Syrian Pumping Station on the Tigris River	Iraq, Syria	Joint Management, Technical Cooperation/Assistance
Tigris-Euphrates	2009	Memorandum of understanding in the field of remediation of water quality	Syria, Turkey	Water Quality, Joint Management

		between the Goverment of the Republic of Turkey and the Government of Syrian Arab Republic		
Tigris-Euphrates	2009	Memorandum of understanding in the field of environment between the Ministry of Environment and Forestry of the Republic of Turkey and the Ministry of Environment of the Republic of Iraq	Turkey, Iraq	Water Quality, Joint Management, Technical Cooperation/Assistance
Tigris-Euphrates	2009	Memorandum of understanding between the Government of the Republic of Turkey and the Government of the Syrian Arab Republic in the field of efficient utilization of water resources and combating of drought	Syria, Turkey	Technical Cooperation/Assistance
Tigris-Euphrates	2009	Memorandum of Understanding between the government of the Republic of Turkey and the government of the Syrian Arab Republic on establishment of a pumping station in the territories of the	Syria, Turkey	Water Quantity, Infrastructure Development

		Syrian Arab Republic for water withdrawal from the Tigris River		
Tigris-Euphrates	2014	Memorandum of understanding in the field of water between the Ministry of Forestry and Water Affairs of the Republic of Turkey and the Ministry of Water Resources of the Republic of Iraq	Iraq, Turkey	Climate change, water quantity, agriculture
Tigris-Euphrates	2024	Framework agreement concerning the cooperation in the field of water between the Government of the Republic of Turkiye and the Government of the Republic of Iraq	Iraq, Turkey	Infrastructure, Flood Management, Drought Management

Appendix 2: Events Codebook

General Information

The database uses two terms to describe and track events: *events* and *interactions.*

- *Events*: This is the overall incident referenced in the new article(s). The *event* is singular regardless of the number of riparians involved. *Events* are comprised of *interactions*; an *event* and *interaction* are equivalent if there are only two actors.
- *Interactions*: If an incident involves multiple riparians and/or multiple basins, the *event* is broken into *interactions* determined by the country-pair interacting within the *event* (or country dyad) and basin involved. There is a row in the dataset for each *interaction* between countries and basins involved in an event.
    - Not every unique pair of riparians mentioned in an *event* must be included as an interaction. The number of interactions within an event is based on the roles and actions the parties play. Only interactions that are mentioned in an article should be coded as occurring within an event. An individual interaction should be coded for the initiator(s) and every recipient of the action. For mutual actions, every unique of entities involved in the mutual action should be included. If there is an outside entity that is not directly involved in the event, then an interaction should be included where they are paired with the initiator (See IRMO Codes).
- If there are multiple articles on the same event, all articles should be used to derive information and code. The source and publication information for all articles should be included.
- New codes added or revised are not applied to the original data and the first update, as the original text of articles is no longer available. For some of the events, certain codes may not be available and are unable to be corrected.

Coding Descriptions

A. INTERACTION NUMBER (Original: ID) [Applies to All Data]

This field provides a unique numerical ID number for each "interaction" or row in the database.

B. EVENT NUMBER (Original: UNIQUE_ID) [Applies to All Data]

This field provides a unique numerical ID number for each "event" and is applied to all the "interactions" (aka rows) that occur within an event.

- If there are multiple articles on the same event, all articles should be used to derive information and code. The source and publication information for all articles should be included.

C. DATE

This field indicates the date (or closest approximation thereof) of when an event occurred. This is not the date of the article's publication. All dates are entered in a month/day/year (four-digit) format. For meetings or events covering a period of days, the last date of the event is used, with additional date information covered in the event summary or comments fields. If only a year is available for the event date, it is still entered in the database in a month, day, year format, and the convention 01/01/year is used. If only a month and year are available, the 1st or 15th of the month is used as the day. A note is placed in the comment field that the date is an approximation.

D./E. CCODE1 and CCODE2

These fields contain the three-letter country codes for the countries involved in an interaction within an event. For each pair of actors, the country code used in the CCode1 column is the one **that comes first alphabetically**, based on the country codes.

- These codes are only for state actors in the interaction. The exception to this is when a relevant event is not between two state actors. These should be coded as the CCODE of the state and **OTH** for the non-state actor, in addition to the *Non-State Actor* code below.
    - **OTH** Other. This CCODE should be used for any non-state actor, such as funders, donors, sub-national groups and organizations, regional organizations, and other NGOs/IGOs
    - For events involving more than one state and non-state actors, the **OTH** code should not be used and the involvement of the non-state actors will be captured in the *Non-State Actor* code below.
- These are the country codes for the states involved during the date of the event, not the current state or for the geographic area the event applies to.

F. DYAD_CODE (Original 2002) [Applies to All Data]

This field is a concatenation of the fields CCODE1 and CCODE2, in that order.

G./H. COUNTY NAME 1 and COUNTRY NAME 2 (New 2022) [Applies to All Data]

These fields contain the country names for the State Actors associated with the three-letter country codes for the State Actors involved in the event. These should match, with CCODE 1 and Country Name 1 and CCODE 2 and Country Name 2. **CCODE 1 is the country code that comes first alphabetically.**

- These codes for State Actors in the interaction or when a non-state actor can be associated with a particular state (e.g. a NGO with an office in a given state). The exception to this is when a relevant event involves a non-state actor that cannot be associated with a state (e.g. ISIS or another transnational armed group). In this case, OTH is used as the country code for the non-state actor, in addition to the *Non-State Actor* code below.
- These are the country names for the states involved during the date of the event, not the current state or for the geographic area the event applies to.[99]

I. NON-STATE ACTORs

This code identifies if an external actor is involved in the event. This includes non-state actors, such as intergovernmental organizations, indigenous communities, private sector, NGOs, funding agencies, and RBOs that are not affiliated with the basin/country actors involved in the event.

Y – Yes, an external actor is involved in the event.
N – No, an external actor is not involved in the event.

J. NON-STATE ACTORS' DESCRIPTION

If the above code is Y, then list the external actor(s) involved in the event. If N, then leave blank.

[99] In 1988 the PLO declared the establishment of the state of Palestine. Everything before 1988 use PLO as country code, and Y for non-state actor. Everything after 1988 use PAL and N for non-state actor

K. LOCATION

Location, or best approximation of, of where an event occurred.

L. COUNTRY/ENTITY LIST

In this column are listed the names of **ALL** the countries or entities involved in an event (not just the country pair for that interaction row). Country names are spelled out and separated by a comma. Information in ( ) following a country names provides more specific identification information. For example, China (Yunnan Province); German Dem. Rep. (East Germany); Turkey (Kurdish rebels).

M. NUMBER OF COUNTRIES/ENTITIES

The total number of Countries and/or Entities associated with an event. The number in this column should match the number of countries/entities in the Country/Entity List column.

N. ACTOR SCALE

Denotes the operational level of each actor involved in the interaction. Individual actors are separated by a dash (-). Actor scales and a brief description of each are listed below:

- Domestic - Domestic actors operate within the boundaries of the state, below the level of the national government. Importantly, they are distinct from representatives of national-level government such as Ministers and Heads of State. Domestic actors include mayors or other governmental officials at the subnational level, media agencies, civil society, individuals, and non-governmental organizations.
- National – National actors are representatives of the national-level government. They include heads of state, ministers, and military forces.
- Interstate – Interstate actors interact across state borders to carry out their tasks. Such actors include joint commissions and river basin organizations.
- Transnational – Transnational actors are individuals, groups, or organizations that have trans-societal relations across country borders. They represent the organization of power beyond the state engage in coordination, regulation, and exchanges that transcend national boundaries (Thiel & Maslanik, 2010). Transnational actors include international NGO's (INGOs), intergovernmental organizations (IGOs), transnational corporations (TNCs), NGOs that operate across country borders, terrorist groups, and epistemic communities that extend across country borders. They include what we would typically think of as regional and global actors.

O. SCALE OF IMPACT

Refers to the impact scale of the interaction. Impact scale ranges from local, sub-basin, transboundary (extending across two states but not covering the entire basin), basin, regional, and global.

P. ISSUE_AREA Issue area identifies the main topical, content, and/or sectoral issues addressed by the event. More than one issue area can be listed, separated by commas. This should not be an exhaustive list of all issues addressed but include the main few areas specified.

Code	Events Description
Water Quality	Main area of focus on water quality concerns, including diverse sources and types of contaminants and pollutants.
Water Quantity	Main area of focus is on water quantity, including allocation.

Fisheries	Main area of focus is on fisheries as an economic and/or subsistence activity.
Hydropower	Main area of focus is on hydropower and hydroelectric dams and related facilities
Navigation	Main area of focus is on navigation, shipping, and water transportation.
Agriculture	Main area of focus is on agriculture, which can include issues related to both water quality and quantity, such as irrigation, agricultural runoff, and other agricultural uses.
Infrastructure	Main area of focus is on the planning, development, construction, operation, and/or maintenance of water-related infrastructure.
Climate Change	Main area of focus or area of explicit commitment is on climate change.
Environment	Main area of focus is on environmental issues, this is broadly understood and can include biodiversity, invasive species, fish species and habitat, ecosystem protection, ecosystem restoration, forest protection, erosion, etc.
Technical Cooperation	Events relating to technical or economic cooperation or assistance, including project evaluations or river surveys and funds for ranges of improvements to water-related technology/infrastructure
Flood Management	Main area of focus is on the management of floods or high flow periods. This can include forecasting, warning, preparation, control measures, flood response, and flood relief.
Drought Management	Main area of focus is on the management of drought or low flow/precipitation periods. This can include drought prediction, warning, drought control/mitigation measures, responses, and drought relief.
Funding and Financing	Main area of focus is on financial arrangements or issues. Includes both funding and financing arrangements. • Funding is defined as monetary support not needing repayment. • Financing is defined as monetary support needing repayment.
Territorial and Border Issues	Main area of focus is on the borders and/or territorial issues, including rivers as contiguous borders and territorial area claims within a shared water body (river island) or due to a changing border watercourse (meander).

Q. BAR_SCALE

A numerical score ranging from –7 to +7, with –7 denoting the most negative events, 0 denoting neutral events, and + 7 denoting the most positive events. See the table below for descriptions of the BAR Scale categories.

BAR Scale	Description
-7	Formal declaration of war
-6	**Extensive war acts causing deaths, dislocation, or high strategic cost:** Use of nuclear weapons; full-scale air, naval, or land battles; invasion of territory; occupation of territory; massive bombing of civilian areas; capturing of soldiers in battle; large-scale bombing of military installations; chemical or biological warfare.
-5	**Small-scale military acts:** Limited air, sea, or border skirmishes; border police acts; annexing territory already occupied; seizing material of target country; imposing blockades; assassinating leaders of target country; material support of subversive activities against target country; *capture of water infrastructure by state or quasi-state actor; large-scale destruction of water infrastructure by state actor or quasi-state actor*

-4	**Political military hostile actions**: Inciting riots or rebellions (training or financial aid for rebellions); encouraging guerilla activities against target country; limited and sporadic terrorist actions; kidnapping or torturing foreign citizens or prisoners of war; giving sanctuary to terrorists; breaking diplomatic relations; attacking diplomats or embassies; expelling military advisors; executing alleged spies; nationalizing companies without compensation; *local-level (village level) destruction of infrastructure by state actor; intervention in small-scale protests by state; mobilization of troops; violent protests*
-3	**Diplomatic-economic hostile actions:** Increasing troop mobilization; boycotts; imposing economic sanctions; hindering movement on land, waterways, or in the air; embargoing goods; refusing mutual trade rights; closing borders and blocking free communication; manipulating trade or currency to cause economic problems; halting aid; granting sanctuary to opposition leaders; mobilizing hostile demonstrations against target country; refusing to support foreign military allies; recalling ambassador for emergency consultations regarding target country; refusing visas to other nationals or restricting movement in country; expelling or arresting nationals or press; spying on foreign government officials; terminating major agreements; *seizure of property by state; halting negotiations; small-scale non-violent protests; withdrawal from agreement; local-level vandalism/property destruction by non-state actor; cutting off water access; unilateral construction of dam or other infrastructure; reducing flow of water to another country, abrogation of a water agreement.; litigation; threat to destroy water infrastructure from a state actor*
-2	**Strong verbal hostility:** Withdrawal of support; official statements that threaten further discord; official letters of complaint; threats to withdraw from a treaty; face-to-face disagreement
-1	**Mild verbal expressions of opposition or discord:** *Statement of disagreement in interview with news outlet); disagreement expressed by non-state actor; failing to reach agreement; communicating dissatisfaction through a third party*
1	**Dialogue, mild verbal exchanges:** *Meeting of government officials to discuss water sector issues; hosting of a conference or other platform for multi-party dialogue; visits by officials; request for meeting; meeting of non-state and state actors; comments about cooperation expressed through interview*
2	**Strong verbal support:** statements of agreement or cooperation; raising legation to embassy; reaffirming friendship; asking for help against third party; apologizing for unfavorable actions or statements; allowing entry of press correspondents; thanking or asking for aid; resuming broken diplomatic or other relations; *parties agree to enter into negotiations; joint site visits; report issued by non-state actor*
3	**Cultural or scientific agreements:** Starting diplomatic relations; establishing technological or scientific communication; proposing or offering economic or military aid; recognizing government; opening borders; conducting or

	enacting friendship agreements; conducting cultural or academic agreements or exchanges; *Agreements to set up cooperative working groups between states; financial agreement involving a country outside of the basin (foreign aid to water sector); any other agreement involving a non-state actor; agreement between non-state actors; signing of meeting minutes*
4	**Non-military economic, industrial, technological agreement:** Making economic loans, grants; agreeing to economic pacts; giving industrial, cultural, or educational assistance; conducting trade agreements or granting most favored nation status; establishing common transportation or communication networks; selling industrial-technological surplus supplies; providing technical expertise; ceasing economic restrictions; repaying debts; selling non-military goods; giving disaster relief; *financial agreement involving countries within the basin; agreement to undertake cooperative watershed management project (even if only verbal agreement made); water sales agreements; any other agreement between state actors; increasing water flow*
5	**Military economic or strategic support:** Selling nuclear power plants or materials; providing air, naval, or land facilities for bases; giving technical or advisory military assistance; granting military aid; sharing highly advanced technology; intervening with military support at request of government; concluding military agreements; training military personnel; joint programs and plans to initiate and pursue disarmament.
6	***International Freshwater Treaty*; Major strategic alliance (regional or international):** Fighting a war jointly; establishing a joint military command or alliance; conducting joint military maneuvers; establishing economic common market; joining or organizing international alliances; establishing joint program to raise the global quality of life.
7	**Voluntary unification into one nation:** Merging voluntarily into one nation (state); forming one nation with one legally binding government.